ALL THE BUSINESS YOUR CEO WOULD LOVE YOU TO KNOW

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A Comprehensive Guide To All Things Business

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ALL THE BUSINESS YOUR CEO WOULD LOVE YOU TO KNOW is *not* 'Business for dummies' but 'Business for thoughtful people – people for whom a hint is often enough.'

ALL THE BUSINESS provides a broad understanding of many useful management concepts from across all functional disciplines of an organization. The phrase that best describes this book is "business for non-business executives." It does not purport to impart deep functional know-how, just that portion of general management that is essential for executives. To that extent, it includes concepts from the disciplines of Marketing, Strategy, Accounting, Digital Strategy, Management, Business Law, Information Technology, Economics, Big Data, Global Management, Corporate Governance, and Human Resources.

The word *business* is being used quite liberally here. Many of the concepts learned from this book can be applied by not-for-profit organizations and by departments with internal customers. Such readers will be able to adapt the business concepts to their own organizations because of the style and way in which ALL THE BUSINESS is written.

The book is targeted at technologists and non-business specialist who because of their heightened role in organizations these days lack the bandwidth to consume information at disjointed levels of details from different sources. To appeal to the targeted audience, two meaningful characteristics have been purposely built into ALL THE BUSINESS. The broad-brush approach provides an effective, efficient, and quick read that is so desirable for busy executives these days. And the integrated multi-disciplinary coverage sensitizes the readers to the role and importance of each functional area. The latter makes them less biased toward any one area and less prone to inter-functional conflicts.

The choice of the business concepts to include in this book was made by asking multiple experts, professors and practitioners, the question, "what are the top ten or so most *useful* business concepts in your functional area for an average business person?" Since the key operative word was "useful," concepts ranged from the "101" level to the "801" level. The wide range of the complexity of the concepts necessitated the use of experts to layout the concepts.

ALL THE BUSINESS is written in a simple, intuitive manner. However, it does not exclude management vocabulary. Knowing business terms and their meanings is essential to expanding one's mind and communicating efficiently. In addition to simple and intuitive, the writing is very precise. Concepts that are not sufficiently differentiated from one another or are of marginal practical value are left out.

Concepts are also rendered in an integrated manner; in that, they are not presented by functional areas but by their applicability as determined by the evolving needs in an organization as it grows from a simple to a complex globally diversified one. Such a sequencing of concepts allows readers to better understand the reasons for the concepts' existence. However, concepts are presented with the expectation that the organization will grow into a formal, public one. When a situation arises wherein a poor decision in an early stage can come back to haunt the organization, the contents of the concepts are made complete enough to enable making decisions that are right for the future. As the saying goes, "if you want to become the president, you should start behaving like a president."

Nonetheless, the concepts are modularized. Readers can skip any when there is no interest. For example, a professional in an AI start-up can readily skip the chapters on information technology.

As an organization grows, it needs to focus on different aspects of management. In the first stage, for example, the organization should be focused on polishing off the value proposition – the exact features of the product (physical goods or services), the messaging, the honing-in of the segment – and on the profit-making ability of the product. In the second phase, the organization should set the stage for a culture of tracking and balancing the costs with the revenues by developing its accounting systems. In the third stage, the focus area ought to be growth, growing to be an attractive venture that can be financially backed. In the fourth stage, the organization must focus on running an entrepreneurial company, overcoming teething problems of a company that is getting large and is under the microscope. If the fourth stage doesn't end with an acquisition or merger, in the fifth and final stage, the emphasis is on operating a large global public company under the economic, technological, global and regulatory constraints of the environment.

Corresponding to the 5 stages of focus, ALL THE BUSINESS is organized into five sections:

Section 1 – Strategizing and Planning a Business

Section 2 – Revenues, Costs and Financial Numbers of a Company

Section 3 – Growing for Financeability

Section 4 – Running an Entrepreneurial Organization

Section 5 – Operating a Global Public Company

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Staying on Top of the Technological Environment

Staying on Top of the Global Environment

Introduction

Businesses sell goods (physical products) and services to individuals and other businesses. A clothing store sells physical products, a tutorial center delivers services, and a restaurant sells both goods (food) and services (cooking and serving) to individaul consumers. A cloud-hosting IT business sells services, and an aircraft manufacturer, physical airplanes to other businesses.

It is important to know the difference between a physical product (referred to as product from here on) and a service and the difference between selling to consumers and to businesses because they entail different strategies for success. Some key factors that differentiate services from products are:

- Services are intangible (they can only be experienced, not seen or touched).
- Services cannot be stored (for later use or consumption).
- The consumption and production of a service happen simultaneously, i.e., the receiver (person or thing) of service cannot be separated from the provider of service. For example, one receives a haircut as and when the hairdresser is delivering it.
- Services cannot be returned to the seller.

- Services by the same producer may vary from one time to another.

When a business sells to consumers, the business is said to be in the B2C (Business-to-Consumer) space. When a business sells to other businesses, it is in the B2B (Business-to-Business) area.

While there are a variety of different B2B and B2C products and services with each having its own selling nuances, the following distinctions can be said to be valid by and large.

- Usually, B2B purchases are in larger amounts or of higher monetary value than B2C.
- B2B contracts can often run for months or years. The repeat purchase rate is high as the costs of switching are usually higher than with B2C.
- The decision to buy in a B2B situation generally takes more time, involves more people, and requires more deliberation as the stakes are high.
- B2B clients usually put in a lot of effort into researching the specifications of the products and services before purchasing.

Irrespective of whether a business is selling a product or service and whether to businesses or consumers, it must ultimately make profits - money that flows in should be more than the money that flows out. To determine whether a business will be able to make profits, it needs to know 1) if there are enough customers who would want the product at the price it wants to charge, given the competitive products and prices, and 2) if the business can produce the product at a cost less than that price. (Not-for-profits and departments with internal customers would want to know if the total additional value, compared to status quo, received by customers will be higher than the total additional expenses.) As will be seen, these two simple questions can result in very complex decisions once all factors are considered. Some of these factors that organizations need to take into account are:

- **Product features and their quality**: A product can encompass a variety of features or attributes, both tangible and intangible.

The cost of providing these features varies, and so does customers' perception of the value of these features. In addition, sellers can control the quality of the features. What features, and at what quality, should an organization provide?

- **Segments to be served**: Since some customers value certain features, but others don't, who should the organization serve? Or in other words, how is the market segmented?
- **Methods to reach customers**: Do different segments need different distribution channels to reach them?
- **Abilities of the seller**: Does the organization have the capability to serve a particular customer segment? Does it need to develop some new capabilities?
- **Competitive stance**: How should it compete? Through price, better service, or better quality?
- **Logistics**: From where should the business source its raw materials? Where should it locate? How should it transport raw materials and goods?
- **Human capital**: What type of employees should it hire?
- **Organizational philosophy and culture**: What kind of technology infrastructure should it embrace? Or HR policies should it institutionalize? What business philosophy and organizational culture, e.g., innovation or customer intimacy, should the business adopt?
- **Financing**: How should the organization finance itself? What should the degree of debt vs. equity? What financial issues should it focus on to make them more palatable to shareholders?

When these complicating issues are in play, a deeper and broader inter-disciplinary understanding of business management concepts is required.

ALL THE BUSINESS delivers just that – a deeper and broader inter-disciplinary understanding.

SECTION I

STRATEGIZING AND PLANNING A BUSINESS

Strategic Planning is the process of choosing the right product for the right customers, given the competitive and environmental landscape. Strategic Planning goes by various names, including the 3 C's analysis (Company, Customer, and Competitor) and SWOT analysis (Strengths, Weakness, Opportunity, and Threats). This section discusses the analysis and determination of 1) a company's abilities to deliver the right product, 2) the right customers, 3) the competitive approach for current and potential competitors, and 4) the profitability of a venture.

Chapter I-1

Internal Analysis

By changing its offerings, a company can choose the customers it serves. This choice of customers determines the company's competitors. If these competitors are formidable, the company may look at another set of customers. Serving a new set of customers might entail developing new capabilities. The process of optimizing customers-products-competitors-company capabilities is an iterative one with many inter-related parts - change one, and others change; which in turn change the first one.

The analogy of a kaleidoscope comes to mind. The decision-makers ought to view different pictures before deciding on the best combination.

It is best to start with analyzing the extant internal strengths and weaknesses. The internal analysis, however, might be triggered by an opportunity because of a gap in competitive offerings or because of a change in the legal, technological, social, or economic environment.

When a company is an individual entrepreneur, one's skills and knowledge could be the strengths, as could possessing physical assets such as land or money.

At the organization level, strengths go by various other names such as Resources, Capabilities, and Core-competencies. These are described below. Whether it is a big business or a small one, existing or planned, these concepts are useful in helping businesses succeed well into the future.

RESOURCES, CAPABILITIES AND CORE COMPETENCIES

Resources of a firm can be tangible and intangible. Resources can also be called assets.

- **Tangible resources** are assets that can be observed and quantified. They are things that firms "have." Examples include property, personnel, raw materials, plant and machinery, finances, patents, trademarks, and copyrights.
- **Intangible resources** are assets that represent "how" a firm does business. They are typically rooted deeply in the firm's history and are accumulated over time. Intangible resources may be more valuable than tangible resources as they are less visible and, therefore, more difficult for competitors to analyze, understand, imitate, or purchase. Examples of intangible resources include 1) undocumented processes for innovation and improvement, which are embedded in an organization's culture and 2) the reputation the firm and its products has with customers and suppliers. Therefore, a competitive advantage based on an intangible resource can sometimes be more sustainable.

CAPABILITIES AND CORE COMPETENCIES

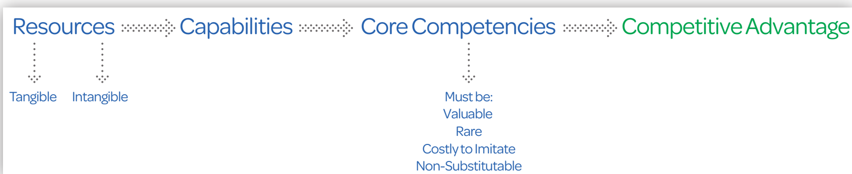
Capabilities are defined as the integration and interaction of specific tangible and intangible resources to achieve the desired business outcome. Some possible business outcomes include new product design, high-quality manufacturing, and superb sales teams.

Core competencies are the combination of resources and capabilities that are instrumental in delivering end-products that beat the competition by providing more value to customers over an extended period. Core competencies usually share a combination of these key characteristics:

- **Adaptable**: Able to exploit opportunities or neutralize threats in the external environment.
- **Unique**: No other current or potential competitors possess these capabilities.
- **Costly or impossible to imitate**: Cannot be easily developed by other firms or cost to develop is prohibitive.
- **Versatile**: Able to produce many end-products.

CREATING COMPETITIVE ADVANTAGE

Competitive advantage at the product or firm level is a set of inimitable and unique features of the product or firm that are perceived by the target market as significant and superior to those of competition.



Resources, Capabilities and Core Competencies are not stagnant. They can be and should be cultivated and expanded over time. In fact, the more one uses one's capabilities and competencies, the better they become. This is unlike expending some kind of resources that decrease with usage.

A fine example of developing and leveraging competencies comes from Amazon. After developing its own web platform for selling its own collection of products, it turned to helping other merchants "get online." Having seen its capabilities in handling the technicalities of Cloud Computing ever increasing, Amazon started offering Cloud Computing itself as a service. Now Amazon Web Services is a stronger arm of Amazon than its original retail business.

Chapter I-2

Competitive and Environmental Analysis

To be successful, a business needs to understand competition and the business environment.

- How many other businesses are providing the same or similar products and services?
- Who are the current market leaders in the industry?
- How is competition pricing its products?
- How do competitors' products compare in terms of features and quality?
- Is there a rise or fall in demand for the products being offered because of changes in the economic, legal, political, technological, and social environment?

Tracking competitors *closely* will also allow a business to know more about the best practices and benchmarks in the industry. For example, a software company might want to know the number or rate of software crashes and an automobile manufacturer the degree of automation in manufacturing for the best companies in their industries. Deep knowledge of the competitors helps in constant innovation and being able to compete in the future. As Michael Corleone in Godfather II profoundly said, "keep your friends close, but your enemies closer."

A simple conceptual discourse on Competitive and Environmental analysis comes next.

COMPETITIVE ANALYSIS

Competitive analysis is defined as an assessment of the strengths and weaknesses of current and potential competitors in an effort to categorize them into strategic groups. A **strategic group** is a group of competitors that serve the same set of customers with similar products, and have similar resources and strategies for serving those customers.

Strategic Groups – An Example

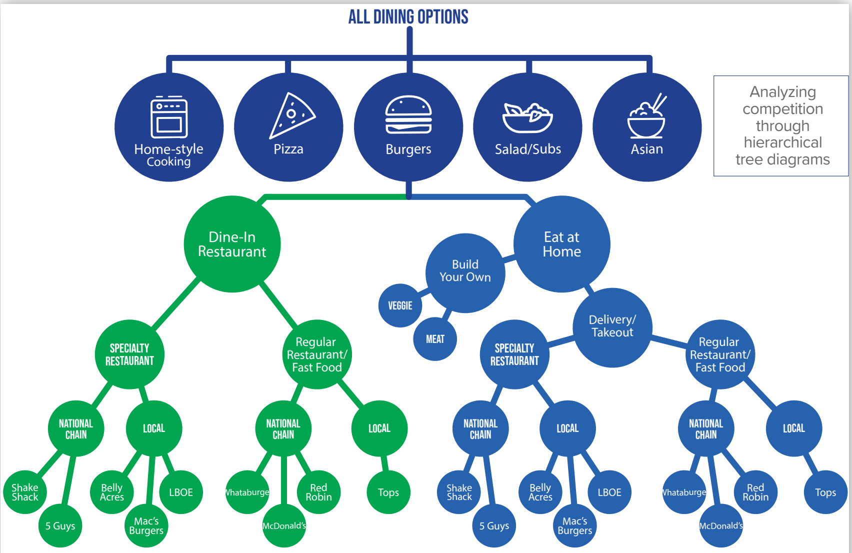
For example, in the pizza industry, there are at least 4 strategic groups:

- National pizza chains: Dominos, Pizza Hut, Papa Johns, Little Caesars
- Frozen pizza manufacturers who distribute through grocery stores: DiGiorno, Tombstone, Toni's, Red Barron
- Specialty pizza chains with freezer brands: California Pizza Kitchen, Wolfgang Pucks, Mellow Mushroom
- Local pizzerias: Memphis Pizza Café, Aldo's Pizza Pies

In analyzing a company's strengths and weaknesses, competition from each strategic group should be considered. In the particular case of the pizza industry, competition in one local geographic area might be quite different from the competition in another locality.

Another example of strategic groups comes from the evolving self-driving car market. The first strategic group is one that has strengths in mapping software such as Google and Apple. The second strategic group consists of traditional car manufacturers, GM, Ford, Volvo, BMW, Mercedes, etc. The third consists of pure-play electric car companies like Tesla and a dozen more. And the fourth strategic group comprises companies with core competencies in sensors – the critical components in autonomous cars.

Hierarchical Analysis of Competition



*Note, every category (i.e., pizza, etc.) must be evaluated in similar detail. Ultimately, your restaurant's competition may include strategic groups from other categories outside of your own burger sub-set.

Competition x Benefit Matrix

No two successful companies are exactly alike. In order to generate demand for your product, it must be differentiated:

- What can you offer that your competitors can't?
- What can you do better than your competition?

You can evaluate your competition through a **competition x benefit matrix.** First, determine the benefits sought by your market in general or provided by the product category.

Then evaluate your competitors' ability to provide the benefits sought. (A rating scale of 1-5 can be used; with 1 being "does not provide benefit well" and 5 being "provides benefit well.") For example, for a hypothetical set of burger outlets, a competition x benefit matrix may look like:

Competition x Benefit Matrix Example

	5 Guys	Burger Hut	McDonald's	Tops
Quality of Ingredients	4	5	1	1
Affordable Price	1	1	5	4
Level of Service	4	TBD	1	1
Product Prestige	4	1	1	1
Variety of Options	5	1	5	2
Taste	5	5	3	3

Substitute Competition

In addition to direct competitors, a firm should also take into consideration **substitute competition**. For example, a frozen pizza manufacturer (i.e., DiGiorno) may face substitute competition from similar products like Bagel Bites (Heinz) or Hot Pockets (Nestle).

Higher-level Competition

The above discussion has focused on competition at the product level. A similar analysis can be done at a business unit level or at a corporate level. In addition, firms can compete by bundling products with firms that do not have all the individual products. For example, Comcast with their Xfinity brand offers cable, Wi-Fi and security as a bundle to compete with Wi-Fi providers, e.g., Google Fiber, and pure security providers, e.g., ADT. Cable, itself, by bundling many channels competes with pure streaming channels, e.g., Disney +, pressuring them into deals with the cable company. Product bundling, and then pricing accordingly, is also a way to make cross-selling easier.

ENVIRONMENTAL ANALYSIS

Environmental analysis is conducted to examine external opportunities and threats.

Environmental scanning is defined as the collection and interpretation of information about forces, events, and relationships in the external environment that may affect the future of your organization and/or the implementation of your marketing plan.

Some of the most important environmental forces to consider are:

- Social
- Demographic
- Economic
- Technological
- Political and legal
- Potential future competitive

Environmental Changes Examples

WSJ

The newspaper industry and major publications, such as the Wall Street Journal (WSJ), were very prosperous over the past few decades. For years, these publications were the primary source for current event dissemination. More recently, the rise of technological advancements presented new challenges for these paper publications in recent years.

The internet is now one of the primary avenues for gathering information, and the widespread availability of computers, tablets, cell phones, etc., posed a significant threat. The WSJ conducted environmental scanning and discovered that its business model was still relevant but needed to adjust to a digital platform to remain relevant.

Next, the WSJ started offering online news subscriptions via daily emails and apps. By embracing these technological advancements, the WSJ has helped to secure its future for the time being.

Ghost Kitchens

The environmental trend of customers fancying delivery of prepared food has resulted in Ghost Kitchens sprouting everywhere. Like all products in any one competitive category, Ghost Kitchens, too, are differentiated in various features. But essentially, they are commercial kitchens that are rented out to perhaps multiple restaurants or chefs operating out of the same location. Or they are delivery-only restaurants - without seating.

These several types of Ghost Kitchens are targeted at different types of customers. Depending on whom a Ghost Kitchen serves, it may be more or less susceptible to environmental changes than others. Ghost Kitchens targeted at chefs who had to shut down their restaurants or got laid-off during Covid times are more precariously positioned than those targeted at caterers or current restaurants. This sensitivity to the environment is because once Covid is under control and restaurants open back up, such Ghost Kitchens will see their revenues suffer. Ghost Kitchens that offer restaurants the benefit of testing the market before opening a new location will be less sensitive to such environmental trends.

Yet another model of Ghost Kitchens is that of delivery companies running them to cook a variety of fast-selling items, with or without collaboration for branding. Their goal is to deliver food fast. In this case, the choice of locations of their Ghost Kitchens becomes more critical.

In short, the single macro-environmental trend of consumers desiring freshly prepared food has given birth to a variety of products targeted at different types of customers with different features.

Chapter I-3

Customer Analysis

Having analyzed the strengths and weaknesses of a business relative to competitors', the next step is to figure out the type of potential customers who would appreciate the differentiating strengths of your company or your product. Consumers and businesses are complex; they have different needs. What one person or business finds useful, another may not. Hence, the entire population cannot be treated as one homogeneous unit that can be satisfied with one product. By serving everyone, no one might be served. Conversely, it is generally impossible to satisfy each *individual* consumer's or business's needs. With the two extremes not necessarily being viable, the population of consumers or businesses might need to be categorized into homogenous groups based on some criteria. For example, the population can be classified into groups based on age, sex, income, or religion. If these variables are used, the classifying or segmenting is said to be based on demographic variables. Segmenting may also be based on the varied needs or preferences of the population.

What makes this theoretically simple concept considerably complicated practically is that there are a vast variety of variables that can individually and collectively be used to segment a population. A practical method to navigate through the myriad of variables is to develop the persona of the typical user of the product. For example, for an athletic shoe manufacturer, the persona-based target segments could be:

- Weekend joggers/runners, high-income, 25-35 years
- Hardcore amateur athletes, competitive
- Casual wannabe sports-people

Segmentation can practically be a daunting task, thereby making the understanding of the basic principles valuable.

MARKET SEGMENTATION AND TARGET MARKET

A **market segment** is a subgroup of people or organizations sharing some characteristics that cause them to have a similar product or service needs.

The process of dividing a market into meaningful, relatively similar, and identifiable segments is called **marketing segmentation**.

Why Segment the Market?

The purpose of market segmentation is to tailor your **product features, price, distribution, and promotion** to meet the needs of one or more specific segments that you choose to target and to ensure **competitive advantage**. This will allow you to create brand loyalty and repeat customers, thus ensuring a more profitable future for your business.

The benefits of segmentation are even more pronounced if the chosen segment can be reached more cost-effectively, e.g., targeted advertising. The rise of the domain of digital marketing can be partially attributed to the ability to target and reach a chosen segment. Traditional promotions, e.g., TV or print media, are less targeted and result in being cost-inefficient.

How to Segment the Market

Markets can be segmented by a single variable or by multiple variables simultaneously. An example of segmentation based on a single variable is gender (male or female). A company may target a specific gender segment if that made sense for the business.

An example of segmentation based on multiple variables could be:

1. middle-upper class factory and office workers
2. middle-class families
3. upwardly mobile college-educated younger professionals

The definition of all of the above segments would involve identifying and specifying many variables (income, wealth, number of family members, etc.).

To illustrate, let's consider some of the different classes of variables that can be used for segmentation.

- **Geographic**
- **Demographic**
- **Psychographic**
- **Benefit**
- **Usage-rate**

Geographic segmentation refers to grouping customers by **part of a city, country,** or **world.** An example of segmenting based on geography would be the car industry. Car manufacturers develop and market cars according to the needs of different geographies. While designing cars, they keep in mind the terrain and climate of the geographic segment they want to target. They also introduce and market economy or luxury cars based on the affluence of the country in which they operate.

Demographic segmentation uses four variables to partition the complete market: **age, gender, income,** and **ethnicity.**

- **Age**: marketers use a variety of terms to define certain age groups, such as newborns, infants, young children, tweens, generation Y, (teens, young adults), Generation X (twenties), baby boomers, seniors. Taking the example of the shoe industry, a shoe manufacturer catering to seniors will probably emphasize comfort while a manufacturer catering to the younger generation will focus more on the design and current trends.

- **Gender:** if you found that males were driving traffic to a particular restaurant and females were in tow, that is where you want to direct your marketing efforts to attract customers. While traditionally the gender demographic variable has been thought of simply as male or female, its complexity, including gender identity, gender fluidity, and non-binary, is more recognized today. The LGBTQ notion embraces all these as well as sexual orientation. From a business perspective, this has opened new opportunities. For example, whole new lines of cosmetics have been launched for the LGBTQ community. Some businesses are proactively targeting the LGBTQ segment by supporting their causes.
- **Income**: segmenting based on income makes sense when the product that is being sold appeals to individuals in a specific income bracket. If high-income customers were to be targeted, then the level of service, ambiance, and customer base would all need to reflect that.
- **Ethnicity**: the following ethnicities can be used for segmenting a market – Caucasian, African American, Hispanic, Asian, etc. In an increasingly diverse society, this can be a useful tool. You will want to consider if certain ethnicities have an aversion or increased attraction to your product offerings and allocate your resources accordingly.

Psychographic segmentation evaluates a consumer's **personality**, **motives**, or **lifestyle**. This type of segmentation is generally regarded as a better predictor of homogeneity of needs than demographic variables.

- Personality refers to a person's traits, attitudes, and habits.

- Motives refer to what the consumer cares about most (i.e., the need for status, love, health, etc.).
- Lifestyle segmentation divides people into groups by the way they spend their time, the importance of things around them, their beliefs, and their socioeconomic characteristics such as income and education.

Continuing with the shoe example, one manufacturer might design shoes made to look rugged and "outdoorish" even for regular wear if that is a segment it wants to target.

Usage-rate segmentation divides a market by the **amount of product purchased**. These segments can include

- Former buyers
- Potential buyers
- First-time buyers
- Light or irregular buyers
- Medium buyers
- Heavy buyers

Usage-rate segmentation is good for encouraging repeat purchases. Any one of the buyer groups can be targeted for special sales promotion.

Benefit segmentation is the process of grouping customers into market segments according to the **benefits they seek in a product**. In the shoe example, benefits for dress shoes may include comfort, quality of materials, durability, formal styling, and traditional or modern looks.

The picture below shows a hypothetical example of potential benefits sought from burgers and four segments who value the benefits differently.

Segmentation x Benefit Matrix

	Segment 1	Segment 2	Segment 3	Segment 4
Quality of Ingredients	4	**5**	1	1
Affordable Price	1	1	**5**	4
Level of Service	4	TBD	1	1
Product Prestige	4	1	1	1
Variety of Options	3	1	**5**	2
Taste	**5**	**5**	3	3

Selecting a Target Market

When the segmentation and competition matrices are placed next to each other as shown below, they aid in selecting a segment as a target. The basic idea is to match the benefits you provide or need to provide to the benefits desired by a segment. So, in the above example, if you choose to target segment 2, you would need to provide a high level of service. Providing the benefits desired by this segment will also set you apart from the competition.

There are three keys to making these matrices useful.

- Identify all the important benefits in the product category.
- Identify possible segments and their needs.
- ©Incorporate all the relevant competitors.

You might need to review several segments arising from different ways of segmenting before focusing on a few for more thorough analysis.

Segmentation x Competitor Matrices

	Segment 1	Segment 2	Segment 3	Segment 4
Quality of Ingredients	4	**5**	1	1
Affordable Price	1	1	**5**	4
Level of Service	4	5	1	1
Product Prestige	4	1	1	1
Variety of Options	3	1	**5**	2
Taste	**5**	**5**	3	3

	5 Guys	Burger Hut	McDonald's	Tops
Quality of Ingredients	4	**5**	1	1
Affordable Price	1	1	**5**	4
Level of Service	4	5 (Choose)	1	1
Product Prestige	4	2	1	1
Variety of Options	**5**	1	**5**	2
Taste	**5**	**5**	3	3

Once you have chosen a segment to target, you will need to paint a richer picture of the target market. Many of the variables discussed as the bases of segmentation can be used to profile the target segment. The more you know about your target segment, the better.

B2B Segmentation

The above discussion has focused on consumer products and markets. Although B2B markets have a much smaller population of customers, segmentation in B2B holds just as important a position as in B2C markets. Proper segmentation will help a business determine the market it is best suited to serve given its capabilities. Furthermore, as decision cycles are longer in B2B markets, it becomes even more important to identify the right target segment.

The most popular approach to B2B segmentation is the nested approach. The nested approach provides a hierarchy of variables on which to segment a market.

1. **Demographics:** To segment a B2B market, a marketer starts with Demographic variables. These variables include the **Industry** to be served, the **Geography** to be served and the **Size** (No. of employees, Revenue) of the companies to be served. After the selection of a large segment based on these variables, other variables are used to achieve smaller, more homogeneous segments.

2. **Operating Variables:** Operating Variables are related to how companies function. These include:

- *Technology*: Manufacturing firms can use different technologies to make the same product. Segmenting based on technology implies that the marketed product may be more suited for one technology than another.
- *User status*: Whether the segment to be targeted should be a user of the product or not. One could choose to target Non-Users, Light Users, or Heavy Users.
- *Customer Capabilities*: Customers' strengths and weaknesses determine the desired support level. A supplier of hazardous materials would want to choose between experienced and non-experienced customers because the support level required by the two would be significantly different.

3. **Purchasing Approaches:** It is important to know the purchasing processes and criteria of potential customers so that the best can be chosen based on the resources and capabilities of the selling organization. Points to consider while segmenting on Purchasing Approaches are:

    - Purchasing-function organization (How is the purchasing function of the firm organized)
    - Power structures within the purchasing organization
    - Emphasis on relationships vs. transactions
    - General purchasing policies
    - Salient product attributes

4. **Situational Factors:** Situational Factors are ones that are related to the specifics of the order, such as Order Size and Urgency. A supplier might want to focus on deliveries that are urgently required and, therefore, sold at premium prices.

5. **Personal Characteristics:** Finally, it's important to remember that although B2B purchases are supposed to be rational, the sale is being made to people in a firm. One could choose to sell to firms whose people have similar values, such as aversion to risk, loyalty, and ethics.

Chapter I-4

Satisfying Customer Needs

A marketer satisfies its customers' needs not only through the *product* the customer buys but also through the *place* from where the customer buys, the *price* the customer pays for it and the perceptions the customer has of the product because of the way it is *promoted*. These 4Ps (product, place, price, and promotion) are collectively called the **Marketing Mix**.

The marketing mix provides a business with a set of tools that when synergistically used, can positively position the brand to stimulate a greater demand from the target market.

THE 4 P's OF MARKETING

Product

The **product** is defined as the goods-and-services combination that a business offers its target market. The product portion of the marketing mix consists of the following components: the physical unit or core service with all its individual attributes, packaging, warranty, after-sale service, brand name, company image.

Of the 4 P's, the marketing mix usually begins with the product portion. It is hard to design a place, promotion, or pricing strategy without first knowing most of the product details. Here again, deciding on each of the elements of the mix might involve several iterations. (Think Kaleidoscope.)

For example, a car consists of nuts and bolts, spark plugs, pistons, headlights, and thousands of other parts. A car also comes with a comprehensive warranty. All of these components are considered a part of the product. An MRI machine besides consisting of a myriad of hardware and software components also comes with training manuals and classes for personnel, downtime guarantees, compatibility with other machines/computers, built-in safety features, and so forth.

Place

Place, or distribution, strategies are concerned with making your products available when and where your customers need them; otherwise known as putting the "right product, at the right place, at the right time."

For example, sodas are available at different locations (places) and also priced differently. For B2B products, the distribution issue is so important that a whole new discipline of Supply Chain has evolved. Supply Chain is discussed in a later section of the book.

Price

Price is defined as what a buyer must give up (typically a monetary value) in order to obtain a product.

For example, car companies calculate a suggested retail price that their dealers should charge for a vehicle. However, the dealers rarely charge full-ticket price. Instead, they can negotiate the price with each customer by offering discounts, trade-in allowances, and credit terms. These actions adjust prices for the current competitive and economic situations and bring them into line with the buyer's perceptions of the value of the car. Similarly, for B2B products and services where upfront prices are high, the seller might provide payment terms that ease the burden for the customer. Or charge is lesser upfront price but a higher price for maintenance and consumables.

The good news is that the price element is the most flexible component of the 4 P's. Marketers can raise or lower prices more frequently and easily than changing the other marketing mix variables. If your product is in high demand, you can slightly increase your price to increase revenue. If your sales are slow, you can offer a temporary price reduction to generate sales.

Price can often be a difficult component of the marketing mix. You must set a price that is perceived as reasonable by your customer, and that allows your business to remain profitable.

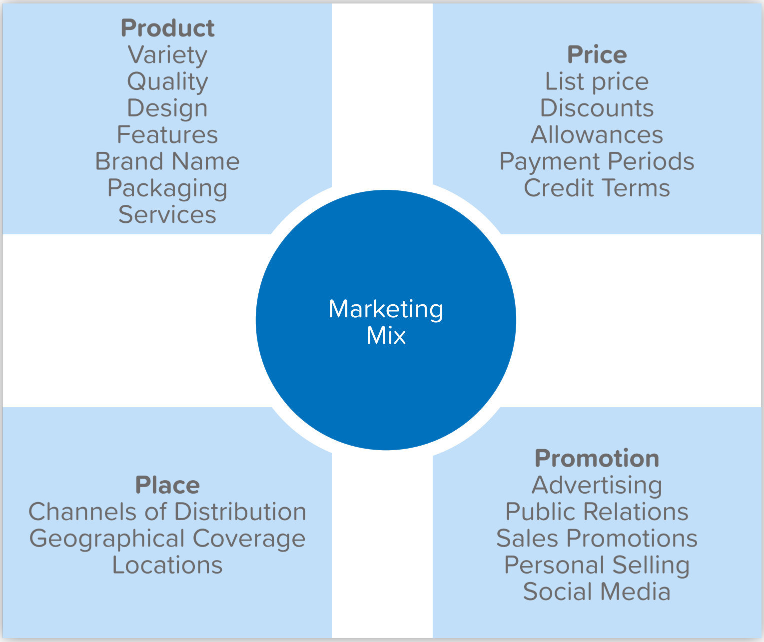
Promotion

The promotional aspect of the marketing mix are activities that communicate the merits of your product and persuade your target market to buy it. This is done by informing, educating, persuading, and reminding customers about the benefits of the product. Promotional strategies include

- **Advertising:** A nonpersonal, paid-for, persuasive form of communication about products, services, or ideas by identified sponsors through various media channels (TV, newspaper, radio ads, etc.).
- **Public relations:** A non-paid form of communication cultivated through strong relationships with a company's various publications to obtain favorable publicity, build a good corporate image, and handle or head off unfavorable rumors, stories or events. An example would be a positive article in a reputed newspaper or TV news on how a corporation handled a crisis.
- **Sales promotions:** A short-term incentive to encourage the purchase or sale of a product or service. For example, coupons, rebates, point-of-purchase displays, premiums, sweepstakes, sampling, and contests.

- **Personal selling:** A personal presentation by a business's sales force for the purpose of making sales and building strong customer relationships. This is a very important tool if the B2C product is complex, expensive, and the company has only a few major customers. And perhaps the most important tool for many B2B products and services. Personal selling is not always necessary for widely-distributed, low-cost, frequently bought products.

Car companies spend millions of dollars each year on national advertisements (i.e., television commercials, newspaper ads, etc.) to promote their brand. Dealership salespeople use personal selling to persuade potential customers that a particular car is right for them. Car companies also offer sales promotions – sales, cash rebates, and low financing rates – as added purchase incentives. They also work with car magazines and other media outlets to get favorable stories written about their cars. In the case of a crisis, they work hard to keep the negative publicity to a minimum.



The 4P's of Marketing

The 4 P's are collectively used to differentiate a brand from its competitors. How a business makes a brand stand out from others is the notion of **positioning**.

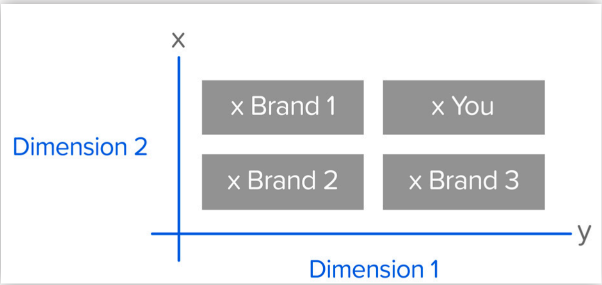
POSITIONING

Positioning strategy aims to make a brand occupy a distinct position, relative to competing brands, in the mind of the customer.

There are three steps to effective positioning.

- Assess the positions occupied by your competing brands.
- Determine the important dimensions underlying these positions.
- Choose a position in the market where your business's marketing efforts will have the greatest impact.

One of the most popular methods of depicting the position of a brand is by use of a perceptual map shown below.



Product/Brand Differentiation

A perceptual map shows the position your brand occupies as compared to other brands. This notion can also be described as how your brand or product is differentiated from others.

In the above perceptual map, the dimensions could be based on any one of the following: price and quality, product attribute(s), product use or application, product user, product class, competition or emotion for both B2B and B2C products and services.

Let's explore the various dimensions on which a perceptual map can be based.

Price and Quality Position

This positioning base may stress higher prices as a signal of quality or may emphasize lower prices as an indication of value. Consider the following examples:

- Saks Fifth Avenue and Neiman Marcus use the high-price, high-quality strategy.
- Walmart successfully follows the low-price, value strategy.
- Target uses an "in-between" position and classifies itself as an upscale-discounter by sticking to lower prices, but offering higher quality and design than most discount chains. (i.e., a "more for the same" strategy)

- More for more: brands offering prestigious, upscale products at higher prices (*i.e., Rolex, Louis Vuitton*)
- More for the same: brands offering comparable higher-quality goods at lower prices (*i.e., Lexus vs. Mercedes or BMW*)
- More for less: brands offering the highest quality products at the lowest prices on the market (*difficult for businesses to execute and*

remain profitable, therefore, used as a strategy to enter a market. Many products on internet use such a strategy, e.g., Dropbox.)

- The same for less: brands offering similar quality products but at discounted prices (*i.e., store brands vs. brand name OTC medicines*)
- Less for less: brands meeting consumers' lower quality requirements at significantly lower prices (*i.e., Motel 6 or Ramada Inn*)

Attributes as Dimensions

The positioned product is associated with one or more attributes, product features, or customer benefits relative to other products in the category. For example, Seventh Generation focuses on removing common toxins and chemicals from their cleaning supplies, so their products are safer for everyone in the household to use. So, in a perceptual map where toxins would be one of the dimensions, Seventh Generation would be low on that dimension. Mediquip, a French CT Scanner manufacturer, focuses on having the most advanced technical features as compared to its competitors.

Use or Application as Dimension

This positioning basis stresses the use or application of the product. Shakeology, a protein powder, positions itself as a meal replacement and weight loss aid rather than a tasty smoothie option. Use as a dimension was utilized by FedEx to position itself as the one to be used when the delivery was critical. FedEx was the leader in making information available to the shipper about their package. Their belief that "information about the package was as important as the package itself" led to their adopting the latest information technologies, giving customers a peace of mind for critical deliveries.

Product User as a Dimension

This positioning basis focuses on the personality of the target consumer. Consider the following

- Gap offers basic casual pieces, such as jeans and t-shirts, for mid-level prices suited for all age groups.
- Old Navy offers low-priced, trendy, casual wear geared towards youth and college-aged consumers.
- Banana Republic is a more upscale, luxury brand offering business and casual wear to young and middle-aged professionals.
- Gap Inc. owns all three companies. It avoids cannibalization, one strategic business unit's profits damaging the others, through effective and distinctive positioning.
- HubSpot focuses on smaller businesses than SalesForce.com.

Product Class as Dimension

Here, the objective is to position the product as being associated with a particular category of products. In today's market, margarine, like "I Can't Believe It's Not Butter," position themselves as another option in the butter category, unlike Land o Lakes margarine, which uses the positioning statement, "Add some flavor. Add some fun."

Competitor as a Dimension

Positioning against your competitor is a part of any positioning strategy. However, some businesses utilize a direct comparison. For example, Avis, the number two rental car company, adopted the positioning statement, "We try harder." This statement indicates to consumers that Avis will work harder for their business than the number one competing brand, Hertz.

Emotion as a Dimension

Emotional positioning focuses on how a product makes customers feel. Nike's "Just Do It" campaign was wildly successful even though it didn't tell customers what "It" was. Instead, this action-oriented phrase strategically played on consumers' emotions and their drive to succeed.

Multiple Dimensions within the Same Industry

Several types of dimensions were described above. Individual companies within a single industry can use different dimensions to position itself. Here are three companies' positioning statements on three different sets of dimensions *in the same industry.*

- BMW: "Ultimate driving machine" – Promotes the highest-quality product on the market – quality as the dimension.
- Infinity: "Makes luxury affordable" – Offers a comfortable yet still prestigious auto option for a lower cost than other top-tier brands – Price and Quality as the dimensions.
- Smart car: "Open your minds to a car that challenges the status quo" – Encourages customers to consider a car with a totally different look and set of appeals than other more traditional vehicles – status quo as a dimension.

More Positioning Examples

Another exciting example of *positioning* comes from prepared food delivery eco-system. Numerous delivery services have sprung up. Most of them are small and local. However, the big three, UberEats, DoorDash, and GrubHub are national, and they command 80% of the market share. In the supply chain for on-demand food delivery, there are three types of participants, restaurants, delivery companies, and diners. In one model for understanding this supply chain, the delivery company can be viewed as a distribution channel for the restaurants. In this model, the role of the restaurants and the delivery service is to collectively satisfy the end-customer, the diner. Such would be the case if the restaurants were the channel captains, i.e., the most influential players in the supply chains. However, given that the restaurant industry is fragmented, the delivery companies are turning out to be the channel captains. With them as channel captains, both restaurants and diners become their customers. The delivery companies sell to and negotiate fees with restaurants (a la B2B) and set flat fees and variable charges for the diners (a la B2C).

Depending on who the three parties are, the interaction between them can be quite varied. Many delivery services make available menus of restaurants on their own website so that customers can directly order from there. The menu prices on their websites can be higher than the menu prices on the restaurants' websites. (This probably is the case when restaurants do not pay the full fee to the delivery service.) Delivery services can also place their link/logo on the restaurants' websites. On clicking, the link takes the customers to the delivery service's website for order placement.

So, some of the factors (attributes of the "delivery product") on which delivery companies *position* themselves are:

1. Costs to the restaurant (% of check and additional flat fee)
2. Costs to the restaurant for value-added services, e.g., display ad during a search by diners
3. Costs to the restaurant for software integration with the restaurant's POS systems
4. Customer delivery fee – flat, or dependent on mileage and surge time
5. Customer service fee – flat per order or membership
6. Charges for food (restaurant menu prices or higher as in delivery company's website)
7. Payment methods – to delivery service or restaurant
8. Packaging
9. Door or curbside delivery

The net result of these costs and charges is that many times, customers do not know how much they need to pay until they check out. This pricing mechanism is not clear up front. Leading to yet another attribute, transparency, by which a delivery service can differentiate itself.

The name of the game for delivery service companies is network effects. The more the total number of apps downloaded by diners the more attractive the delivery company is to restaurants; and the more the number of restaurants in a delivery company's portfolio the more the incentive for diners to download the app.

REPOSITIONING

Repositioning is the process of changing consumers' perceptions of a brand in relation to competitors. Domino's Pizza recently repositioned its brand as a full-menu delivery option, in order to create a sustainable competitive advantage over their competitor, Pizza Hut. They dropped the "Pizza" from their name and repositioned their brand as simply "Domino's."

VALUE PROPOSITION

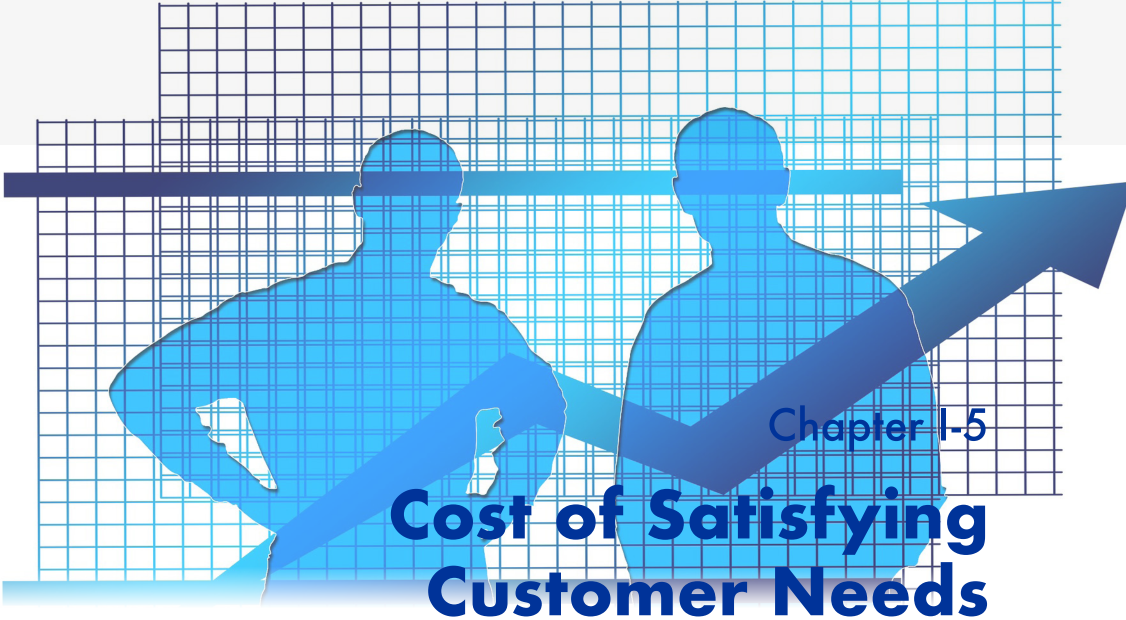
A positioning statement does not explicitly state the customer segment to which the product is targeted – just states how it is different from other brands. A **value proposition**, on the other hand, is a marketing statement that expressly states the target market the product/brand is meant for, the benefit it provides to that segment (relative to the competition) and provides a reason for the customers to believe your claim, all in a succinct manner. A proforma value proposition statement could look like this:

To (Target Market) (Name of Company) will provide
(Product/Service Benefits) because (Reasons to Believe)

The value proposition is not always about providing the best quality product or services. Customers may not desire that. Quality is what the customer wants. For example, if you are a regional accounting firm serving individuals and small and medium businesses the value proposition could contain points like: we know our customers through forming long-term relationships, we hire local graduates, prices are affordable, and so forth. The crafting of value proposition statements can be difficult as much has to be communicated in few words and in a positive way.

The value proposition directs where an organization spends its money. If a value proposition promises high quality, investments will need to be made in the best quality raw materials, people, and other assets. If the value proposition talks about an affordable price for the customer, the focus should be on keeping the costs low.

So far, through all our discussions, we have assumed that the revenues generated at the chosen price point would be sufficient to cover all the cost the business incurs in producing and selling the product. To ensure that that is the case, the costs of producing a good or service should be known. Value propositions should be adopted only after costs are well understood. The next chapter explores knowing and grasping the costs.



Chapter I-5

Cost of Satisfying Customer Needs

Costs can broadly be classified into two types: Variable costs (VC) and Fixed costs (FC).

To understand these costs better, consider the example of starting a burger restaurant.

Variable costs include direct material costs and direct labor costs that are necessary to make hamburgers. As the name indicates, variable costs will change depending on the level of production.

Gourmet ground beef	$2.00 per ½ lb. patty
Good quality hamburger bun	$0.50 each
Lettuce and tomatoes	$0.25/burger
Recyclable paper plates	$0.25
Fork, knife, spoon, napkin and salt-pepper sets	$0.25 each.
Cheese slices	$0.25 each.

These costs add up to $3.50.

A **fixed cost** is a cost that does not change with an increase or decrease in the number of hamburgers produced. Fixed costs are expenses that you will have to pay, independent of the store's volume of sales. (If you can't let go of some workers easily when sales decline, those labor costs will need to be classified as fixed instead of variable.)

Rent	3,500 x 12 months	42,000.00
Utilities	250 x 12 months	3,000.00
Capital Equipment	14,750 / 5 years	2,960.00
Paraphernalia		500.00
License		1,500.00
Cooking Oil		3,500.00
Total FC for year		53,450.00
FC for a day		153.00

(350 working days/year)

Once fixed and variable costs are determined, the amount of profits at different levels of sales can be calculated for any selling price.

The breakeven point is the number of units of a product/service that needs to be sold to recover all the costs, i.e., 0 profits. Beyond this point, revenues exceed total costs, and profits will be made.

Let X be the number of hamburgers sold.

VC is the variable cost for each hamburger, and FC are the fixed costs.

The total cost (TC) of producing X hamburgers is:

$$TC = X \times VC + FC$$

The total revenue realized from selling X hamburgers is X×SP, where SP is the selling price of each hamburger.

The Breakeven Point is where the Total Revenue equals Total Cost. The formula, therefore, is $X \times VC + FC = X \times SP$. And the Breakeven Point X_p is $X_p = \dfrac{FC}{(SP - VC)}$.

When conducting a breakeven analysis, incorporation of fixed costs can be tricky. Generally, a period of one year is taken to calculate the breakeven quantities. Some capital equipment can last for 10 years and others less. So, the fixed costs associated with capital equipment need to be spread over the life of the equipment. For breakeven calculations, a simple division by the life of the equipment is sufficient.

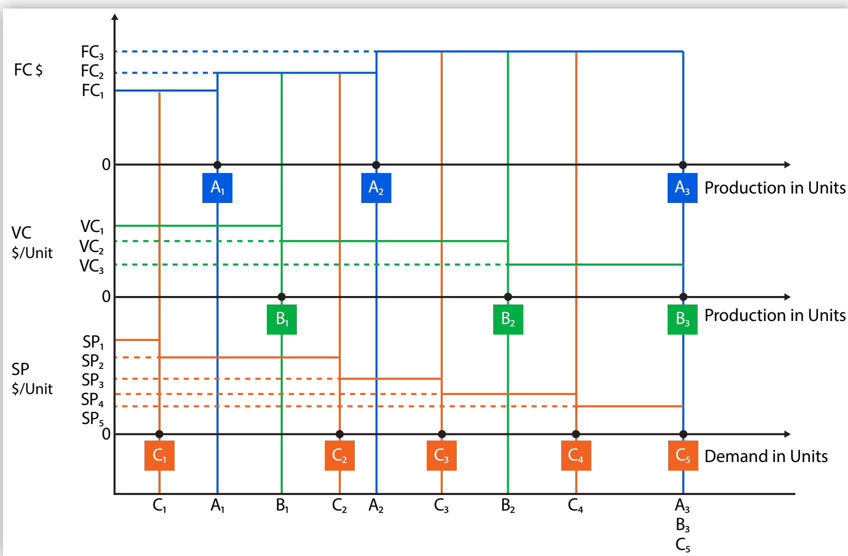
Additionally, in most applications, the fixed costs change with large increase in production volume. This is because each machine or person has a limited capacity to produce. Once that capacity is reached, more machines or persons need to be added. This results in a discrete jump in fixed costs.

Similarly, variable costs can decrease with an increase in volume. The decrease may be due to suppliers giving discounts for larger purchases.

Finally, the amount that can be sold is indirectly proportional to the selling price. In other words, the higher the price the less the demand. Here, too, the movement is discrete – a 0.1% decrease in price will not see an increase in demand.

All three of these scenarios are shown in the graph below. Also shown in the graph are all the regions for which BE will need to be calculated. Note that each region has a constant FC, VC, and SP. The table following the graph exemplifies all the break-even points and how one or more can be chosen.

Multiple BE Points or None



	Range	FC	VC	SP	
R_1	$0\text{-}C_1$	FC_1	VC_1	SP_1	BE_1
R_2	$C_1\text{-}A_1$	FC_1	VC_1	SP_2	BE_2
R_3	$A_2\text{-}B_1$	FC_1	VC_1	SP_2	BE_3
R_4	$B_1\text{-}C_2$	FC_2	VC_2	SP_2	BE_4
R_5	$C_2\text{-}A_2$	FC_2	VC_2	SP_2	BE_5
R_6	$A_2\text{-}C_3$	FC_3	VC_2	SP_2	BE_6
R_7	$C_3\text{-}B_2$	FC_3	VC_2	SP_3	BE_7
R_8	$B_2\text{-}C_4$	FC_3	VC_3	SP_4	BE_8
R_9	$<C_4, <C_5$	FC_3	VC_3	SP_5	BE_9

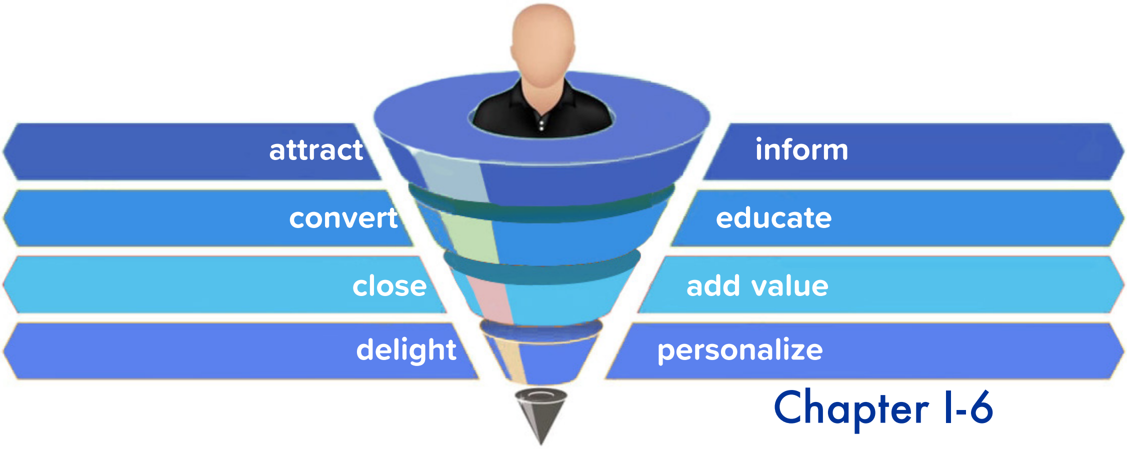
If BE_i is within R_i, then BE_i is legitimate & profits can be calculated for within range i

If BE_i > upper limit of R_i, new BE point needs to be calculated using those FC & VC

If BE_i < lower limit of R_i, the whole range i is profitable

If multiple BE points are found, one that makes most business sense can be chosen

If no BE point can be found; FC & VC need to be decreased (by cost cutting)



Chapter I-6

Customer Value-Add/Get-Give

Customers give up money in exchange for getting value from a product or service. If the customers do not perceive that the benefits are greater than the associated costs of the purchase, usage, and disposal of a product, they will not purchase the product. On the flip side, if the selling price is not higher than the costs, the seller will not remain in business. (Of course, the seller may postpone making profits by getting customers to try the product free or at a reduced price, but in the long run, more revenues need to come in either through increased price or through sales of other accompanying products.) The key, therefore, for a seller is to price the product lesser than the benefits to the customers and higher than its costs. One of the sources from which customers form a perception of the value of benefits is the current costs they incur for similar benefits. These similar benefits could be from the closest substitute or competitors' products. In sum, the three important factors to take into consideration in making a pricing decision are the cost of the product, cost of the closest competitive/substitute product, and the amount the target segment is willing to pay.

These three factors lead to three basic pricing strategies.

Cost-plus Pricing

Cost-plus Pricing, as the name suggests, is a strategy where the price is selected based on the total cost of the product. It is as simple as adding X% to the cost of the product. X might be determined by the targeted "Return on Investment," some absolute profit amount, or by some other benchmarks.

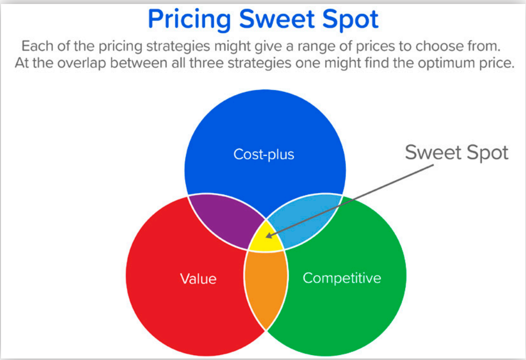
Competitive Pricing

Competitive Pricing of a product is based on the prices of the closest competitive products. One can then price the product (marginally) higher or lower than the price of the competitors.

Value Pricing

Value pricing is based on the amount a consumer is willing to pay for the product. Perhaps the best way to describe value pricing is through the example of airline ticket pricing. It is possible to fly 2000 miles from city A to city C via city B at a lesser price than directly flying from city A to city C, a distance of only 500 miles. This is because passengers are willing to pay more for direct flights than for ones with stopovers. Stopovers are costs due to the extra time spent on traveling and the inconvenience of changing flights.

Each of the pricing strategies might give a range of prices to choose from. Within the overlap of the ranges of possible price points suggested by the three strategies, one might find the optimum price.



Subscription Pricing

Recent trends have seen a sharp increase in Subscription Pricing. This concept is best illustrated by the pricing strategy of Dollar Shave Club, now acquired by Unilever. With Subscription Pricing, customers pay a membership fee per period that entitles them to certain products or services on a regular basis for that period. Or the fee entitles customers to shop the company's products, e.g., Costco. The financial eco-system loves subscriptions as it is easier for them to assess the valuation of the company.

Finer Pricing Strategy and Tactics

A **price strategy** is defined as a basic, *long-term* pricing framework that establishes the initial price for a product. The base price is important as that price point attracts some potential customers more than others. It can also send a message to the customers regarding the quality of the product. The three basic pricing strategies, cost-plus, competitive, and value, can be augmented by:

- **Skimming** – In this strategy, the product is priced high. Opinion leaders and early adopters generally buy at this price level. When the product has attained initial acceptance, or if competition comes in, the price can be dropped.
- **Penetration** – With this strategy, the price is set low to capture as much market as possible – late majority and laggards along with early adopters. This pricing strategy also signals to competition that there isn't much profit to be had by entering this market with a me-too product.
- **Pay What You Want** – This strategy lets customers pay what they think the product is worth. (This sounds like a very risky tactic, but some restaurants have found this to be very profitable. Social pressures keep customers from wanting to appear cheap or poor, so the typical donation is higher than the product's base price.)

In addition to a price strategy, **pricing tactics** are used to fine-tune the results from a pricing strategy. These tactics include

- **Odd-Even Pricing** – Some psychological theories suggest prices ending with odd-numbers are perceived to be lower than prices with whole or even numbers. Thus, a price of $99.95 will be perceived to be "significantly" lower than $100. Similarly, prices with whole numbers indicate quality, e.g., $15 indicates more quality than $14.99.
- **Price Bundling** – Marketing two or more products in a single package for a special price (e.g., offering burger, fries, and soda at a price that is lower than if the customer purchased each product separately).
- **Quantity Discounts** – Buyers get a lower price per item when they purchase larger quantities (e.g., a restaurant might offer one free burger for every nine bought).
- **Time-dependent Discounts** – Offering a price reduction for buying at a particular time, day or period (e.g., carwash may be discounted on Tuesdays when traffic is slow).

It has been mentioned earlier that the price component of the 4P's is the most flexible, it can be changed rather easily as compared to let's say changing distribution channels. However, changing prices can be tricky. A large decrease in price may signal to the customers that the firm is not doing well, and, similarly, a large increase may signal gouging. By and large, economists and businesses assume that changes in price change demand. And this is the notion of **price elasticity** - a measure of *how much* the demand for a product changes with a change in price. An **elastic demand** implies a situation where an increase in the price decreases the demand and a decrease in price increases demand. On the other hand, **inelastic demand** implies a lack of changes in demand to changes in price. It is generally very difficult to estimate the elasticity of demand, but it is an important reminder for business owners of the risks in arbitrarily changing prices.

SECTION II

REVENUES, COSTS AND FINANCIAL NUMBERS OF A COMPANY

As has been emphasized in the first section of the book, profitability should be targeted right in the strategizing and planning phase itself. This section delves deeper into revenues and costs by addressing issues like 1) how are they tracked, 2) when are revenues realized (made available to the organization) and when are costs considered incurred, 3) how are excess revenues cycled back to stockholders, and 4) how does an organization judge its economic performance.

Chapter II-1

More on Costs, Revenues and Profits

Many times, managers develop a tunnel-vision toward their own discipline, thinking that their discipline is the most important one. It is not uncommon to find, for example, marketers wanting to spend on marketing related activities or IT professional on the latest hardware and software, perhaps at the expense of each other. This phenomenon of inter-functional strife is not on the mend, however. With increasing specialization, heels are being dug even deeper. Besides the solution of promoting cross-functional understanding, another solution for the problem of divisions between disparate functional areas resides in the unifying glue of revenues and costs. The glue works by advocating the use of the cost-benefit framework for all major decisions.

DIRECT AND INDIRECT COSTS

Earlier, we had discussed fixed and variable costs. There is an additional concept of Direct and Indirect costs.

Direct costs – These are costs, material or labor, that can be directly tied to a particular product or service. In our example, some of the direct costs of a burger are the meat, the bun, the lettuce and the tomato (i.e., all of raw ingredients that can easily be tied to one particular item, burger). Direct costs are normally variable costs, but not always. If an employee gets a fixed salary and works only on one product, that would create a direct cost that was fixed. Direct costs are also called Costs of Goods Sold (COGS) and are subtracted from the revenues to get to the gross profit.

Indirect costs - Those costs that cannot (without great difficulty) be tied to a particular product or service. A software developer develops, updates, and maintains a generic algorithm that is used with modifications in several different apps of a company. It would be very difficult to directly connect how much of the coder's salary might be a part of the cost of developing any one app.

Indirect costs may be referred to as **overhead** and may be variable (like hourly wages) or fixed (like rent). Since indirect costs cannot be *directly* tied to a certain product, they are *allocated*, meaning that they are divided across all products.

Continuing with our hamburger example, the table below shows the relationship between the types of costs.

Relationships between Types of Costs

	Direct/Indirect?		Fixed/Variable?	
	Direct Cost	Indirect Cost	Variable Cost	Fixed Cost
Buns, Meat	X (Direct Material)		X	
Condiments		X		X
Supervisor		X		X
Hourly Workers	X (Direct Labor)		X	
Equipment		X		X
Rent		X		X
Oil		X		X

CASH vs. ACCRUAL BASIS OF ACCOUNTING

When one thinks of profits, the first thing that comes to mind is total revenue, less total expenses. This is the simplest method of calculating profits. Complications arise when all the benefits of expenses that are incurred in one period are not realized in that period itself. Consider this example. Let us say that you have opened a store and have spent $100 on opening-day promotions. Let us also assume that you are looking at profit or loss on a *daily* basis. You can book this expense of $100 in two ways – enter the $100 expense as the amount spent on the first day itself or spread it over multiple days:

(a) If you choose to expense the entire cost of $100 on the opening day itself, it means you are implicitly assuming that the entire benefit of the promotions accrued on the first day itself. This method of booking the entire $100 in the first day itself, will drastically reduce your profit on the first day and show an increase in profits from the second day onwards (considering all other factors are equal).

(b) If, however, you anticipate that the effects of the promotions will have an impact for at least 10 days, you could expense 1/10th of the promotions cost over the first 10 days (i.e., $10 per day). This will give you a better representation of your performance as measured by the daily-profits number.

The example above illustrates two different accounting methods: Cash Basis and Accrual Basis of accounting. Many small businesses utilize the Cash Basis of accounting. They just keep books that track where the money is coming from and where it is going; who owes you and who you owe. Governments allow this informal method of record-keeping. However, large companies generally use accrual basis accounting because they are required to follow specific accounting rules when recognizing revenue and expenses.

In addition to costs, revenues too are realized differently in the two approaches of cash vs. accrual. The following charts explain the two ways of revenue and expense reporting and their differential impact on profit and loss.

Cash Basis vs. Accrual Basis Accounting

Cash Basis	Accrual Basis Accounting
Revenue is recognized when cash is received.	*Revenue is recognized when a service or product is provided (earned).*
Expenses are recognized when cash is paid.	*Expenses are recognized when the purchased product or service is used (also called when expenses are incurred.)*

Revenue Recognition

		Accrual Basis	Cash Basis
March 2016	Company **receives $5000 cash** from customers for Hawaiian cruise in April.	NO	**YES**
April 2016	Company **provides cruise services** to customers.	**YES**	NO

Expense Recognition

		Accrual Basis	Cash Basis
March 2016	Company **pays $450 for supplies** to be used next month.	NO	**YES**
April 2016	Company **uses all the supplies** purchsed last month.	**YES**	NO
	Company **pays $500 cash** for **fuel used** during the cruise this month.	**YES**	**YES**
	Employees **earn salaries** of $1000 but will not be paid until next month.	**YES**	NO
May 2016	Company **pays $1000 cash** to employees for salaries earned last month.	NO	**YES**

Impact to the Income Statement

Accrual Basis has recognized the revenue when it was earned and expenses when they are incurred creating an income statement that better represents the company's actual profit.

Accrual Basis	Cash Basis
March Income Statement Revenue $0.00 Less: Expense $0.00 **Net Income** **$0.00**	**March Income Statement** Revenue $5000.00 Less: Expense $450.00 **Net Income** **$4,550.00**
April Income Statement Revenue $5,000.00 Less: Expense $1,950.00 **Net Income** **$3,050.00**	**April Income Statement** Revenue $0.00 Less: Expense $500.00 **Net Income** **($500.00)**
May Income Statement Revenue $0.00 Less: Expense $0.00 **Net Income** **$0.00**	**May Income Statement** Revenue $0.00 Less: Expense $1,000.00 **Net Income** **($1,000.00)**

Cash Basis only followed the flow of cash in and out of the company. For this particular type of business it does not represent the company's profitability well.

Effects of that
Impact to the Income Statement

	Accrual Basis	Cash Basis
March Income Statement		
Revenue	$0.00	$5,000.00
Less: Expense	$0.00	$450.00
Net Income	**$0.00**	**$4,550.00**
April Income Statement		
Revenue	$5,000.00	$5,000.00
Less: Expense	$1,950.00	$950.00
Net Income	**$3,050.00**	**$4,050.00**
May Income Statement		
Revenue	$5,000.00	$0.00
Less: Expense	$1,950.00	$1,500.00
Net Income	**$3,050.00**	**($1,500.00)**
June Income Statement		
Revenue	$0.00	$0.00
Less: Expense	$0.00	$1,000.00
Net Income	**$0.00**	**$1,000.00**

It is more favorable to show steady income rather than periods of large gain. Using cash basis a small company may never truly know the profitability of their company if they do not recognize the expenses when they are incurred and revenues when they are earned.

PROFIT AND LOSS

A Profit and Loss (P&L) statement is a list of revenues from all sources, products or divisions and a list of all types of expenses. More will be discussed about P&L statements later. But now we discuss the calculations of a key raison d'être of businesses, profitability – gross and net profits and margins.

Gross Profit

Gross profit is the difference between total revenue and the total direct cost of sales, known as the **cost of goods sold (COGS)**. Gross profit per unit can also be calculated as the Selling Price/unit – COGS/unit.

Gross profit shows you how much money you're making before you start to cover other costs that aren't directly tied to your products.

Gross Margin vs. Gross Profit

The P&L statement will also usually include a percentage next to gross profit – this is the **gross margin**, which is calculated as gross profit divided by gross revenue.

Gross Margin is (Gross Profit/Gross Revenue)*100%

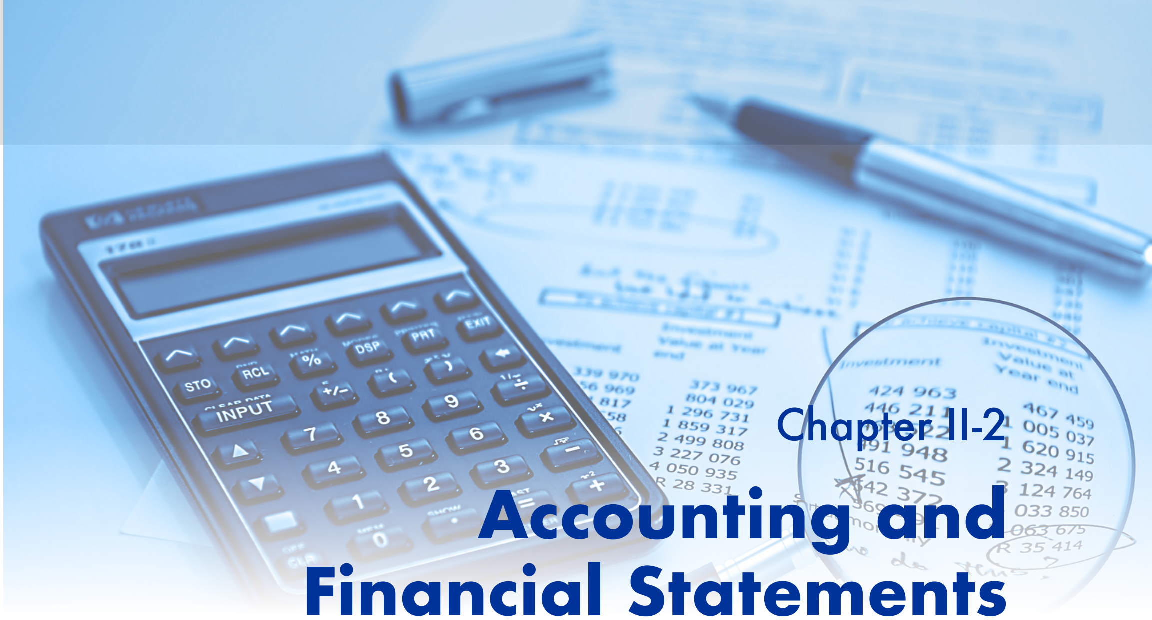
Because it is a percentage, gross margin is easier to compare across periods and derive information about possible trends that may exist within your business. You can use this information in order to get a better picture of how you're using your direct costs to generate revenues.

Gross margin is also called **contribution margin** when a firm has multiple products. It is used as a tool to compare products within the same period to see which ones are making the firm the most money.

Net Profit and Net Margin

The P&L statement also shows **net profit** and **net margin.** These constructs are similar to gross profit and gross margin. To calculate net profit, all types of expenses have to be subtracted from the gross revenue, including fixed costs and one-time costs such as R&D and product launch. The formula for net margin is net profit divided by gross revenue.

In a P&L statement, gross profit may be positive and healthy, but the net profit could be negative if the fixed or indirect costs are very high. It means that the contribution from all products is unable to cover the money invested in running a business. Usually, new companies and industries which require significant R&D before launching a product, such as the pharma industry, have such a P&L statement.



Chapter II-2
Accounting and Financial Statements

The above notions were very simple "book-keeping" kind of concepts. Book-keeping is the first step in accounting that is rather straight forward and doesn't require professionals. Accounting is a higher-level process that produces financial statements while taking into account the rules and regulations of the city, state, and country of the business operations.

The accounting discipline relies on two very important constructs:

a) Main Accounting Equation

The amount owned by the shareholders of the firm is equal to the assets of the company less the liabilities (the amount owed to creditors). Or, as it is usually stated:

Assets = Liabilities + Stockholder's Equity

b) Double-entry principle

The double-entry principle states that at least two accounts must be impacted by any one transaction. At least one account is credited, and at least one is debited. The total amount of debits must equal the total amount of credits so that the above equation holds true always.

The goal of accounting is to finally produce statements about a firm's financial health that can be used by investors, banks, government regulators, and potential investors. To produce such statements reliably, many standard procedures are used as exemplified by the two above.

The Main Accounting Equation

Assets	=	Liabilities	+	Stockholders' Equity
Cash, Accounts Recievable		Accounts Payable		Stock
Supplies & Inventory		Unearned Revenue		Retained Earnings
Equipment, Patents, Brands Value and Goodwill		Notes Payable		
These are different types of Assets		These are different types of Liabilities.		These are different types of Stockholders' Equity.

THE MAIN ACCOUNTING EQUATION

Assets – Assets are resources the company owns and uses to run the business. Assets can be tangible or intangible. They also vary in terms of how *liquid* they are. Cash or easily convertible to cash within a year are liquid assets whereas machinery and land are the least.

Liabilities – These are debts owed to creditors of the firm. Current liabilities are generally due within a year for supplies, rent, utilities, salaries, etc. Long-term liabilities (e.g., notes payable) are due in more than a year and may bear interest. Unearned (or deferred) revenue, another type of current liability, is pre-payment from customers for goods and services to be provided at a later date.

Stockholders' Equity – Equity is the amount of owners' investment plus all the earnings that the firm accumulates/retains from its operations. Note that if money is taken out of the firm, e.g., in the form of dividends to one or more owners, retained earnings will decrease by that amount.

SOME IMPORTANT TYPES OF ACCOUNTS

As mentioned earlier, accounting implies creating and keeping accounts that meet the requirements of the relevant laws. One such law relates to sales tax. Certain businesses need to pay a tax on the sale of goods and services. This sales tax is a legal obligation in many states and countries. So, if you are in a business that is liable to pay this tax, you need to ensure that you have enough money to pay sales tax whenever it is due (usually, every month).

To keep track of the amount of sales tax due, you could create an account, Sales Tax Payable. The amount payable increases on a daily basis, proportional to the amount of goods sold. The increase in tax payable is equivalent to an increase in liability. Since the amount has not been paid yet and you are holding on to "cash," you have correspondingly increased your assets. Once you have paid the tax, both the liabilities and the assets will come down by the amount paid.

Sales Tax Payable

A majority of states have a sales tax, some states also have a local state tax, and some states don't charge sales tax on certain items. It is important to know your state's requirements for the goods your business is selling. It is also important that you charge your customers sales tax when necessary.

Assume the tax rate is 9% and your customer purchases a $15 item.

When the company sells to a customer:

Assets	=	Liabilities	+	Equity
+ $1.35 Cash		+ $1.35 Sales Tax Payable		

When the company pays the government

Assets	=	Liabilities	+	Equity
- $1.35 Cash		- $1.35 Sales Tax Payable		

While money owed to the government is tracked in an account called Sales Tax Payable, money owed to creditors is tracked by individual Accounts Payable accounts. These creditors could be suppliers of raw materials, landlord, utility companies, and so forth.

Accounts Payable

Accounts Payable is a general term that refers to bills sent to the company for services or materials that have not paid.

For instance, if the 50 lbs of ground meat @ $4/lb was bought, the amount payable to the butcher is $200.

When the product is received:

Assets	=	Liabilities	+	Equity
+ $200 (increase in inventory)		+ $200 Account Payable		

When the bill is paid:

Assets	=	Liabilities	+	Equity
- $200 Cash		- $200 Account Payable		

In addition, a wage expense account payable and a salaries expense account payable need to be created to capture and distinguish between the two costs. (Wages are different from salaries. Generally speaking, salaried employees are more difficult to let go, and their costs are considered fixed costs. Whereas employees on wages can be hired and given more or fewer hours, depending on the level of production. Wages are generally classified as variable costs.)

A Payroll Liabilities account for salaried employees needs to be created by law.

Payroll Liabilities

As the owner of a business, it is crucial that you understand your payroll responsibilities. The government has many requirements regarding payroll. The company is responsible for withholding certain amounts that an employee must pay (employee payroll withholding) and the company is also responsible for the costs it has to bear because it hired the employee (employer payroll costs). These payments are due within the year and require the necessary cash to be on hand or **penalties will apply including going to jail.**

Examples of responsibilities that a company might have:

Employees Payroll Withholdings	Employer Payroll Costs
Federal and state income taxes	Federal and state unemployment taxes
Employee portion of Social Security and Medicare tax (called FICA taxes)	Employer matching portion of Social Security and Medicare tax
Employee contributions for health, dental, disability and life insurance (if provided by employer)	Employer contributions for health, dental, disability and life insurance (if provided by employer)
Employee investments in retirement or savings plans (if provided by employer)	Employer contributions to retirement or savings plans (if provided by employer)

Examples of Accounts Payable where you owed money to your creditors were discussed above. The opposite of this account, in a sense, is called as 'Accounts Receivable.' It is when your customers owe you money for products or services rendered to them on credit. For example, when you sell a product worth $200 on credit, your account receivable increases by $200. When you finally receive cash for the same, your cash increases by $200 and your account receivable decreases by $200.

Unearned (Deferred) Revenue

It's common for companies to receive an advance for products and services to be delivered at a later date. These advance payments are considered unearned (deferred) revenue, a liability that requires a company to provide a product or service. The impact to the main accounting equation is as follows.

When advance is recieved from a customer:

Assets	=	Liabilities	+	Equity
+ $100 Cash		+ $100 Deferred Revenue		

When the customer receives the product or service:

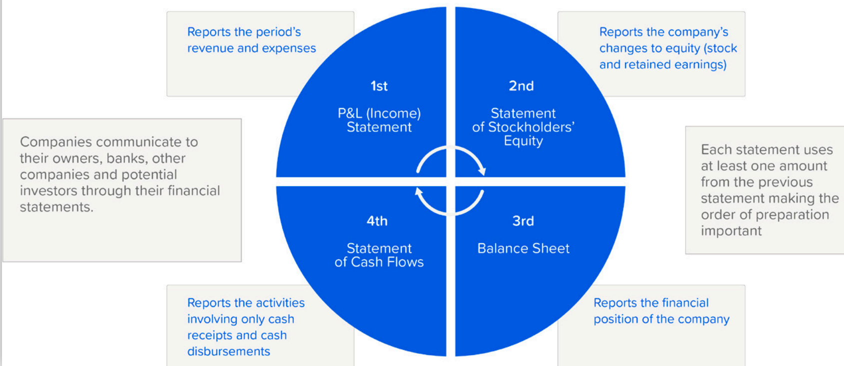
Assets	=	Liabilities	+	Equity
		- $100 Deferred Revenue		+ $100 Sales Revenue

Your customers need not always be in your debt. Sometimes they could also extend credit to you by giving an advance for products and services to be delivered later. Advance received for services to be rendered later are captured by an Unearned or Deferred Revenue account as shown below.

FOUR ACCOUNTING STATEMENTS

All these above accounts and transactions (beginning with the first investment made by the founder) are all completely and continuously captured and summarized by 4 accounting statements. Profit & Loss (Income), Balance Sheet, Statement of Stockholders' Equity, and Statement of Cash Flows. The 5 charts below explain all statements and the interaction between them using a hypothetical example.

Financial Statement



P&L (Income) Statement

Hypothetical Co. - Profit and Loss Statement Period X	
Sales Revenue	$27,275
COGS	13,725
Gross Profit	**13,550**
Expenses:	
Salaries	1,286
Wages	400
Utilities	250
Supplies	342
Rent	3,500
Market Research	500
Advertising	400
Loss on Inventory Write Off (Spoilage)	2,613
Repairs and Maintenance	1,450
Gas Expense	235
License Fee for the Period X	125
Depreciation	246
Total Expenses	$11,346
Net Income	**$2,204**

The Income Statement shows the revenue earned by the company minus the expenses to operate the business.

- Revenue and expense accounts are listed on this statement in an order that shows the profitability of company at multiple levels
- Gross profit is the key measurement of profitability for the company's primary business activity
- Sales tax, payroll taxes, Square credit card fees are excluded expenses in this hypothetical P&L statement
- Net income of $2,204 will be used in calculating retained earnings on the statement of stockholders' equity

Statement of Stockholders' Equity

Hypothetical Co. - Statement of Stockholders' Equity Period X

	Stock	Retained Earnings	Total Equity
Beginning Balance			0
Issuance of Stock	$50,000		$50,000
Add: Net Income		$2,204	$2,204
Less: Dividends			0
Ending Balance	$50,000	$2,204	$52,204

The Statement of Stockholders' Equity shows the stock, owned by investors in the company, plus the retained earnings.

- As explained in the main accounting equation: Stock + Retained Earnings = Equity
- The last column total and the last row total should always be equal
- Retained earnings is the accumulated profits of the company over the years after expenses and dividends are deducted
- Dividends are distributions of profits to the owners of a business
- The ending balance in common stock and retained earnings of $50,00 + $2,204 will be listed on the balance sheet

Balance Sheet

The balance sheet shows what a company owns (assets) and what it owes (liabilities), as well as stockholders' equity.

- The main equation:
  Assets = Liabilities + Equity
  Therefore, both total assets and total liabilities and equity are $52,809
- Accumulated depreciation is the relevant amount of depreciation until the end of Period X
- The cash balance of $31,259 will be used to verify the movement of cash for the period in the statement of cash flows

Hypothetical Co. - Balance Sheet Period X	
Assets	
Cash	$31,259
Supplies on Hand	458
Inventory (Raw Materials and Finished Goods) on Hand	1,713
License	1,375
Security Deposit	3,500
Equipment	14,750
Accumulated Depreciation	-246
Total Assets	52,809
Liabilities	
Accounts Payable	90
Salaries Payable	514
Stockholders' Equity	
Stock	50,000
Retained Earnings	$2,204
Total Liabilities & Equity	**$52,809**

Statement of Cash Flows

Hypothetical Co. - Statement of Cash Flows Period X	
Operating Activities	
Cash Inflows:	
From Sales	$27,275
Cash Outflows:	
Utilities Paid	250
Salaries & Wages Paid	1171
Raw Materials Purchased	18,260
Advertising & Research	900
Supplies & License Purchased	2,000
Rent Paid	3,500
Maintenance	1,450
Gas Reimbursement	235
Net Operating	-491
Investing Activities:	
Purchase of Equipment	14,750
Security Deposit	3,500
Net Investing	-18,250
Financing Activities:	
Investing by Owners	50,000
Net Financing	50,000
Net Increase in Cash	$31,259
Beginning Cash Balance	0
Ending Cash Balance	$31,259

The Statement of Cash Flows shows where the cash of a company comes from and goes to during a period. It categorizes the inflows and outflows into 3 types - operating, investing, and financing activities.

- Only business activities involving cash are listed on the cash flow statement
- Operating activities: involve revenue, expense, and interest
- Investing activities: involve purchase or sale of long-term assets
- Financing activities: involve issuance of stock, loans, and dividends
- This statement explains the flow of cash during the period
- To verify the change in cash the ending balance of cash ($31,259) from the balance sheet is used

BANK RECONCILIATION

Cash is a must have for businesses to function. Most of a firm's cash is in a bank as deposits. Transactions involving banks (checks, credit cards, and debit cards) take time to be processed. Plus there is a potential for errors and omissions either by the bank or the firm itself. Banks send out statements about withdrawals and deposits every month. These statements need to be compared to the company's records of its payments and deposits. This comparison is called **bank reconciliation.**

The bank's closing balance is adjusted by the firm based on their knowledge of what is missing in the bank statement. The firm's closing balance is adjusted for items the bank knows about. The result is two equal closing balance cash amounts.

Reconciling the Bank's Cash Balance

Bank's Cash Balance	
Per Bank Statement	**$1,100**
Deposits Outstanding	+2,200
Checks Outstanding	- 2,100
Bank Balance Per Reconciliation	**$1,200**

- The initial amount is the bank statement's ending cash amount
- Deposits outstanding are cash receipts of the company that have not been added to the bank's records
- Checks outstanding are checks the company has written that have not been subtracted from the bank's record of the company's balance

Reconciling the Company's Cash Balance

Company's Cash Balance	
Per Bank Statement	**$2,880**
Intrest Earned on Bank Account	+20
NSF Check	- 750
Debit Card for Office Equipment	-200
EFT for Advertising	-400
Bank Service Fee	-50
Square Credit Card Processing Fee	-300
Company Balance per Reconciliation	**$1,200**

- The initial amount is the ending cash balance from the cash account kept by company
- Bank interest and service fees are unable to be recorded by the company until they receive the bank statement
- NSF checks are checks from customers with insufficient funds
- EFTs are electronic funds transfers

Comparing the Balances

Bank Reconciliation - Dec. 31, 2016			
Bank's Cash Balance		**Company's Cash Balance**	
Per Bank Statement	**$1,100**	**Per Bank Statement**	**$2,880**
Deposits Outstanding	+2,200	Intrest Earned on Bank Account	+20
Checks Outstanding	- 2,100	NSF Check	- 750
		Debit Card for Office Equipment	-200
		EFT for Advertising	-400
		Bank Service Fee	-50
		Square Credit Card Processing Fee	-300
Bank Balance Per Reconciliation	**$1,200**	**Company Balance** Per Reconciliation	**$1,200**

The reconciled balance of the bank and company should be equal to indicate all transactions were accounted for by the company.

Concluding Sections I & II

Congratulations on having read Sections I and II. You now know how to develop and evaluate an idea for a new product. You have learned the right-brain, creative side of conceptualizing and positioning a new product. This learning included the concept of the new product's value proposition – who (the target market) will buy the product and why (the unique benefits of the product) given the chosen price and existing competitive products. It has also been emphasized that the attributes of the product, and its pricing, distribution, and promotion have to be synergistically reinforcing to satisfy the needs of the chosen target market.

You have also learned the left-brain side of how to analyze the profit-making ability of this new product. Understanding the costs associated with the new product and the break-even points at various selling prices allows you to determine whether adequate demand exists at such price points.

Finally, since all new products have to be financially sustainable, you have learned how to keep track of net profits and net assets associated with the product. This tracking is possible through an understanding and disciplined implementation of accounting principles.

The major takeaway of Sections I and II is that both the right-brain creative side and the left-brain financial side are necessary exercises for the eventual success of a business. Not believing in or not having expertise in both aspects can lead to business failures. Whether you are in a small start-up based on a single product or a large organization, these two sections have given you the knowledge to believe in the importance of both functions in a business.

SECTION III

GROWING FOR FINANCEABILITY

This section focuses on the first few decisions an organization has to make in its nascency, e.g., its brand image, its first hires, and the kind of organization culture it wants to develop. With an eye toward venture financing, such decisions have to be show-cased as being made based on data, knowledge and values. Values are inherent in the founders and are unconsciously embedded in the organization. Knowledge is constantly being learnt and used. This chapter expends considerable effort on data-based decisions – how data is collected (and why it is collected in the first place) and how it should be analyzed for aiding in decision-making.

Chapter III-1

Brand Management

Once the business has been set up and has taken its first few baby-steps, it will start thinking about growing the company and developing its brand and the brand of its products. The question that comes into the picture is the brand image that the company wants to project. This image will determine the kind of customers the firm gets, and they, in turn, will influence the image of the company. Brand building is about creating an identity for the company and its products that holds a unique spot in the minds and hearts of the customers.

The success of any business depends in part on the target market's ability to distinguish that company's product from other competitive products. **Branding** is the main tool businesses use to distinguish their products from those of the competition.

A **brand** is not only the name, term, symbol, and design that identifies a seller's product and differentiates it from competitors' products, but also the thoughts and feelings about the product's quality, and the images, emotions, and memories it conjures in consumers.

Brands can be the most important and valued asset (*intangible* at that) of a company. In some cases, they can amount to tens of billions of dollars, and they can account for over 50% of a firm's capitalized value.

Competitors can copy product features and pricing, but the "brand" can be hard to copy.

The benefits of a strong brand are in

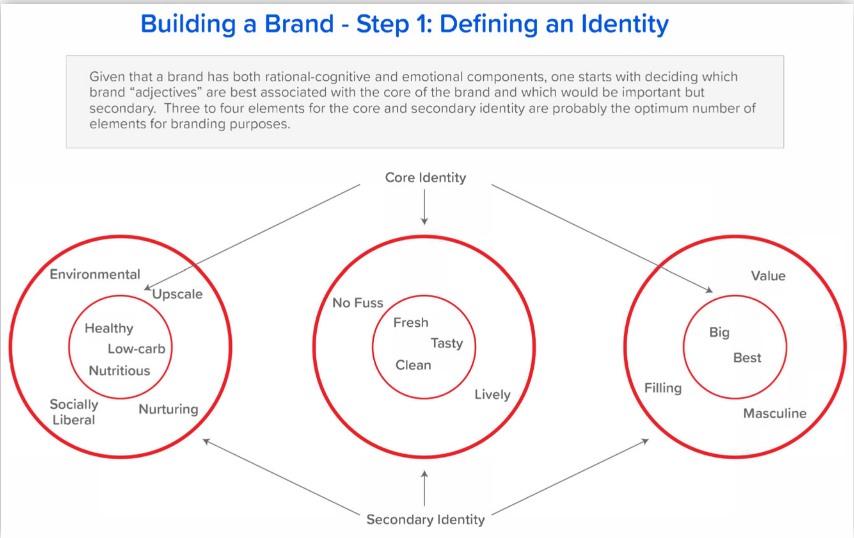
- **Product identification:** customers can identify the brand they want from the clutter of other brands in the product category.
- **Repeat sales:** a strong brand instills brand loyalty in customers resulting in repeat sales. These repeat sales are made at much lower costs than sales made to new customers.
- **New product category sales:** a highly favorable brand can be used to branch into other product categories. The favorability of the brand allows for higher profits faster in the new product category.

A brand is built on both its tangible and intangible attributes, as noted above. However, communication plays a significant role in building a brand by creating the right feeling and emotion in the target audience. There are 3 steps in building a brand: **defining an identity**, **communicating that identity**, and **providing appropriate and complementing service and operations.**

BUILDING A BRAND

Step 1: Defining an Identity

Given that a brand has both rational-cognitive and emotional components, an organization begins by deciding which brand "adjectives" are best associated with the very core of the brand and which are important but secondary. It needs to drill down to three or four elements for the core and secondary identities.



The above figures show three options for core and secondary identity of a restaurant.

Step 2: Communicating that Identity

The second step in building a brand is communicating. Communication includes both advertising content as well as media, spokespersons, opinion leaders, exemplary users, and others. Communicating brand identity through media with advertising is still the most popular way, with social media and other forms of web-based advertising becoming more and more prevalent. Both the actual advertising "copy" and channels used for advertising convey the image of the brand.

Besides advertising, the other elements of the marketing mix (price, product packaging, and distribution) can also be effectively used to build and communicate a brand. The relationship between price and perceived quality is well known and works for many product categories. Similarly, the final retail outlet where the product is available and the emotional and functional appeal of the packaging have a significant impact on the brand image. Finally, brands can also associate themselves with causes. The causes a brand associates itself with can shape the image of the brand.

Step 3: Providing Complementary Service

The third important step in building a brand is providing appropriate service. Most products consist of some degree of service along with the tangible good. A brand can build its image by how its manufacturer "treats" individuals all through its supply chain as it moves from the factory to the retail outlet. The rise in manufacturer-owned retail stores, e.g., Apple, Abercrombie & Fitch, and many others, was partly due to manufacturers wanting to control the service component of the complete product experience they provided.

BRAND NAME & BRAND MARK

A **brand name** is that part of a brand that can be spoken, including letters, words, and numbers.

- **Letters: GM, YMCA**
- **Words: Kleenex, Pepsi, Google, Ford**
- **Numbers and combinations: 7-Eleven, WD-40**

The elements of the brand that cannot be spoken are called the **brand mark:**

Nike Mercedes Shell McDonald's

RESULT OF BRAND-BUILDING – BRAND EQUITY

When a brand has been well-built it has high ratings on (1) awareness (the targeted segment of customers can recall or recognize the name of the brand when necessary), (2) preference (target customers prefer this brand to others), 3) distinctiveness (customers can easily see why the brand is different from others in their eyes), (4) number, strength, and favorability of associations (customers' favorable association of the brand with *other* concepts and objects allows for brand extension), and (5) loyalty (customers are willing to pay an extra amount for the brand). High ratings on these dimensions result in a brand having high brand equity.

Strong brand equity is a valuable asset that can be worth billions of dollars. For example, Oprah Winfrey leverages her personal brand to sell magazines, to endorse books, to create shows (Dr. Phil owes his celebrity to her), to develop schools, and to fundraise for charities.

Chapter III-2
Research Methods

Branding, or brand management, will only be effective when a company understands the needs of its target customers. These needs could be explicit, latent, or unmet. In order to completely understand the needs of the target customers, companies must conduct market research.

For example, let us suppose that there are three *fast-casual* pizza chains in a locality that focus on speed and affordability. To successfully create and operate a different brand in this geographical area, a competitor may decide to open a pizzeria which serves authentic Italian pizza in an upscale setting. To determine whether the idea is viable in the first place, market research is required.

Market research is not just exclusive to launching a business venture; it helps with any decision that a business takes. Market research can be useful for assessing customer needs and for deciding on any and all elements of the marketing mix. To conduct research, the company may reach out to existing or potential customers, individuals in the supply chain, or experts. Instead of gathering data from these individuals, the company might also review and analyze existing data or *observe* individuals or other entities.

A broad overview of methodologies for conducting research and collecting data is the subject of this chapter. The techniques described here, and later, are general enough that they can be used to research other issues such as those internal to the organization, e.g., employee satisfaction.

In the early stages of development of an organization, it probably cannot afford to conduct elaborate research projects. So, the less expensive qualitative research techniques that are described in this chapter should be used. Later, when the organization has grown, other more expansive methods of research can be used. These methods, experiments and surveys, are described in later chapters.

Market Research (MR) is the *systematic and objective* process of *collecting and analyzing* data for the *purpose of decision making*.

Keep in mind that market research is conducted to help decision-making. So before starting an MR project, it is important to articulate the decision that needs to be made, i.e., *why* conduct MR. The why could be broad like "What attributes will affect the buyer's decision to purchase product ALL THE BUSINESS" or really pointed like "Which color of the background will make consumers spend the most time on App ALL THE BUSINESS."

After figuring out the *why*, the focus then is on *what* data is being collected and *how* will it be collected. A "systematic and objective process" implies that the errors and biases in data collection, both in the design and execution, are minimal. There are several ways (surveys, focus groups, experiments, etc.) in which data can be collected. Which method is used is determined by the problem definition (and, of course, the budget). Though each methodology has its generic pros and cons, they might not be applicable in all contexts in which the method is used.

The third important point of market research, which will be discussed in great details later, is the proper analysis of the collected data.

So, the steps of a standard MR project are

- Defining the problem
- Selecting a data collection methodology (also called **research design**)
- Collecting data
- Analyzing data

- Formulating the conclusion (recommendations and reporting) to the decision maker (MR user)

RESEARCH DESIGN

Research design essentially means how the data is made available for answering the question posed by the problem definition. Data can either already be in existence or can be specifically collected for the research project. In the former case, it is called **secondary data,** and the latter is called **primary data**.

Primary data can be one of two types, qualitative or quantitative. **Qualitative data** is usually composed of words and pictures, whereas **quantitative data** is composed of numbers and are, therefore, amenable to mathematical analysis. There are several specific methods of collecting data for each data type.

- Qualitative – focus groups, in-depth interviews and observation techniques
- Quantitative – survey (mail, telephone, personal, online) and experiments

SECONDARY DATA

Secondary data is data previously collected for some other specific or general purpose by departments within the firm, or by an external organization (governmental agency, industry association, a consulting company, etc.) Secondary data is quickly available and is generally less expensive than primary data.

However, there can be many drawbacks of secondary data. The questions might be phrased with a different purpose in mind. Concepts may be defined differently from your research definition. Or there might be inherent biases because of the reasons the data were collected. So, it's important for the new user to learn as much as possible about secondary data: who collected it, and when, where, and why. A careful examination could reveal biases in the data and, hence, the precautions that need to be taken when it is used.

Sources & Research Companies for Secondary Data

There are many companies and sources (including the government's census results) specializing in collecting, analyzing, and selling of data. A simple Google search will reveal several options.

With the advent of e-commerce and social media, tons of data are now available to companies, if they want to capture them. It is beyond the scope of this writing to discuss the various data capturing, storage, and retrieval technologies. But the availability of such data has opened a huge field of **Big Data**.

QUALITATIVE RESEARCH

Qualitative research methods provide data consisting of words and not numbers. Though aspects such as the number of times a word or theme occurs in the passage can be counted, by and large, the assessment of qualitative data is left to judges. Judges interpret the words based on the goal of the research project. Often multiple judges are used to remove any biases any one judge may have. An assessment of inter-judge reliability, i.e., how much they agree or disagree with one another, is made. If there is too much disagreement, the research project manager needs to evaluate why this is the case. Natural Language Processing, a branch of Artificial Intelligence, has begun to add value to qualitative data analysis. It is quite accurate for analysis such as sentiment analysis but perhaps still far from what human judges can accomplish.

There are 3 main types of qualitative research techniques: focus groups, in-depth interviews, and observation.

Focus Groups

Focus groups are group discussions of 8-12 individuals who are generally the same on key characteristics relevant to the topic being discussed. This *homogeneity* is preferred because it is not desirable for any one member of the group to stand out (by being too quiet or trying to dominate the discussion). It is important that each person in the group contributes authentically. Focus groups are monitored by a moderator, who tries to keep the sessions unstructured and free-flowing, while still on track as dictated by the research objectives.

The most important advantages of focus groups over individual one-on-one interviews are synergy and security. Group members can be stimulated to add to other individuals' ideas. Some people feel more secure talking about their ideas in a safe environment of like-minded people.

In-Depth Interviews

Sometimes individuals reveal more when they are in a private setting. This is especially true when deeper, hidden thoughts need to be elicited. One-on-one interviews are good for asking probing questions.

When the subject matter gets more complex, psychological techniques are used. A trained psychologist then analyses the results to gain insights into the subject. Examples of these techniques include

- Word association – subject states the first word that comes to mind when the interviewer presents a word
- Sentence completion – subject completes a sentence on being presented the first few words
- Storytelling – subject is asked to narrate a real or fictitious story on a particular subject

An interviewer often uses "third person" or "projective" techniques when the subject is inclined to give a politically correct answer. A simple way to use this technique is to ask "why do *others* ..." instead of "why do *you* ...".

Observation Techniques

Observation technique is a systematic process of recording the behavioral patterns of people, objects, and events without communicating with respondents. They are used when individuals are incapable of verbalizing, make errors in verbalizing or are unwilling to verbalize their behaviors.

It is best to observe behaviors in an unobtrusive manner so that subjects do not alter their behaviors because of being observed. Of course, the subjects being unaware that their behaviors are being recorded in some fashion raises ethical issues.

Observation techniques tend to be more expensive and are also subject to "one data point" error, i.e., the subject might just be behaving in an unusual manner for whatever reason at the time s/he was being observed. So, they should be used only when other techniques have significant disadvantages over the observation method.

Some of the more common occurrences and events that can be observed include: traffic patterns, product usage, facial expressions, retail displays, tile wear & tear, smudges, garbage, and time-taken-to-respond to a question.

Observations can also be made using equipment in a laboratory setting. For example, Galvanic Skin Response is a technique that measures the conductivity of the skin, which can change due to stress-induced perspiration. If stress was some aspect the researcher wanted to measure, the GSR instrument would be an option. Similar to GSR, brain activities can be recorded and analyzed using MRIs; and eye movements can be tracked using specialized instruments.

QUANTITATIVE RESEARCH

Surveys

Surveys are the most common way to collect data. Structured questionnaires are given to respondents to complete (details on questioning, audience, and analyzing data will be discussed later in the book). The goal here is to briefly introduce this technique as part of the complete overview of data gathering methods.

Surveys are good for collecting data that describe people, things, events, and issues. They ask questions such as Who, Why, What, Where, and When. Surveys are generally administered to a cross-section of a representative sample; they may also be conducted periodically on the same group of individuals over time.

Surveys do not establish causality, i.e., one event causes another. For studying causal relations, experiments are required.

Experiments

Experiments are used to establish causality. Two variables are said to be causally related if one causes the other. A well-known example of an experiment involves one group of individuals who are given treatment or medicine, and the other group is given a placebo (fake medicine). If the group given the medicine (*experimental group*) responds better than the group without the medicine (*control group*), then the medicine is said to have had an effect or caused the improvement in the patient. The medicine can also be considered the "independent" variable that causes the change in the degree of illness, the dependent variable. The need for the control group arises because the very fact that patients are given a medicine might psychologically decrease the degree of illness. If it were to happen, this placebo effect would occur in both groups equally. Hence, by comparing the experimental group with the control group, the placebo effect can be eliminated.

Patients are *randomly* allocated to two groups so that no other variables (called extraneous variables) could have conceivably been the cause of the change in the dependent variable.

Experiments can be conducted in a controlled artificial environment (laboratory experiment) or in the real environment (field experiment). Each type has its pros and cons. Experiments are discussed in greater details later in the simulation

IN SUM

We began by saying that the process of market research should address three questions *why* the research is being conducted, *what* data is being collected, and *how* will it be collected. Having answered these questions, we now turn to three other cautionary comments in conducting market research. And these are listed below.

- Right Group, Right Questions
- In-house Research Design
- Triangulation

Right Group, Right Questions

It's important to ask the right questions to the right respondents. So, for example, it might be better to ask a particular question regarding a product to an after-sales service provider rather than the consumer. When asked, all respondents will answer irrespective of how knowledgeable the respondent is about the question. This will impact the usefulness of the answer. The same holds true for secondary data. There might be several sources for the same information. Selecting the right secondary source is an important consideration.

In-House Research Design

Research design should be decided upon "in-house" rather than by a data collection research agency. Generally speaking, most research agencies have specific strengths for collecting data. It stands to reason that a methodology recommended by an agency may be in line with their preferred method of data collection. To remove this bias, client-side researchers should decide on research design themselves.

Triangulation

Finally, the best approach to solving a problem involves aiming two or three research projects at different groups of respondents. This strategy of multiple smaller projects is called Triangulation. If all projects (through different respondent groups) point to the same answer, confidence in the solution will be higher.

Final Word – Stories Like Twitch

Market Research has been criticized as driving by "looking at the rear-view mirror." Asking others, the critics say, is exactly that. When it comes to yet-to-emerge products and markets, a knowledgeable individual's intuition based on accumulated tacit knowledge about what is possible technologically and what might be demanded given the trends in customer behavior might be more useful than any traditional approaches to market research.

Many products in the social media space were developed and launched by deeply entrenched founders' guts, eventually morphing into commercially successful products. The story of Twitch comes to mind.

Twitch describes itself as "where millions of people come together live every day to chat, interact, and make their own entertainment together. Twitch is the live streaming service and global community for content spanning gaming, entertainment, music, sports, and more." Now owned by Amazon, Twitch started as Justin.tv, "a single channel featuring Justin Kan wearing a webcam attached to a baseball cap streaming via a laptop-backpack system designed by co-founder Kyle Vogt." From this start, Twitch has become, as one critic put it, "the ultimate influencer marketing-based service."

The evolution of products and companies by "expeditionary marketing" relegates traditional market research to the background. As one senior executive of one of the largest technology firms decrying customer involvement said, "customers don't know what is possible."

Chapter III-3

Interviewing

Perhaps, right off the bat, a business will need to hire employees. Even though the requirements are simple in the initial stages of the company, if the entrepreneur has the ambition to grow, it will be prudent to begin hiring the right employees and in the right manner. Wrong personnel decisions can come back to haunt businesses. It is not hard to get sued, and it is hard to get rid of employees. A company will need to hire employees based on the organizational culture it wants to develop, the values of the owner, the segment it wants to serve, and the costs of hires. But most importantly, it needs to stay within the legal boundaries.

Employees are the lifeblood of organizations, and a thorough interview process is essential to select candidates who best meet the organization's needs. Start by reviewing the position description with all concerned to be sure everyone is on the same page.

INTERVIEW DO'S AND DON'TS

Do's	Don'ts
Ask open-ended questions	Ask questions that can be answered with yes or no
Ask questions that are relevant to the position	Ask questions that have no relation to the position
Familiarize yourself with the questions	Go directly into an interview without some opening ice-breaker conversation or read questions from the page,
Introduce yourself, build rapport with the candidate and take notes	Rely on your memory for the information shared by the candidate
Share position information with the candidate	Assume the candidate knows about the position details
Ask follow-up questions if a response leaves you wanting more information	Settle for responses that leave you wanting more information
Allow time for the candidate to respond	Talk over the candidate or rush to the next question
Engage in active listening	Pay more attention to getting through the questions than listening to the candidate's responses
Allow time for candidate's questions and listen reflectively	Assume you understand the candidate's responses
Close interview by informing the candidate of the next step in the process	Close interview without asking if the candidate has any questions

POTENTIAL INTERVIEW PROBLEMS AND HOW TO AVOID THEM

- Snap judgments—don't decide on a candidate within the first few minutes; thoroughly analyze results of the entire interview before making a decision

- Negative emphasis—don't give negative information greater weight than positive information
- Halo/horns effect—don't let positive (halo) or negative (horns) traits (personality, appearance) outweigh the other
- Biases/stereotypes—avoid bias because a candidate is very similar or very different from you; avoid stereotypical assessment (race/nationality/gender)
- Cultural noise—be sensitive to cultural differences that impact a candidate's behavior; don't use these as the only reason for eliminating a candidate
- If the interview is conducted by a panel, or by you and a Human Resources representative, always discuss the candidate together. An agreement isn't necessary, but group discussion can help address any of these problems which might have arisen.

SAMPLE INTERVIEW QUESTIONS

General Questions

- Describe your education and training as they relate to this position.
- Tell me about your work experience relevant to this position.
- Identify your 3 greatest strengths as a candidate for this position.
- Tell me about any challenges this position would provide in terms of location/schedule/overtime.
- Are you legally eligible for employment in the U.S.?
- Can you perform the duties of this position even if you might require a reasonable accommodation in how the job is accomplished?
- Tell me anything else you'd like me to know about your qualifications for this opportunity.
- Do you have any questions you'd like to ask?

Problem Solving Questions

- Describe a challenging situation you faced at work, and tell me how you resolved it.
- Related to this position, what are the areas in which you need the most improvement? Describe your plan to improve in those areas.
- If selected for this position, what would be the biggest challenge facing you as a new employee? How would you address that challenge?
- Tell me how you approach a problem you need to resolve.

Motivation Questions

- What interested you in our organization? How will you help us succeed?
- What do you enjoy about this type of work?
- Describe where you see yourself career-wise in 3-5 years.
- Tell me about the work accomplishments you're most proud of. Why?
- Describe a situation where you took the initiative.

Cooperation/Teamwork Questions

- How would you handle a conflict with a colleague?
- Tell me about your experiences working alone and as part of a team. Which do you prefer, and why?
- What type of people do you enjoy working with most? Why?
- How would you describe your style in working with others?

Integrity Questions

- If you saw a colleague doing something dishonest on the job, what would you do?

- What would you do if you were asked to do something unethical?
- Tell me about a time when you were dishonest.
- When was the last time you broke a rule?

WHAT NOT TO ASK (UNACCEPTABLE/ ILLEGAL QUESTIONS)

- Do you have children?
- How many children do you have?
- What is your marital status?
- What religion are you?
- Do you own a car? [ok to ask if the candidate can meet work location/schedule requirements]
- What is your national origin? [ok to ask if the candidate is authorized to work in the U.S; should be on application.]
- Have you ever been arrested? [ok to ask if the candidate has been convicted of a crime; should be on application]
- Do you have any disabilities? [ok to ask if the candidate can perform essential functions of the position with or without reasonable accommodations; should be on application]
- Do you own your home?
- Have you ever filed a worker's compensation claim?
- What is your native language? [ok to ask if candidate speaks a language relevant to the position in question]
- Have you ever filed bankruptcy or had your wages garnished?
- How old are you? [ok to ask if the candidate is over 18; should be on application]
- Where do you live? [ok to ask if the candidate can comply with the position starting time, or if the candidate is willing to relocate]
- Are you a member of the National Guard/Reserves? [ok to ask if the candidate has any commitments requiring extensive time away from work in the future]

- Were you honorably discharged from the military? [ok to ask, if the candidate has listed military experience, how that experience related to position]

BONA FIDE OCCUPATIONAL QUALIFICATIONS (BFOQ)

- Employment discrimination based on race/religion/gender/national origin/age or other protected status is illegal in the U.S.; however, there are some exceptional situations when what may seem to be discrimination is permitted.
- Discrimination against a candidate who doesn't meet the BFOQs for a position is legal, provided the employer has demonstrated that the BFOQs are required to perform the position.
- Examples include servers at Hooters Restaurants, who must be female to uphold the image of the restaurant, and clergy, who typically must be members of the denomination with the vacancy. A Baptist minister or a Buddhist priest would not meet the BFOQ to be the priest at a Catholic church.
- National origin can be a disqualifier if a position (typically with the government or a government contractor) requires a level of security clearance only available for U.S. citizens.
- For a restaurant server who must interact with English-speaking guests, a requirement to be fluent in spoken English could legally serve as a BFOQ.

POSITION DESCRIPTION

Position descriptions typically contain the following information: position title, classification/pay grade, supervisor title, effective date, summary of job duties, essential functions of the position, work environment, physical demands/requirements, and qualifications.

Sample

Title: Server

Classification: Non-exempt Salary Grade: B5 Reports to: Manager

Date: dd/mm/yy

Summary: greets diners, provides information regarding menu choices and specials, answers customer questions, takes customer orders and relays them to kitchen personnel, serves beverages and food selections to customers, ensures customers have everything needed (food, utensils, napkins) for a satisfying dining experience, periodically checks back with customers to refill beverages and add any additional items to order, prepares customer bill and collects/processes payment

Essential functions:

- Greets customers, explain menu selections, understands the menu to respond to customer questions, and takes customer orders and delivers them to kitchen staff
- Maintains good customer rapport by promptly addressing customer needs/concerns and independently resolving problems
- Delivers food and beverage selections accurately and efficiently to customers, maintains contact with customers to ensure ongoing satisfaction during their time in the restaurant
- Clears used dishes from the table between courses
- Prepares customer bill and processes payment efficiently and discretely

Work environment: Work in a restaurant under fair conditions, required to work varying shifts (11 AM – 2 PM, 5 PM – 10 PM) depending on need, required to work on weekends/holidays

Physical demands: Must be able to stand, walk, bend, stoop, and lift. Must be able to carry trays of food and beverages weighing up to 20 pounds safely, without spills. Must be able to hear and see to obtain and relay information. Must be able to stand and walk for extended periods. Must be able to work indoors and outdoors.

Qualifications: Must have a high school diploma with one-year related experience. Must obtain a food handling permit. Must be fluent in spoken English and be able to write in basic English.

Chapter III-4

Restrictive Covenants & Trade Secrets

There is always the inherent risk that employees will leave a firm and join its competitor's business. The consequences are higher when the firm is engaged in research activity and cannot afford to have trade secrets falling into a competitor's hands. Before employees begin work, employers frequently ask their employees to sign contracts restricting the employee's post-employment activities. Such contracts, called **restrictive covenants**, include

- **Non-compete agreements** – Restrictions on competing with your former employer.
- **Non-solicit agreements** – Restrictions on asking the former employer's customers to do business with you at your new job, or from allowing you to hire away your former co-workers.
- **Confidentiality agreements** – Restrictions on disclosing confidential information or trade secrets.

Breaches of any of the above types of agreements may permit the employer to immediately seek a court order (an "injunction") to keep the employee from further breaching the agreement and for damages.

Non-Compete and Non-Solicit Agreements

Non-competes are enforceable in most states. A minority of states, however, such as California, will not enforce such agreements or will strictly limit their use. You need to be aware of the specific laws in your state because each state will have its own rules for what agreements are enforceable.

For example, some states do not enforce non-competes for physicians because they hinder the right of the public to choose a physician. Many states also have specific provisions that apply only to non-competes involving professionals (lawyers, doctors, dentists, etc.).

Courts will not enforce unlimited non-competes or non-solicits (i.e., agreements not to engage in the profession at any time or place).

To be enforceable, non-competes and non-solicits must be reasonable as to the duration of time, geographic scope, and types of conduct prohibited. For example, a non-compete that prohibits the employee from taking *any* employment as opposed to employment that directly competes with the former employer is not reasonable. A non-solicit that prohibits an employee from contacting any of the employer's customers, not just those he came to know through the employer, would also be unreasonable.

When deciding whether a specific non-compete or non-solicit is reasonable, courts look at three things:

- The hardship on the employer without the restraint (i.e., how much the employer needs the restraint to protect his business interest).
- The hardship on the employee with the restraint (i.e., whether the employee's need to make a living outweighs the employer's interest).
- The public interest (i.e., the public's need to have choices in the services they obtain).

There are a few other reasons why a court would not enforce your non-compete or non-solicit:

- **Overbreadth** – Grossly overbroad restrictions may invalidate the entire agreement. Many states, however, allow a court to strike overly broad provisions so that the remaining terms are reasonable and therefore enforceable.

- **Prior breach** – The employer's behavior may constitute a breach of an employment agreement, and therefore, the non-compete or non-solicit is not enforceable.
- **Circumstances of termination** – In some states, if an employee is terminated without cause, the non-compete or non-solicit agreement may be unenforceable.

Confidentiality Agreements

Confidentiality agreements are important to protect trade secrets (discussed below) and other confidential information (e.g., non-public customer information). The agreement should define what the employer deems confidential or a trade secret and the employee's responsibilities for keeping such information confidential both during and after employment.

Like non-competes and non-solicits, confidentiality agreements may not be enforceable if the agreement is overbroad and seeks to protect information that is not necessarily a trade secret or confidential. Typically, ambiguities in employment agreements are interpreted against the employer, so employers should be careful to include clear language when drafting employment agreements.

Trade Secrets

Trade secrets are types of information that derive their value from the fact that they are not generally known (e.g., formulas, customer lists, marketing data, machine blueprints, and manufacturing methods). Anyone who improperly uses a trade secret can be liable to the owner of the trade secret. To be a trade secret, the following three things must be true.

- The information must be **secret**.

  Trade secrets can be protected as long as they are secret, meaning they can potentially last forever. Once disclosed, however, protection is lost. The disclosure can be inadvertent, disclosure by a third party, or government-required disclosure.

Regardless of the form, if the trade secret is published, it is no longer protected as a trade secret. Laws do not protect against independent discovery or someone reverse engineering a legally obtained product.

For example, if someone figured out Coca-Cola's recipe on their own and published it, their trade secret protection would be lost.

- The information must have an **economic value** from being secret.

  For example, everyone in the smartphone industry uses Lithium-ion batteries. Your company also uses Lithium-ion batteries, but you have never told the public. This cannot be a trade secret; it brings no extra value to your company since everyone in the industry already does it.

- The owner has taken **reasonable steps to maintain secrecy**.

  These steps may include limiting the employees who have access to the trade secret, having the employee sign a nondisclosure agreement, and adhering to company policies addressing trade secrets. Information may not be considered a trade secret if it is readily obtainable from public sources or as a result of disclosure (e.g., a filed patent application).

Misappropriation

When someone uses or discloses a trade secret improperly, this is called misappropriation of trade secrets. Misappropriation includes things like theft, bribery, misrepresentation, and breach of a contract to maintain secrecy. When someone (typically an employee) misappropriates a trade secret, the owner has a cause of action to sue.

Both state and federal laws allow an employer to bring a lawsuit immediately to stop a former employee from disclosing a trade secret and to recover any damages arising from the disclosure. Federal courts are often better forums to litigate such issues because they have a uniform standard, as opposed to each of the fifty states who have their own set of separate laws.

Chapter III-5

Employment Law

As the companies receive funding, they expand their business that includes, more often than not, their workforce. Because the organization is formal now, it needs to ensure that it complies with all the Employment Laws. Some of the major laws and regulations impacting employment are covered below.

DEPARTMENT OF LABOR LAWS/REGULATIONS

The Department of Labor administers and enforces over 180 federal laws; the primary laws impacting most employers are described in this module.

Fair Labor Standards Act

The Fair Labor Standards Act, or FLSA, establishes the standard for wages and overtime compensation. Current federal minimum wage is \$7.75 per hour; if a state's minimum wage is greater, covered employees must be compensated at the higher minimum wage. If employees work in occupations in which they receive tips, the employer is only required to pay \$2.13 per hour in direct wages if the following is true: the combination of direct wages paid and tips that the employee receives equals the federal minimum wage rate; the employee retains all tips, and the employee regularly receives more than $30/month in tips. If the combination of tips and direct wages paid doesn't equal the federal minimum wage rate, the employer must make up the difference.

Exempt employees are not subject to overtime pay; these employees fall into job classifications of executive/administrative/professional/outside sales positions. Non-exempt employees are employees entitled to overtime pay; for exempt employees, there are two tests: the salary level test (if an employee makes $455/week or $23,660 per year, they are ineligible for overtime) and the salary basis test (employees who fall into job classifications of executive/administrative/professional/outside sales). Covered non-exempt employees must be paid at least the federal minimum wage, and must be compensated at the rate of 1.5 times their regular pay rate for overtime worked over 40 hours/week.

This act also restricts the majority of child labor to those 14 or older, and prohibits employment of individuals under 18 in some high-risk categories of employment (agriculture, for example). Additionally, the act enforces labor standards provisions of the Immigration and Nationality Act, which covers aliens authorized to work in the U.S. under certain non-immigrant visa programs.

The full provisions of the act can be found at https://www.dol.gov/whd/flsa.

Occupational Safety and Health

The Occupational Safety and Health Act is administered by the Occupational Safety and Health Administration. This act's provisions require employers to provide work and a work environment free of recognized serious hazards. Most private industries are regulated by OSHA or by state programs approved by OSHA. OSHA enforces the provisions of the act by workplace inspections and post-accident/incident investigations.

A workplace inspection of a restaurant, for example, might focus on hazardous equipment (meat grinders, fish grinders), mechanical equipment which could be dangerous (garbage disposals), and potential for fires in a cooking area.

The full provisions of the act can be found at http://www.osha.gov/law-regs.html.

Employee Retirement Income Security Act

This act regulates employers who offer pension/welfare benefits for their employees and is administered by the Employee Benefits Security Administration. Pension plans are not required by federal law (voluntary employer participation).

Its provisions include fiduciary, disclosure, and reporting requirements. Fiduciary refers to the persons or entities responsible for discretionary control of the plan and its assets. Disclosure refers to a plan summary, annual financial report, notifications of benefits determination, and plan documents, which are communicated to plan participants or claimants (in the case of benefits determination). Reporting requirements involve reporting pension plan financial status to the IRS.

COBRA (Comprehensive Omnibus Budget Reconciliation Act of 1985) reporting is also administered by the EBSA; COBRA contains provisions for continuation of health-care benefits following the end of employment.

HIPAA (Health Insurance Portability and Accountability Act) group reporting is also governed by the EBSA; HIPAA deals with health care privacy and portability requirements on group insurance plans. Portability refers to employees who were previously covered under a health plan from a former employer being eligible to obtain coverage from a new employer with limited exclusions due to pre-existing conditions (an employee who was previously covered can only be denied coverage for a pre-existing condition for 12 months from the date the new plan coverage takes effect).

The full provisions of the act can be found at https://www.dol.gov/ebsa/compliance_assistance.html.

Family and Medical Leave Act

This act, administered by the Wage and Hour Division of the Department of Labor, covers employers with over 50 employees. Employees must have been employed for at least 20 workweeks in the current or preceding calendar year and must have worked 1,250 hours during the 12 months before the start of the leave. An employee must have worked for the employer for a minimum of 12 months.

The act requires that employers give eligible employees up to twelve (12) weeks of unpaid job-protected leave for the following situations:

- Birth or adoption of a child
- Serious illness of the employee or the employee's spouse, child or parent

At the end of an FMLA leave period, employees are entitled to return to the same position or an equivalent position as the one they held when their leave began. The law does not require that FMLA leave be paid; however, an employee may choose to use paid vacation or paid sick leave for some or all of the FMLA leave period. A 30-day advance notice of the need for FMLA leave is required when the need is foreseeable.

Employees requesting FMLA leave are required to follow the employer's normal call-in procedures when possible; if not immediately possible, the employee must call in as soon as possible. Employers are required to post notices informing employees of their rights under the FMLA and the procedures for applying for FMLA leave. Employers are required to respond to FMLA leave requests within 5 business days of an employee's request or of the employer learning that leave may fall under FMLA.

Uniformed Services Employment and Reemployment Rights Act (USERRA)

This act, administered by the Veterans' Employment and Training Service (VETS), protects the rights of certain persons to be reemployed by the same employer, in the same position, with the same seniority, status, and pay that were in effect when they were called up into the service. Employees called up to the Reserves, or the National Guard are also covered by this act.

Coverage under USERRA is dependent upon the total time away from the job (a maximum of 5 years), honorable discharge, advance notification given to the employer of military service (unless a state of emergency prohibited that) and prompt return to the workplace following discharge.

Worker's Compensation

The U.S. Department of Labor has no role in administration or oversight of state workers' compensation programs. Worker's compensation is a state-mandated insurance program which provides coverage for on-the-job injuries or illnesses. Worker's compensation laws vary from state to state; if an employee has a job-related injury or illness, they are entitled to benefits regardless of who was at fault. Worker's compensation injuries/illnesses should be reported immediately to the employer. Employers have the right to restrict the employee's choice of physicians for treatment.

Construction businesses and related trade employers with more than 1 employee are required to have workers' compensation insurance. State and local governments, domestic help employers and farm labor employers are exempt from worker's compensation provisions. If an employer isn't required to have worker's compensation insurance and an employee gets injured, the employee is not entitled to worker's compensation benefits, but they can sue the employer.

The only involvement with workers' compensation programs on the federal level involves specialized occupations including longshoremen/harbor workers, energy employees, federal employees injured or disabled in the line of duty, and miners.

Employee Polygraph Protection Act

This act prohibits most employers from using lie detectors on employees; however, polygraph tests are permitted in certain areas including security service firms (armed car, alarm and guard companies), pharmaceutical manufacturers, dispensers and distributors. Testing is also allowed in circumstances when employees of private firms are reasonably suspected of involvement in a workplace incident (embezzlement, theft, etc.), which resulted in specific economic loss or injury to the employer.

The full provisions of the act can be found at https://www.dol.gov/whd/polygraph.

Equal Employment Opportunity Laws & Regulations

EEO laws are passed by the Congress, signed into law by the President, and enforced by the Equal Employment Opportunity Commission (EEOC). All EEO laws prohibit retaliation by an employer against any employee who complains about discrimination, files a charge of discrimination, or participates in an employment discrimination investigation or lawsuit.

Title VII, Civil Rights Act of 1964

This law makes it illegal to discriminate based on race, color, religion, national origin, or sex. Employers are required to reasonably accommodate applicants'/employees' religious practices unless doing so would cause undue hardship for the employer.

For example, if a factory had assembly lines that required constant monitoring, and they had to shut the lines down multiple times during the day to allow an Islamic employee to pray, it could be considered an undue hardship for the employer. This would diminish the efficiency of the factory's operations and hurt productivity and profit.

The full provisions of the act can be found at https://www.eeoc.gov/laws/statutes/titlevii.cfm.

Pregnancy Discrimination Act

This act amended Title VII to make it illegal to discriminate against a woman because of pregnancy, childbirth, or a medical condition related to pregnancy or childbirth. The full provisions of the act can be found at https://www.eeoc.gov/laws/statutes/pregnancy.cfm.

Equal Pay Act of 1963

This act makes it illegal to pay men and women different wages if they perform equal work in the same workplace. Exceptions would include the following pay systems: a seniority system, a merit system, a system determined by the quantity and quality of production, or by any differential factor excluding sex. The full provisions of the act can be found at https://www.eeoc.gov/laws/statutes/epa.cfm.

Age Discrimination in Employment Act of 1967

This law prohibits discrimination based on age against people aged 40 or over by employers with 20 or more workers. Age can be a BFOQ as long as the employer can justify it as essential for the successful performance of the position in question. The law places the burden of proof on the candidate/employee to demonstrate that they were not hired/selected for a position due to their age. If an 80-year-old applies for a position as a server in a restaurant and is not selected, the candidate has to prove that they were not hired because of their age. If the restaurant has fewer than 20 employees, they are not subject to this statute.

The full provisions of the act can be found at https://www.eeoc.gov/laws/statutes/adea.cfm.

Title I of the Americans with Disabilities Act of 1990

This law makes it illegal to discriminate against a qualified individual with a disability in the private sector and state/local governments. The law also requires that employers reasonably accommodate known physical or mental limitations of an otherwise qualified individual (applicant or employee) with a disability, unless doing so would result in an undue hardship on the employer.

Disability is defined as a physical or mental impairment which substantially limits one or more major life functions of the individual, a record of such impairment, or being regarded as having such an impairment. Major life functions include caring for oneself, performing manual tasks, seeing, hearing, walking, eating, sleeping, standing, bending, lifting, speaking, breathing, thinking, learning, reading, concentrating, communicating and working.

The full provisions of the act can be found at https://www.eeoc.gov/laws/statutes/ada.cfm.

Sections 102 and 103 of the Civil Rights Act of 1991

This law provides for jury trials and the awarding of compensatory and punitive damages in intentional discrimination cases under Title VII of the Civil Rights Act of 1964 and the Americans with Disabilities Act. Until the passage of this act, the only cases which could be tried by juries were cases filed with the EPA (Environmental Protection Agency) or ADEA (age discrimination) cases.

Judgments can range anywhere from $50,000 to $300,000 depending on the size of the employer. Any party may demand a trial by jury. Discrimination must be intentional (malicious or committed with reckless indifference).

The full provisions of the act can be found at https://www.eeoc.gov/laws/statutes/cra-1991.cfm.

Genetic Information Non-discrimination Act of 2008

This law makes it illegal to discriminate against applicants or employees because of genetic information. Genetic information includes information about an individual's genetic tests, any family member's genetic tests, or information about any disease, disorder or condition of an individual's family members. The full provisions of the act can be found at https://www.eeoc.gov/laws/statutes/gina.cfm.

Other Statutes

The statutes discussed in this module are the primary laws enforced by the Department of Labor and the Equal Employment Opportunity

Commission. Other laws not discussed here impact select groups of workers such as agricultural employees or certain temporary non-immigrants admitted to the U.S to work under specified visas, or apply to unique situations such as work performed in confined spaces, work with lead in construction employment, or work performed as a federal contractor.

Chapter III-6

Research Methods – Experiments

Employees have been hired with an eye toward growth. From this point onwards, in the organization, data-based decisions should be made. Using data means that data should be available. Making quantitative data available is the task of the two research techniques, experiments and surveys, discussed in this and the next chapter. (Recall as has been mentioned earlier, data can be from many other sources too.) Experiments are conducted when causality has to be established. Surveys are conducted to describe customers, product use, needs, wants, and so forth.

PROCESS FOR EXPERIMENTS

Experiments were briefly described earlier in the section introducing research methods. There are four steps for conducting an experiment:

- Selecting and assigning subjects to experimental and control groups
- Manipulating the independent (or experimental) variable
- Controlling extraneous variables
- Measuring the dependent variables

One-group Pretest-posttest Design

An example of a simple experiment is the one-group pretest-posttest design:

$$O_1 \qquad X \qquad O_2$$

In such a design, there is only one group. The dependent variable is measured for all members of the group at time 1, that is before the treatment or experimental manipulation of the independent variable. The dependent variable is again measured after the treatment at time 2. If O_2 is significantly different from O_1, then the treatment can be said to have an effect on the dependent variable.

For example, 30 new customers could be asked about their overall opinion about the quality of a product. These 30 customers are again asked their overall opinion about the quality after they have had a chance to use the product. If the quality opinion has changed, the change can be attributed to the product experience. In other words, the product experience (the independent variable) has caused a change in the quality opinion (the dependent variable).

INTERNAL AND EXTERNAL VALIDITY

Internal Validity

Is the experiment described above valid? Can you with a high degree of certainty say that the product experience caused the change in the quality opinion and nothing else could have? If you can, then you can say the experiment is valid. What if the first measurement was taken many days before the product use? Can the validity be now questioned? The answer is yes. Those 30 new customers could have been exposed to some other information, e.g., a product review, between the first measurement time and the second measurement. The review could have changed the quality perceptions and not the actual product experience. An experiment is said to have internal validity only if the independent variable could be the cause in the change of the dependent variable. If there could be any other possible explanation, then the internal validity of an experiment is questionable.

External Validity

Many times, when experiments are conducted in a laboratory setting the results do not transfer to the world outside. In such cases, the experiment is said to be lacking in external validity. This might happen because of the aura of testing and experimenting might influence the dependent variable. When the treatment is taken to the outside world where there is no measuring and testing, the treatment might not work.

Two-group Pretest-posttest Design

To overcome the threats to internal validity and to establish that the experimental independent variable is the sole reason for the change in the dependent variable, the two-group pretest-posttest design is used. In this design, subjects are randomly assigned to the experimental group and control group. By randomly assigning subjects, you ensure that the two groups are identical to start with. The dependent variable in both groups is measured in time period one before any experimental stimulus is provided (the control group does not receive the real experimental stimulus) and the dependent variable is measured again in time period two after the stimulus.

		T_1		T_2
Experimental Group	R	O_1	X	O_2
Control Group	R	O_3	–	O_4

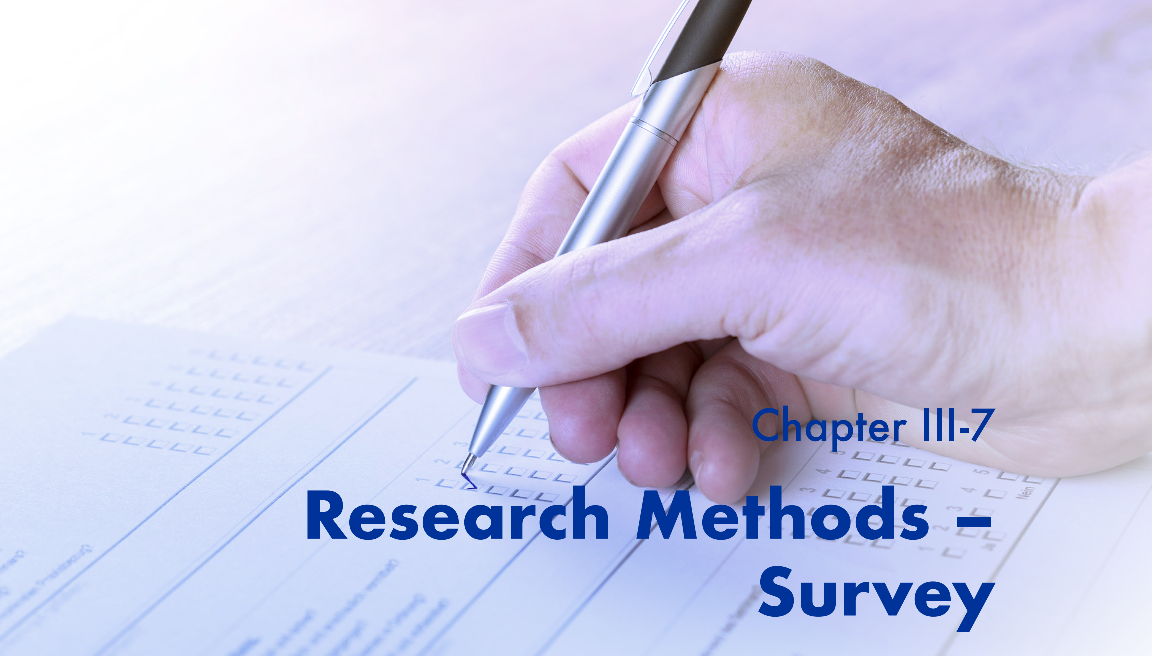
If $O_4 - O_3$ is significantly different from $O_2 - O_1$, the experiment can be said to have had an effect.

Posttest Only with Control Group Design

The problem with the two-group pre and posttest design is that it could suffer from external validity. The experimental treatment could be effective only because the group was sensitized to it because of the first measurement. And, like the earlier example, in the final real-world application, there is no pretesting. The design shown below, called posttest only with control group design, overcomes that problem and is perhaps the best experimental design that is simple and economical.

$$\begin{array}{ccc} R & X & O_1 \\ R & - & O_2 \end{array}$$

If O_2 is significantly different from O_1, one could say that the experiment had an effect.



Chapter III-7

Research Methods – Survey

SURVEY METHODS

A survey is a method of collecting data using a structured questionnaire that is designed to elicit specific information from a sample of respondents. Survey questionnaires generally consist of questions that have fixed alternatives as answers, though a few open-ended questions wherein respondents answer questions in their own words can be incorporated. Surveys can be administered by **phone** (using computer-aided random telephone number dialing), through the **mail**, on the **internet** or **in person**.

Technique selection depends upon the extent of geographical coverage, the total time available to complete the data collection, the budget, and research objectives. The following criteria can be used to compare phone, mail, personal, and internet survey methods given the research objectives.

Factors in Selection

- **Probing** – Do follow-up questions need to be asked for further elaboration or clarification of an initial answer?
- **Flexibility** – Does the questioning pattern need to be flexible depending upon the answers provided?
- **Physical Stimuli** – Do props or pictures need to be shown during the interview process?
- **Quantity of Data** – Can the interview be conducted in 10 minutes, or does it need more than 30 minutes?
- **Anonymity** – Are the questions sensitive enough that the respondent prefers to remain anonymous?
- **Interviewer Influence** – Is there a scope for undue influence by the interviewer by his/her physical presence?
- **Sample Selection** – How easy or difficult it is to administer the survey to a representative sample and to minimize the effect of non-response by selected potential respondents?

General Comparison of the Four Methods

Here is a quick comparison of the four survey methods based on these factors.

In-person surveys are expensive, lack anonymity, and are subject to interviewer influence.

Surveys by mail have the lowest and slowest response rate among the four; respondents tend to skip questions, and the identity of respondent is not known for sure.

The popularity of phone surveys is diminishing because of the do-not-call trend; it is obtrusive; but random digit dialing is useful for reaching a random sample, if anyone ever takes the call.

The popularity of internet surveys has been rising along with the popularity of the internet; however, if non-users of the site are required for the research, you cannot sample them.

SOURCES OF ERRORS IN SURVEYS

Many types of errors can creep-in, while collecting data through surveys. The extent of errors depends upon the research objectives themselves, the entity conducting the survey, the type of questions, and the techniques chosen. The designer of the survey should always judge the kind of errors the survey is susceptible to and how they can be minimized.

Non-response Bias

The first class of errors is due to non-response. This error or bias arises because non-respondents may be different from respondents on some of the issues being asked in the questionnaire. If the non-respondents' views are not being measured, one cannot assume that the population is being represented in the survey.

Non-response may be due to selected subjects not being available or refusing to answer. In either case, these non-respondents could be different from individuals who chose to answer.

Increasing Response Rates

Surveys are notorious for poor response rates. A low response rate not only results in less data being collected but also in biases in the collected data. The following tactics can be used to increase response rates.

- **Pre-notification** – all potential respondents are notified in advance that they have been selected for the survey and why it's important.
- **Survey Sponsorship** – a credible body with a generally positive image can be asked to "put their name on the survey."
- **Monetary Incentives** – adding a monetary incentive either for all potential respondents or for those who respond has been found to increase the response rate. Promising a contribution to a charity also helps to increase the response rate.

Response Bias

Apart from the errors that result from non-response, errors in data collection may also arise from biases in the responses. These errors may be intentional or unintentional on the part of the respondent. Here are four of the most common response biases.

- **Acquiescence bias** occurs when the respondent guesses the purpose of the question and tries to be nice by answering in agreement with the surveyor.
- **Extremity bias** occurs when the respondent answers in extremes, either strongly agreeing or strongly disagreeing on most questions.
- **Auspices bias** occurs when the sponsorship for the survey influences the responses. For example, responses could be more "somber" if Mothers Against Drunk Driving is said to be the sponsor as compared to Small Craft Brewers Association.
- **Social desirability bias** occurs when respondents give answers that are considered acceptable to society or politically correct rather than what they actually believe.

Some of these biases can be avoided by the way the questions are crafted; others are respondent's characteristics that are hard to eliminate.

TYPES OF QUESTIONS

In business research, it is best to ask clear, concise questions with a limited number of answers to choose from. For example

- Monetary rewards are more motivating than a good work environment.

Strongly Agree	Agree	Neither	Disagree	Strongly Disagree
1	2	3	4	5

- The current financial state of my company is:

  Very Weak 1 2 3 4 5 Very Strong

- How satisfied were you with the service today?

Very Satisfied	Satisfied	Neither	Dissatisfied	Very Dissatisfied
1	2	3	4	5

In the three examples above each question has five answer categories. The more the categories a question has, the more *sensitive* the scale is said to be. Though after seven categories, users have difficulty distinguishing between numbers. The reason for having an odd number of categories is to provide a neutral point. Also, in this example, the number of categories on the left of the neutral point is the same as the number of categories to the right. Such *balanced* questions are used when both sides of the neutral point are important to the researcher. If, however, a researcher is more interested in dissatisfaction, for example, he/she can have more categories on the dissatisfied side of the alternatives than the satisfied side. The question would then be called unbalanced. The above style of questions *forces* respondents to answer the question. At times, researchers may want to give respondents an additional choice to say they don't know.

Comparative

Many times research requires us to compare alternatives. Often respondents are given a series of pairs and asked to pick one from each. This style of questioning is called a **paired comparison**. Researchers might also ask respondents to **rank order** based on preference or some other criterion between a number of entities. Again, it is best to keep the possible answer group under seven. When the number is larger than seven, respondents are first asked to split the totality of objects into two groups based on their preference. Rank ordering is then performed within each group. The complete ranking is then obtained by combing the two groups' individual ranking. Another type of comparative question is a **constant sum scale**. Here respondents are asked to divide 100 points between a few objects based on their preference or some other criterion.

Construct Measurement

Just like a scale measures weight, thermometer measures temperature, or a ruler measures length, questions are used to measure intangible concepts. Attitudes, interests, opinions, preferences, satisfaction, and more can all be measured through questions.

Generally speaking, a number of questions are used to measure one construct. By creating a series of targeted questions that all point to the same construct, the researcher helps ensure that the measurement is more reliable.

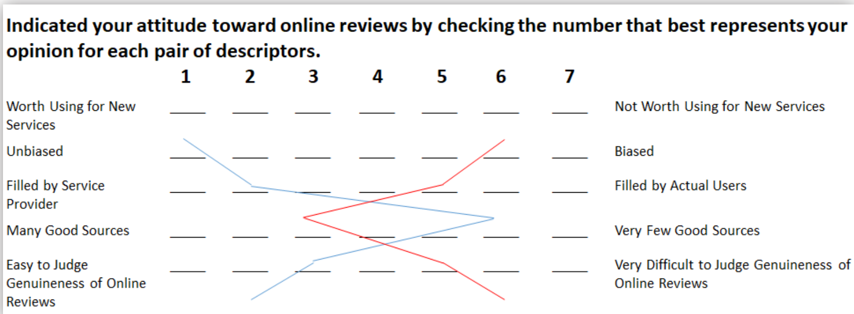
Measuring Attitude Toward Online Reviews

Below is an example of using multiple questions to measure the construct "attitude toward online reviews." Answers to individual questions are added up to get an overall score (after all questions are coded in the right direction). As you will note question three, is "reverse coded," i.e., agreeing with it implies negative attitude toward online reviews. Whereas the other four questions are coded such that agreeing with them implies a positive attitude toward online reviews. When multiple items are used as an instrument to measure a construct on a strongly agree to strongly disagree scale, the instrument is called a **Likert Scale**.

Statement	Strongly Disagree	Disagree	Neither Agree Nor Disagree	Agree	Strongly Disagree
I study online reviews before I use a new service	1	2	3	4	5
Generally speaking, online reviews are quite unbiased	1	2	3	4	5
Online reviews are filled in by the service provider	1	2	3	4	5
There are many good sources of online reviews	1	2	3	4	5
I can easily judge which reviews are fake	1	2	3	4	5

Semantic Differential Scale

Sometimes it is easier and more insightful to provide a pair of adjectives on either end of an item and ask the respondent to pick the right spot that best reflects their answer. **Semantic differential scale** can then pictorially compare one person's profile on all items with another's. In the *snake diagram* shown below the two profiles are represented by two different colors.



If you got on to a weighing scale and it showed your weight as X pounds and if you got off and got on again and it showed you X+10 pounds, what would you think about the weighing scale? Not reliable, right? Similarly, if an instrument/scale that measures a construct shows variability from one measurement to another, that construct is not very reliable. **Test-retest reliability** is one of the fundamental attributes of a scale.

The other important attribute of a scale is **validity**. If a scale measures what it is supposed to and not an "adjacent" construct(s) the scale is said to be valid. For example, if you built a number of questions to measure the construct health consciousness, but the questions actually tapped the construct paranoia, the scale would not be valid.

Properties of Numbers Gathered as Answers to Questions

Numeric answers can have very different properties. They type of question will determine the type of answer. Numeric answers can be broken into four types: nominal, ordinal, interval, and ratio.

Numbers on a **nominal** scale are essentially names. These types of numbers don't have any numeric value. Thus when a question asks for preference for different types of colors and the answer is coded as 1 for blue, 2 for red, and 3 for green, the numbers 1, 2 and 3 are just names. No mathematical operations (addition, subtraction, etc.) can be performed on these numbers.

Numbers on an **ordinal** scale are ordered in an ascending or descending order but do not convey any magnitude of property other than one number is higher or lower than another. A typical ordinal scale is the rank order scale where respondents are asked to rank their order of preference for different objects or entities. For example, a question may be to rank order your preference for the following vacation countries – France, Italy, UK, Spain, and Switzerland with 1 being the most preferred and 5 being the least preferred. All one can say about these numbers on the ordinal scale is that 1 is most preferred, then 2, and then 3 and so on. One cannot comment on the differences between 1 and 2 or 2 and 3, or by how much is 1 preferred to 2.

Interval scale numbers differ from ordinal numbers in that the difference between each number on the scale is fixed. Measuring temperature on a centigrade or Fahrenheit scale is a good example of an interval scale. One can say that 2 degrees is one degree hotter than 1 degree and 3 degrees is 1 degree hotter than 2 degrees. However, both the centigrade and Fahrenheit scales do not measure the absolute amount of heat in an object. So one cannot say that 20 degrees is twice as hot as 10 degrees. Numbers on an interval scale can only be added and subtracted.

Finally, the **ratio** scale has all the properties of an interval scale and, in addition, it measures the absolute quantity. The weight scale pounds (lb) is an example of a ratio scale. Zero pounds means that the entity has no weight. Ratio scale can be subject to addition, subtraction, multiplication, and division.

QUESTIONNAIRE DESIGN

Generally, a survey does not ask just one question or measure one construct. Multiple questions are asked that collectively make up a

questionnaire. Since it is hard to get individuals to respond, the tendency is to ask as many questions as possible. But this does not produce the best results. Questionnaires should be as short as possible. The shorter the questionnaire, the higher the probability it will be answered.

The goal in questionnaire design is relevancy and accuracy. Each and every question asked should be relevant to and necessary for the research objectives. Accuracy is improved if the following traits are *avoided*.

- **Complex language** – Questions should be asked simply so that anybody would be capable of understanding them.
- **Leading questions** – Questions should not be constructed in a way that suggests the right answer to the respondent. One way a question might lead respondents is to tell them that "most people behave/believe ...". Respondents tend to get on to the bandwagon with answers that are with answers from most people. Similarly, questions shouldn't be phrased such that respondents give a socially desirable answer. For example, a question such as, "we should all give to charities," will not elicit much disagreement.
- **Ambiguity** – Questions with words like "regularly" and "significantly" are subjective and ambiguous. Regular to one individual may mean once a day and to another once a week. Create questions that are as specific as possible. Even though respondents may not have difficulty answering ambiguous questions, interpretation of the results is almost impossible.
- **Double-barrel questions** – Questions that ask two questions in one should be avoided as well, since a respondent may agree to one part of the question but not the other. For example, the question, "does one pays for one's action because what goes around comes around?" is double-barreled. One may agree with the notion that one pays for one's action but not agree with cliché, "what goes around comes around."

- **Order bias** – It is proven that the order in which questions or options are provided influence the responses. The best way to overcome this problem is to randomize the order of presentation of questions or options. This can be difficult if the medium used to administer the questionnaire is not conducive to such randomization.

Once a questionnaire is designed, it should be well tested before releasing it in the field.

SAMPLING

Surveys are generally administered to a sample of individuals and not to every member of the population. (Once every few years a government may conduct a *census* wherein each and every member of a population is surveyed.) Likewise, when data is collected from entities and not individuals (e.g., counting the number of houses in each street of a city) a sample of streets may be taken rather than all streets. Sampling is the process of selecting the individuals or entities from a larger collection, or **population**.

There are two ways in which a sample can be taken from a population. The first is a non-statistical (non-probability) technique called **convenience sampling**. In this technique, the researcher picks respondents based on what is convenient while exercising *judgment* about whether the potential respondent fits the profile of what the research is looking for. If there is a *quota* to be filled, for example, a certain number of males/females, teenagers/adults, and so forth, the researcher seeks the appropriate type of respondent as required.

Probability sampling uses statistical techniques to gather samples from a population. For that to happen, a complete list, called *sampling frame*, of all population members is first required. In probability sampling, each element or unit of the sampling frame is subject to selection. If the sampling frame is not a complete and accurate representation of the population, an error has been introduced at this stage itself.

Armed with the list of sampling units numbered 1 to N (where N is the size of the population), different types of statistical sampling techniques can be used to select a sample. One could take a simple random sample (SRS) from this list. This essentially means that each element has an equal probability of being selected into the sample. A random number generator (a computer algorithm or all numbers in a hat) is used to provide numbers sequentially. The number "drawn" is then the number used to select a unit from the sampling frame.

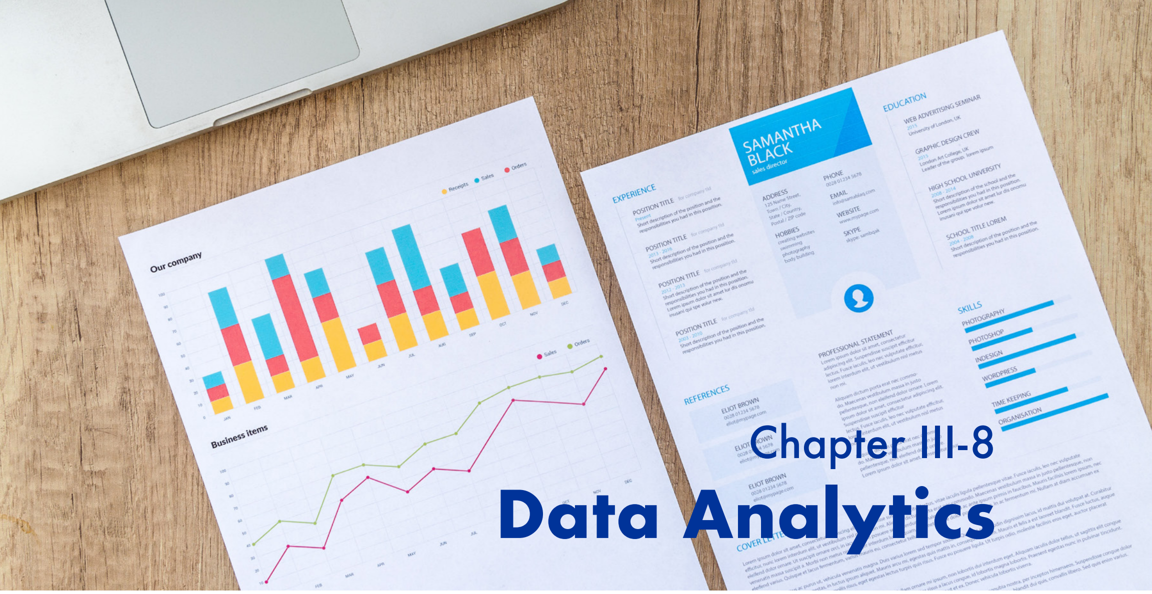
The sampling frame may be broken up into a number of groups (called *strata*), and an SRS may be taken from each group. The quantity taken from each group is proportionate to the size of the group. This sampling approach is called **proportionate stratified sampling**. Thus, if n is the size of the total sample that is desired, N is the total size of the population (i.e., the number of units in the sampling frame) and there are 3 strata of sizes N_1, N_2, and N_3, then n_1, n_2, n_3 are given by $n_1 = (N_1/N)n$, $n_2 = (N_2/N)n$ and $n_3 = (N_3/N)n$ and $n_1 + n_2 + n_3 = n$.

Sometimes it might not be easy to take simple random samples, let alone a stratified one. For example, if one wanted to get an SRS of single family houses, reaching houses randomly selected might be too cumbersome. In such cases, *systematic sampling* is used. In systematic sampling, the first unit is selected at random, and after that, every x^{th} is selected, where $x = n/N$, N is the total number of houses in the community and n is the sample size. The researcher follows a pattern moving through the community, picking every x^{th} home.

Sample Size

Another important decision that one has to make in conducting survey-based research projects is the size of the sample to take. While there are statistical formulae that can be used, most research projects use a rule of the thumb of around 500 respondents. Recall that the response rates are in the single digits for survey-based research so the number of respondents that need to be contacted to get 500 completed questionnaires can be quite large. For a 5% response rate, 10,000 respondents need to be contacted! Ambitious projects try even larger sample sizes, but many can live with 250 too.

Because of the poor response rate, sometimes even at 1-2%, surveys have lost favor, especially given the ease with which research can be conducted online these days. Quick and easy research is also popular when it is not so important to measure as to gaining directional insights. For example, if a business just needs to get insights on "what is not right and how it can be fixed," a small number of questions can be asked at respondents' convenience.



Chapter III-8
Data Analytics

Now that data has been collected through market research; we need to analyze the data and infer something meaningful from it.

Let us take the example of a company that wants to know the effect of lighting in a store on sales. It conducts an experiment that controls confounding variables so that there are no biases in the design. If the relevant sales numbers are different, can it assume that lighting has had an effect? What analysis must it do to be sure that the effect is not purely random?

For this, we need to learn more about concepts such as random variables, measures of central tendency (mean, median, mode), probability, distribution curves, measures of spread (variance and standard deviation), various types of hypotheses testing and statistical testing such as regression. An intuitive understanding of these basic techniques is provided in this chapter.

RANDOM VARIABLES

A **random variable** is a variable whose value changes from one measurement to another. If you asked 10 individuals what their weight is, you would get 10 different numbers or values for the variable, weight.

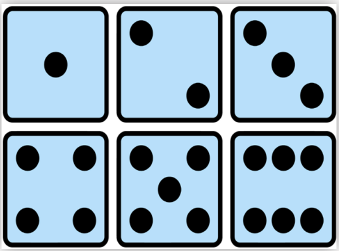
Thus, weight is said to be a random variable whose value changes from one individual response to another. All the variables in the experimental data are random variables.

A **discrete random variable** can take on only whole numbers. For example, on a 1-5 Likert scale, any response will be a whole number, so any variable measured with a Likert scale will be a discrete random variable.

A **continuous random variable** is one that can take on any value – not just whole numbers (e.g., the weight and height of a newborn).

In social science research a discrete variable, as long as it is at least ordinal, that takes on five or more values is treated as a continuous variable. This is an approximation that works fine for data analytics purposes.

Discrete Random Variables Examples



- Roll a die twice. Let X be the number of times 4 comes up (then random variable X can be 0, 1 or 2.
- Toss a coin five times. Let X be the number of heads (then random variable X can be 0, 1, 2, 3, 4 or 5)

Continuous Random Variables Examples

The time required to complete a task by different individuals is a random variable. It can potentially take on any value within a particular range, depending only on the ability to measure precisely and accurately.

Individual	1	2	3	4	...	n
Time to Complete Task	4.7	5.3	6.2	3.5		5.9

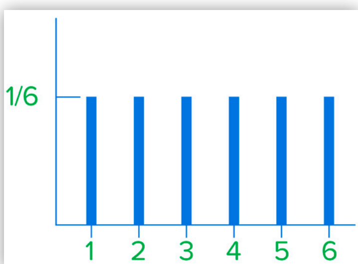
Year	1	2	3	4	...	n
Temperature	55.5	59.9	62.0	48.9	67.2	56..9

Similarly, the temperature at a specific time and place recorded every year is an example of a continuous random variable with values within some range.

Discrete Probability Distribution

If you roll a die, the probability of the die showing a 1, 2, 3, 4, 5, or 6 is each. Or expressed in mathematical form:

$$P(X = 1) = \frac{1}{6}, P(X = 2) = \frac{1}{6}, P(X = 3) = \frac{1}{6},$$
$$P(X = 4) = \frac{1}{6}, P(X = 5) = \frac{1}{6}, P(X = 6) = \frac{1}{6}$$



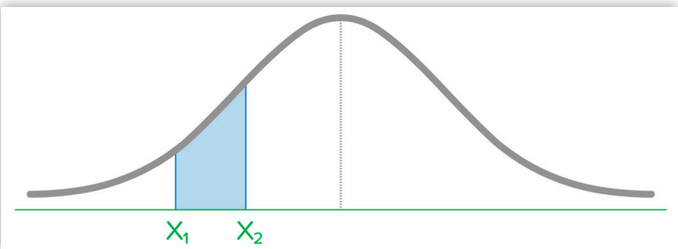
Note that for the complete set (1, 2, 3, 4, 5, and 6) the total probability equals one. That the total probability for all possible outcomes is one is always the case for any and all probability distributions. In the rolling of a die case, each event has an equal probability, but that might not be the case for all probability distributions. For example, if you were to look at the binary random variable, the type of drink ordered by passengers on a flight, with the random variable taking on two values, alcoholic or non-alcoholic drinks, you might find that alcoholic drinks are ordered at a much lesser frequency. So, for example,

P(X = alcoholic drink) = 0.22 and P(X = non-alcoholic drink) = 0.78.

Example of Continuous Distribution

Normal Distribution

Instead of depicting probability distributions as Bar Charts or in tabular form as in the case for discrete distributions, a curve is used for continuous distributions. The most commonly used probability distribution for a continuous variable is called the **normal distribution**.



The probability of the random variable being between X_1 and X_2 is given by the area under the curve, as shown in the above diagram.

The normal curve extends from $-\infty$ to $+\infty$. So, the area under the curve $-\infty$ to $+\infty$ is 1.

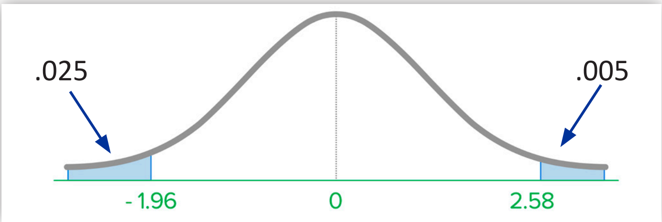
Curves for other continuous distributions can be of any shape and extend from any point to another as long as the total area under the curve is equal to one (because probability cannot be greater than one).

A continuous random variable X that has a normal distribution has two parameters: mean (μ) and variance (σ^2). It is represented as

It is represented as $X \sim N(\mu, \sigma^2)$.

It can be shown that $Z = (X - \mu)/\sigma$

It can be shown that is normally distributed with mean zero and variance one.

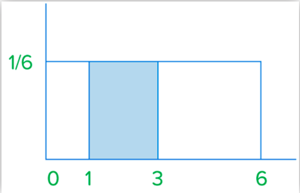


Z is called the standard normal variable. With this N(0,1) curve, the area under the curve between any points is readily available in standard tables everywhere.

For example, the area under the curve from -1.96 to -∞ is 0.025. The area under the curve from 2.58 to +∞ is 0.005. Note that the curve is symmetrical. Therefore, the area under the curve from -1.64 to -∞ and 1.64 to +∞ are both equal and is 0.05.

Uniform Distribution

An infinite number of different shapes of continuous probability distributions can be formulated and are in existence. Another simple example is of **uniform distribution**. The picture below shows a uniform distribution from zero to six. This implies that the random variable can take on any value between zero and six with equal probability of seeing any value.



$$P(1 \le X \le 3) = \frac{1}{3}$$

MEAN AND VARIANCE

Every probability distribution has a **mean** (also called expected value) and a **variance**. The mean is the average. Even though mean is a frequently used concept, there are other measures that capture the same notion of *central tendency*. Variance captures the idea of how widespread the values of the random variable can be. Thus in the case of uniform distribution, the variance would be higher if the range was from 0 to 10 rather than 0 to 6. In the normal distribution example, the fatter the curve, the greater the variance (even though it always extends from $-\infty$ to $+\infty$). Also, irrespective of the variance of the distribution, the total area under the curve is always one.

Consider our example of rolling a die, the expected value or mean value is

$$1\left(\frac{1}{6}\right) + 2\left(\frac{1}{6}\right) + 3\left(\frac{1}{6}\right) + 4\left(\frac{1}{6}\right) + 5\left(\frac{1}{6}\right) + 6\left(\frac{1}{6}\right) = \frac{21}{6} = 3.5$$

Now if you rolled a die 10 times and added all the numbers and divided the total by 10, you might not get 3.5. If you roll the dice 10 times again, you still might not get the average to be 3.5. This is because there is a difference between a population parameter and a sample value. The expected value for the distribution of rolling a dice, 3.5, is called the **population mean**; it is the expected value but not the value that will occur every time. The **sample mean** is the mean that you observe (or calculate) after 10 rolls of the dice. The sample mean might or might not be close to the population mean in any one trial of 10 rolls. But if you had many samples of 10 rolls each, the cumulative average of each sample of 10 rolls will have a higher probability to be closer to 3.5 than any one individual sample mean.

Now in this example 3.5, the population mean, was known because of the known theoretical probability distribution. In most applications of statistics in the business world the population parameters, e.g., the mean or variance, is unknown and the sample mean or sample variance is used as an estimate of the population mean and variance.

POPULATION PARAMETERS AND SAMPLE STATISTICS

To summarize, a random variable exists in a population. The variable in the population has characteristics such as mean and variance. These characteristics are called population parameters. To get an idea of what the variable's population parameters, e.g., mean and variance, are, we take a representative sample from the population and measure the variable for all units in the sample. These observations in the sample are used to calculate the sample mean and sample variance. The sample mean and variance, called **sample statistics**, are estimates of population parameters.

For example, if we were interested in the average number of hours a full-time adult college student in the US spent on homework, then the complete set of all adult college students in the US would be our population. This population will have a mean and variance. Clearly, asking each and every individual in the population to calculate the mean and variance is not economically viable, so a sample of individuals is asked.

If the sample is representative of the population, i.e., each and every relevant student had a known chance of being selected, then we could draw conclusions about the population mean and variance. If, however, the sample was biased in some way, e.g., certain regions of the US were excluded from being sampled, then we couldn't draw conclusions about the population from the sample.

DESCRIPTIVE VS. INFERENTIAL STATISTICS

Descriptive Statistics summarize and describe the sample data. Some of the most popular descriptive statistics are frequency distribution, mean or average, and variability or variance in the data.

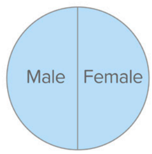
Inferential Statistics draw conclusions concerning a population-based only on sample data. For inferential statistics to work, as discussed earlier, the sample should be representative of the population. In practice, scientific sampling to make the sample representative is often not adhered to because of its expense.

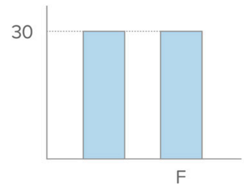
The problem of bias in sampling and making inferences about the population is illustrated by this example. If you were shown 15 individuals, and they all supported higher taxes, we cannot infer that all individuals support higher taxes is a legitimate description of the sample.

Descriptive Statistics – Frequency Distribution, Central Tendency and Variability

A **frequency distribution** is a method of describing data for discrete variables. It tells us the frequency of occurrences of different values of a variable. Here are some examples of frequency distribution forms.

Sex	Male	Female
Frequency	30	30





Central tendency is the number around which all values of a random variable cluster. It is measured by the mean, the median, and the mode.

Variability is the spread of data and is measured by three important statistics: the variance, the standard deviation and the range.

(These measures of central tendency and range don't make sense for nominal data. For example, if you had coded red as 1 and blue as 2 for the random variable color (i.e., some respondents chose red, and others chose blue), it wouldn't make sense saying that the average color chosen was 1.6. For nominal variables, frequency distribution and percentages best describe the variables.)

Measures of Central Tendency: Arithmetic Mean

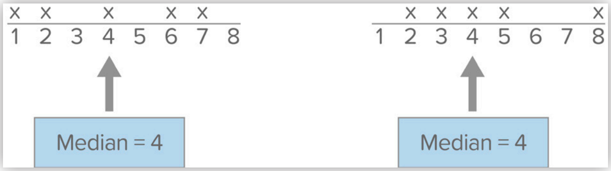
- The arithmetic mean (**mean**) is the most common measure of central tendency.
  For a sample of size n arithmetic mean (read as X bar) is given by:

$$\bar{X} = \frac{\sum_{i=1}^{n} X_i}{n} = \frac{X_1 + X_2 + \ldots + X_n}{n}$$

This is read as "the sum of n observations of random variable X divided by the sample size (n) is equal to the sample mean."

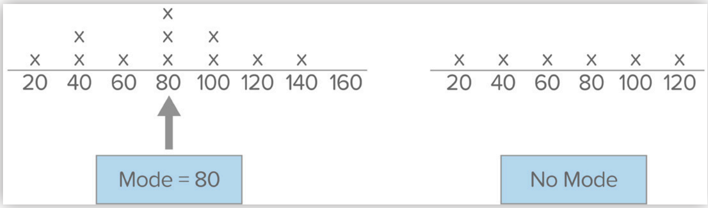
Measures of Central Tendency: The Median

- The **median** of an ordered or ranked set of data is the middle number. If the number of values is odd, the median is the middle number. If the number of values is even, the median is the average of the two middle numbers. The median is less affected by extreme values than the mean.



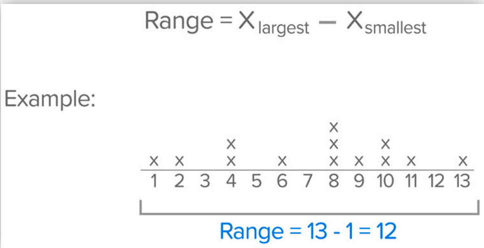
Measures of Central Tendency: the Mode

- The **mode** is defined as the value that occurs most often. Like the median, the mode is not affected by extreme values. There may be no mode, or there may be several modes.



Measures of Variation: Range

- The **range** is the simplest measure of variation. It is the difference between the largest and the smallest values:



Measures of Variation: Variance

- **Variance** is the average (approximately) of squared deviations of values from the mean.
  Sample variance:

$$s^2 = \frac{\sum (X_i - \bar{X})^2}{n - 1}$$

  Where:

$\bar{X}$ = arithmetic mean
n = sample size
X_i = i^{th} value/observation of the variable X

Measures of Variation: Standard Deviation

- **Standard Deviation** is simply the square root of the variance.
  Sample standard deviation:

$$S = \sqrt{\frac{\Sigma_{i=1}^{n} (X_i - \bar{X})^2}{n - 1}}$$

Sample Statistics Versus Population Parameters

As discussed above, we make inferences about the population based on sample data. In data analytics, we are mostly interested in the population means and variances in some way, shape, or form. Parameters describe populations; sample statistics describe samples. Thus, when the sample mean was calculated as $\bar{X}$, the sample mean was an estimate of the population mean μ. Similarly, the population standard deviation σ is estimated by sample standard deviation s, and population variance σ^2 is estimated by sample variance s^2.

Measure	Population Parameter	Sample Statistic
Mean	μ	$\bar{X}$
Variance	σ^2	s^2
Standard Deviation	σ	s

STATISTICAL TESTING

More often than not, it is not sufficient to just estimate the population parameters of mean and variance. Decision makers want to "test" hypotheses about the population. An example of a hypothesis that can be tested is, "do women leave more tip than men?" Or "does the average amount of tip increase as the number of individuals in the party increases?" Or, "is the average tip amount 15% of the bill?"

Let's take the last hypothesis of Tip amount = 15%. If you took a random sample of 20 individuals on day one of conducting a survey and found that the average was 14.5 % for these 20 diners, will you be inclined to accept the hypothesis? What if the average in the next day (day two) for another sample of 20 diners was 16%? As you know, the amount of tip is a random variable. This, in turn, means that $\bar{X}$, the mean of a sample, itself is a random variable, and it has a mean and variance. So, what sample average would you need to see to accept or reject the hypothesis that Tip amount = 15%? Would you reject the hypothesis if you saw an average Tip amount = 17.5%? What if it was 19.4%? This is where hypothesis testing comes in.

Sampling Distributions and Standard Error

The term **sampling distribution** is used to denote the fact that a sample statistic itself is a random variable and, therefore, the sample statistic has a probability distribution. As far as the sample mean, $\bar{X}$, is concerned, different samples of the same size from the same population will yield different sample means, $\bar{X}$'s.

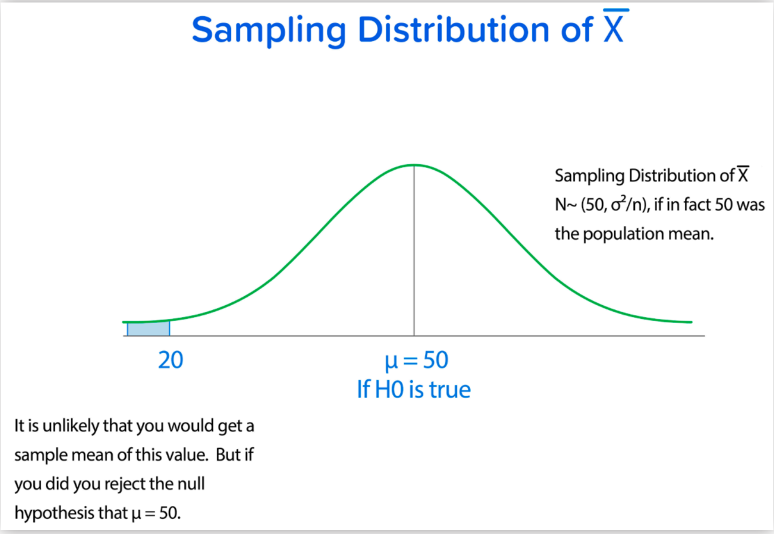
It can be shown that $\bar{X}$ is normally distributed with a mean μ and variance $\frac{\sigma^2}{n}$, though it may take a course in mathematical statistics to understand this. The square root of the variance of the sample mean $\bar{X}$ is called the standard error of the mean.

$$\sigma_{\bar{x}} = \frac{\sigma}{\sqrt{n}}$$

HYPOTHESIS-TESTING METHODOLOGY

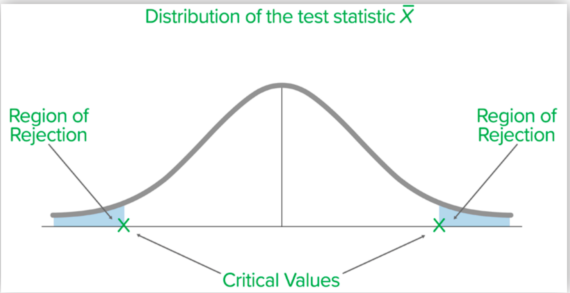
Hypothesis testing typically begins with some theory, claim or assertion about a particular parameter of a population. For example, the mean age of our customers is 50.

The hypothesis that the population parameter is *equal* to the claim is referred to as the **null hypothesis**. The null hypothesis is often stated as : $\mu = 50$. When a null hypothesis is specified, an **alternative hypothesis** is also specified, and it must be true if the null hypothesis is false. The alternate hypothesis is stated as $\mu \neq 50$. However, if you were convinced that the alternative should be less than 50 or greater than 50 years of age, they can be stated as H_1: $\mu < 50$ or H_1 : $\mu > 50$.



The Test Statistic and Critical Values

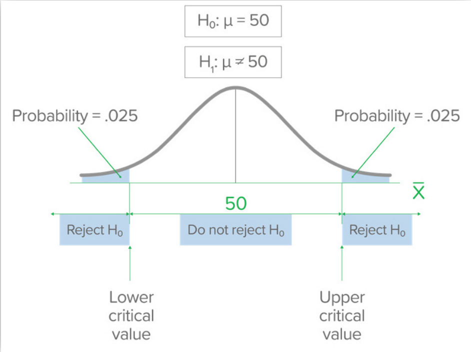
If the sample mean is close to the assumed population mean, i.e., between the two critical value, then the null hypothesis is not rejected.



If the sample mean is far from the assumed population mean, i.e., beyond critical values on both sides of the mean, the null hypothesis is rejected. The critical points are determined by the amount of error you are willing to make. In social science research, a 5% error is generally well toleraOted.

Hypothesis Testing

There are two cutoff values (critical values) defining the regions of rejection. Each region has an area of 0.025 reflecting the probability of making an error on either side 0.025, for or a total of 0.05. For one-sided tests ($H_1 < 50$; or $H_1 > 50$), the area totaling 0.05 will be on the left- or right-hand side.



For hypothesis testing, a sample statistic needs to be converted into some form of a known probability distribution. In the case of $\bar{X}$, the following statistic, t_{obs}, is approximately normally distributed. (To be accurate it is t-distributed with n-1 degrees of freedom. But we don't need to worry about this for all practical purposes).

$$t_{obs} = \frac{(\bar{X} - \mu)}{\frac{s}{\sqrt{n}}}$$

Where s is the sample standard deviation, n is the sample size, and μ is the hypothesized value that we are testing. The statistic t_{obs} (t-observed) is interchangeably called t_{cal} (t-calculated).

Previously we talked about the amount of error we were willing to make to determine cut-off values. While one could painstakingly look-up the t-tables with appropriate degrees of freedom for cut-off/ critical values for a particular probability of error, most social scientists accept two as the critical value.

Most computer programs provide what is called p-value. The number, p-value, is the probability of observing more extreme values of $\bar{X}$ than what has been observed. This implies that if the statistical software package gives a p-value of less than 0.05, you can reject the null hypothesis.

Hypothesis Testing: An Example

To test the claim that the true mean weight of chocolate bars manufactured in a factory is three ounces, the null hypotheses is H_0: $\mu = 3$.

If one takes a sample of 100 candy bars and finds that the mean weight of the 100 candy bars $\bar{X} = 2.84$ and the sample standard deviation $s = 0.8$ then,

$$t_{obs} = \frac{(2.84 - 3)}{\frac{0.8}{\sqrt{100}}} = -2.0$$

Using the pragmatic criterion that if the calculated (observed) t-statistic is two or more in absolute value, we reject the hypothesis that the average weight of candy bars is three. Also, since the number is negative, pragmatically we can say that the weight is lesser than three.

Two-Sample Test

Sometimes researchers need to compare two samples from two populations instead of single sample data collected from a single population. Let's say an App developer wants to know whether a light-colored theme or dark colored theme will affect the time users spend on the application. He can provide half of his sample with the light theme and the other half with the dark theme. The data collected can be tested using a Two-Sample Test.

There are two scenarios when talking about comparing two populations. In the first scenario, the two populations are independent. In the second scenario, the two populations are related. In the above example, the two groups are not related to each other. An example of related groups would be if you wanted to compare, let's say husbands' and wives' charitable giving. Another example would be before and after measurements on the same subjects in a setting where you wanted to see if after measurements were different from before ones.

Two-Sample Tests – Unrelated Populations

The null hypothesis in this case of testing the means of two populations is $H_0 : \mu_1 = \mu_2$, where is the population mean for the first and μ_2 is the mean for the second population. Let $\bar{X}_1$ be the mean of the sample from the first population and $\bar{X}_2$ be the sample mean for population 2. Let n_1 and n_2 be the corresponding sizes of the samples taken from the two populations. Statistical theory tells us that

$$t_{cal} = \frac{(\bar{X}_1 - \bar{X}_2)}{S_p\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}}$$

is t-distributed with $n_1 + n_1 - 2$ degrees of freedom. However, statistical packages will provide the t-statistic, and if that is < –2 or > 2, we can reject the null. We then make inferences about whether one population is higher than the other based on the sign. Statistical packages also will provide the p-value (the probability of seeing t_{cal} more extreme than what has been observed). If the p-value is less than 0.05, we can reject the null.

Two-Sample (Paired) Tests: Related Populations

Since the two populations are related, the variable of interest becomes the difference between the values rather than the values themselves. Let X_i be the i^{th} observation from the first population and Y_i be the i^{th} observation from the second population, then

$$D_i = X_i - Y_i$$

$$\bar{D} = \frac{\sum_{i=1}^{n} D_i}{n} \qquad S_D = \sqrt{\frac{\sum_{i=1}^{n} (D_i - \bar{D})^2}{n-1}}$$

$$t = \frac{\bar{D} - \mu_D}{\frac{S_D}{\sqrt{n}}}$$

Generally speaking, the hypothesized difference between the two populations' means μ_D is zero. But you can have whatever value your theory dictates. Here, too, the software package will provide the calculated t-value and p-value. If the observed t-value is < –2 or > 2 or p-value is < 0.05, one can reject the null of equal means in the two populations.

CROSS TABULATIONS AND CROSS-CLASSIFIED TABLES

The need to study the relationship with two or more categorical variables is common in business. These patterns are explained by **cross-tabulating** the data. You can present cross tabulations in tabular form. Let's say you wanted to test whether males and females differ in the "degree of doneness" of their steak. For the sake of this example, let's say you are concerned about two levels, rare and medium. You have data on 300 customers' preferences on how well-done they like their steaks and the customers' gender. The two variables each have two levels:

Preference: Rare or Medium
Gender: Male vs. Female

The table will be a 2 x 2 table, as shown below. The categories of one variable are located in the rows, and the categories of the other variable are located in the columns. The cell is the intersection of the row and column, and the value in the cell represents the number of counts corresponding to that specific pairing of the row and column categories.

sample size = n = 300		Gender		
	Preference	Famale	Male	
120 Females, 12 wanted Rare 180 Males, 24 wanted Rare	Rare	12	24	36
	Medium	208	156	264
		120	180	300

The above example had two variables, both with two values. Cross-classified tables are relevant for discrete variables with more than two values, and the tables can accommodate more than two variables. For best results, each cell should have at least five counts.

The null hypothesis in such a scenario is that the two variables (preference and gender) are independent, i.e., being a male (or female) does not make you prefer rare to medium. The alternate hypothesis is that the two variables are dependent. If the null is rejected, one can look at the counts in the cell to make inferences in the direction of the dependency, i.e., males prefer rare or females prefer rare.

The Chi-Square Test Statistic

The Chi-square test statistic is:

$$\chi^2_{cal} = \sum_{\text{all cells}} \frac{(f_o - f_e)^2}{f_e}$$

(Assumed: each cell in the contingency table has an expected frequency of at least five) where:

f_o = observed frequency in a particular cell.

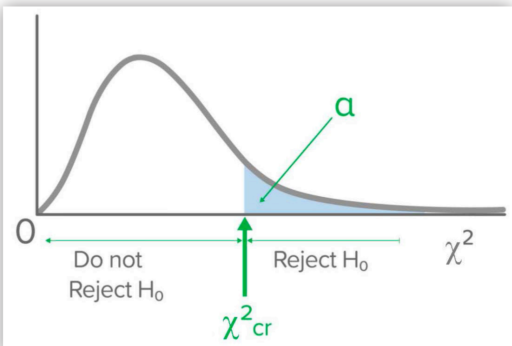
f_e = expected frequency in a particular cell if H_0 is true, i.e., the variables in the table are independent of each other.

χ^2 for the 2 × 2 case has one degree of freedom. Other sizes of tables will have different degrees of freedom.

The χ^2_{cal} test statistic follows a chi-square distribution with one degree of freedom. For $\alpha = 0.05$ (the probability of rejecting the null when it is true) the χ^2_{cr} is 3.84. Again, one does not have to worry too much about the math as statistical packages will provide the p-value. You reject when the p-value is less than 0.05. χ^2_{cr} is not 3.84 for other sizes of tables, since they will have different degrees of freedom.

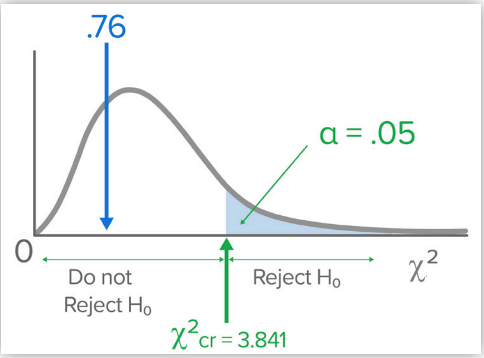
Decision Rule:

If $\chi^2_{cal} > \chi^2_{cr}$, reject H_0, otherwise, do not reject H_0.



We will not get into the calculations of expected frequencies and implementing the formula. In this case the test statistic $\chi^2_{cal} = 0.76$.

Here, $\chi^2_{cal} = 0.76 < \chi^2_{cr} = 3.841$, so you do not reject H_0 and conclude that there is insufficient evidence that the two variables are related.

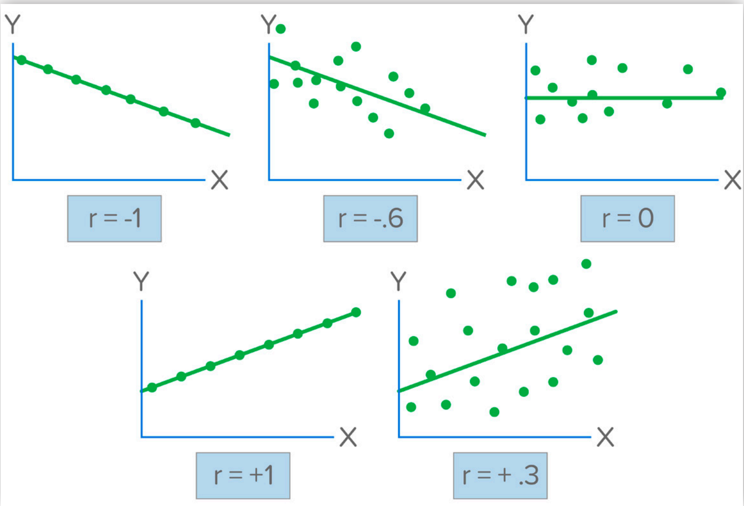


THE CORRELATION COEFFICIENT

- The correlation coefficient measures the relative strength of the linear relationship between two variables. If one variable goes up in value, does the other go up or down? A good example of a correlation coefficient is the relationship between height and weight. By and large, we would expect the relationship to be positive; taller people will generally be heavier than shorter people. But this might not always be the case. In other words, the correlation might not be perfect (or one).
- The correlation coefficient is given by (but don't worry about the formula):

$$r = \frac{\Sigma_{i=1}^{n}(X_1 - \bar{X})(Y_i - \bar{Y})}{\sqrt{\Sigma_{i=1}^{n}(X_1 - \bar{X})^2}\ \sqrt{\Sigma_{i=1}^{n}(Y_1 - \bar{Y})^2}} = \frac{\text{cov}(X, Y)}{S_X S_Y}$$

In the scatter plots below, each dot represents one individual's response to the two variables, X and Y. Thus, in the first plot, seven individuals are represented.



REGRESSION ANALYSIS

Regression analysis is used to predict the value of a dependent variable based on the value of at least one independent variable and explain the impact of changes in an independent variable on the dependent variable.

The dependent variable is the variable you wish to explain. There is only one dependent variable in all regression models.

The independent variable(s) is/are the variable(s) used to explain the dependent variable.

Even though the variables are called dependent and independent variable, regression analysis does not *establish* causality, i.e., the independent variable *causes* a change in the dependent variable. To establish causality, an experiment needs to be conducted. The regression model *assumes* that the independent variable causes a change in the dependent variable based on the theory that is expressed in the equation.

In a linear regression model, independent variables are related to the dependent variable in a linear fashion individually. Relationships can be more complex than just linear, but that won't be covered here.

In a simple linear regression model, there is only one independent variable. The relationship is expressed as follows:

$$Y = B_0 + B_1 X + e$$

This equation says that in a population, the random variable Y is related to a variable X in this fashion. So, if X goes up by a unit, Y goes up B_1 on an average. The symbol e represents a random error that might influence the final value of Y for any given X. If X is 0, Y is equal to B_0. B_0 is the intercept term and B_1 is the slope parameter – just like in ordinary graph terminology.

Linear Regression Example

You as a restaurant(s) owner wish to examine the relationship between the amount spent eating out and income of the household for couples with no children. A random sample of 10 households is selected.

Dependent variable (Y) = Amount spent/month eating out
Independent variable (X) = Net take-home income/month

Even though not all households with the same net income will spend exactly the same amount eating out, this regression equation says that the *central* value of Y (the amount spent eating out) will be $B_0 + B_1X$.

Hence the error term e, which can be positive or negative for any given household, is a random variable that has a mean of zero.

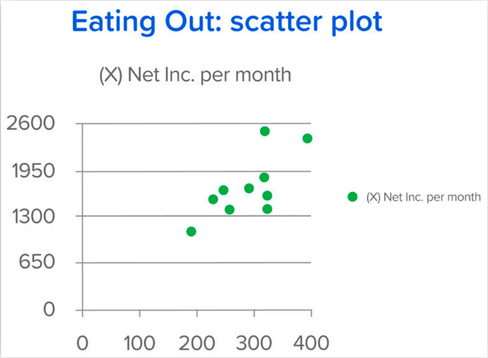
The relationship $Y = B_0 + B_1X + e$ is in the population. The parameters B_0 and B_1 have to be estimated from sample data.

Just like $\bar{X}$ was an estimate for the unknown population mean μ and there was a formula for calculating $\bar{X}$, we need to be able to have formulae for calculating b_0 and b_1, the estimates of B_0 and B_1.

Linear Regression Example Data

Amount Spent Eating Out per Month (Y) Amt. Spent	Net Household Income per Month (X) Net Inc. per month
255	1395
322	1599
289	1705
318	1888
187	1099
225	1545
395	2400
319	2500
322	1430
245	1675

Linear Regression Example Scatter Plot



Linear Regression Equation Interpretation of b0 and b1

b_0 and b_1 are estimates for B_0 and B_1. Several different methods can be used to estimate B_0 and B_1. The most popular one is called the **least squares method**.

The estimated equation is Y = 113 + (0.10)X.

b_0 = 113 is the estimated mean value of Y when the value of X is zero. Because the net income cannot be zero for the kind of population being modeled by this equation, the Y-intercept has no practical application. b_1 = 0.10 implies that for every dollar increase in income, the mean value of $ spent eating out increases by $0.10.

The estimated regression equation can be used for predicting the dependent variable for a new value of X. Thus if one wanted to know what the eating out expenditure would be for a new X_i (where X_i is not one of the data points in the data you have collected through your sample), it is given by $\widehat{Y_i}$ where $\widehat{Y_i} = b_0 + b_1 X_i$. Care must be taken not to go too far beyond the range of X in the sample data to make predictions about Y as the model may not be applicable beyond the range. For example, a couple with extreme wealth might have a private chef cooking for them at home, while a couple in poverty may only be able to eat cheap fast food outside because of the lack of an equipped kitchen.

In the above example, the B's were both positive. They can be negative or positive, depending on the model.

Significance Testing of b_0 and b_1

You guessed it, if we took another sample of 10 couples you might find different values for b_0 and b_1. Take yet another sample of 10, and you might get another set of values. Therefore, both b_0 and b_1 are random variables. Without getting into the mathematics, the estimated parameters can be tested for significance, i.e., are they different from zero. So, the null hypotheses are $H_0 : B_0 = 0$ and $H_0 : B_1 = 0$. The observed values and are compared to zero to see if they are "significantly" different from zero. Here, too, a t-value is calculated and provided by the statistical software. If the magnitude of t_{obs} (or t_{cal}) is greater than two, we reject the null and say that the corresponding coefficient is statistically significant and does affect the dependent variable by the amount of the coefficient. The direction of the effect is the direction of the sign of the coefficient.

In our example, the statistical package provides the t_{cal} for b_0 and b_1 as 1.9 and 3.1. This implies that b_0 is not significant but b_1 is. The corresponding p-values are 0.09 and 0.01. If we use $p = 0.05$ as the cut-off value again, b_0 is not significant but b_1 is.

Finally, the R^2 in this particular example is 0.54. This implies that 54% of changes in eating out expenditure can be explained by net income. The remaining 46% cannot. This is a case where the researcher needs to consider what other variables may be influencing the eating out expenditure variable. Once these other variables are added, the R^2 should go up. But recall even if all the important independent variables are added, the total variability in Y may still not be explained, i.e., R^2 might still not be one. That is the reason the error term e is introduced in the model in the first place.

Multiple Regression

The previous example included only one explanatory or independent variable. Regression is possible, and, in fact, more important when more than one independent variable influences the dependent variable simultaneously. Thus, in the example of explaining money spent eating out, one might find other variables that might be influential in explaining the dependent variable. For instance, easy access to restaurants, employment, and income of both individuals, or the average age of the couple might also affect the dependent variable.

A multiple regression equation is written as

$$Y = B_0 + B_1X_1 + B_2X_2 + B_3X_3 + \ldots + e$$

The coefficients associated with the X's are interpreted as the influence they have on Y for a unit increase in the corresponding X holding other X's constant. Thus, B_2 is the amount Y will increase if X_2 goes up by a unit. (If B_2 is negative, then Y goes down by that amount for an increase in X_2.) This is the power of multiple regression – it teases out the effect of individual independent variables while other variables are in the model. Multiple regression removes a common ailment, called spurious correlation, in explaining a dependent variable. Let's say if X_1 was the only variable in the model and it was significant, a researcher may then believe that X_1 influences Y. When X_2 is added to the model, it might be possible that X_1 is no longer influential. This happens when X_2 is the root cause that influences both Y and X_1. Hence B_1 in the model that includes X_2, will become insignificant. B_1 measures the impact on Y when X_2 is held constant.

Chapter III-9

Organizational Forms

So far, we have dealt mostly with the 'software' part of a business, i.e., winning over the hearts and minds of customers, so to speak. We dealt with products, services, value propositions, target audience, positioning, and so on. We studied how we can look into the future (market research) to decide on the addition of new products and new customers. We also test-drove the basic 'hardware' component of the business, a simple organization, that is required to deliver value to customers. From this point on, we will mostly talk about scaling the hardware component that will allow us to increase our offerings and our customers. A simple, informal organization is not enough now. Beyond simple, however, there are multiple different types of organizations possible.

A business can 1) be owned by a single person, or it can have multiple owners, 2) serve as a proxy for the owner (in the case of sole proprietorship), or be a separate legal entity, and 3) have owners who are completely liable (i.e., stand to lose all their personal wealth in the event the business folds), or owners with limited or partial liability (i.e., stand to lose only the amount that they have invested in the business). Such factors come together to define the different organizational forms.

There are essentially five main forms of business organizations: proprietorships, partnerships, corporations, limited liability corporations, limited liability partnerships.

Sole Proprietorships

A **Sole Proprietorship** is a business structure in which an individual and his/her company are considered a single entity for tax and liability purposes.

Owners: One owner

Taxation: Owner reports proprietorship's taxes on Schedule C of their personal tax return

Liability: The owner has unlimited personal liability for the company's debts and actions

Filing requirement: No legal documents need to be filed in most states

Advantages:

- Minimum legal restrictions
- Ease of formation
- Low start-up cost
- Maximum freedom in decision making

Disadvantages:

- Unlimited liability of the owner
- Less available capital
- Difficulty in obtaining long-term financing

Partnerships

A **Partnership** is an arrangement in which two or more individuals share the profits and liabilities of a business venture.

Owners: At least two, no maximum amount

Taxation: Partner's report their share of the partnership's taxes in their individual tax returns

Liability: Partners have unlimited personal liability for the company's debts and actions

Filing requirement: No legal documents need to be filed in most states

Advantages:

- Ease of formation
- Broader management due to the number of owners

Disadvantages:

- Unlimited liability for partners
- Divided authority and decision making

C – Corporations

C Corporation is a legal entity that is separate and distinct from its owners. The corporation is solely responsible for its own acts and debts. The corporation itself pays the company's taxes, not the owners, although they will be taxed on their share of dividends. Shareholders participate in the profits, through dividends and the appreciation of stock, but are not held personally liable for the company's debts.

Owners: At least one, no maximum, often a very large number of owners (stockholders)

Taxation: The corporation is taxed as a separate legal entity

Filing requirement: Articles of incorporation (charter) filed with the state

Liability: Owners and directors are shielded from personal liability

Advantages:

- Separate legal entity
- Limited liability for stockholders

- Unlimited life of a business
- Ease in raising capital
- Transfer of ownership through the sale of stock
- Multiple types of shareholders

Disadvantages:

- Complex organizational structure
- Activities may be limited by charter
- Extensive regulations for financial reporting
- Double taxation of profits and dividends

S – Corporations

S Corporation is a closely held corporation (not publicly traded, in some cases it is a limited liability company or a partnership) that makes a valid election to be taxed under Subchapter S of Chapter one of the Internal Revenue Code.

Owners: At least one, maximum of 100

Taxation: Shareholders report the income or loss on their own individual income tax returns

Liability: Owners are shielded from personal liability

Filing Requirement: Most states allow S-Corporations, but some don't. The states that don't treat S-Corp. as a C-Corp.

Advantages:

- Limited liability for shareholders
- Unlimited life of a business

Disadvantages:

- Restrictions on number and type of shareholders
- Limitations on classes of stock that may be issued

Limited Liability Company

Limited liability company (LLC) is an organization structure that combines the taxation of a partnership with the limited liability of a corporation

Owners: At least 1, no maximum

Taxation: Owner reports the company's taxes on their personal tax return

Liability: Owners are shielded from personal liability

Filing Requirement: Different states have different forms that need to be filed

Advantages:

- Limited disclosure of owners
- No advance IRS filings
- Ease in the transfer of ownership
- Can have different classes of owners

Disadvantages:

- The large number of owners can be complex
- Death, bankruptcy or withdrawal of owner can cause problems
- Doing business in other states may require filing individual tax returns in each state

Limited Liability Partnership

Limited liability partnership (LLP) is extended from general partnership. It differs from a general partnership (where all partners share the profits and liabilities), in that within an LLP, some partners such as junior partners don't have stake or liability in the partnership. It is usually used in professional service organizations such as law firms and accounting firms.

Owners: At least one general partner, and at least one limited partner, no maximum

Taxation: General partners report the company's income and losses on their personal tax returns, and limited partners report their share of the company's income as passive income on their personal tax returns

Liability: Limited partners are shielded from personal liability, although general partners are not

Filing Requirement: Generally a written partnership agreement must be written and filed using state-specific forms

Advantages:

- Ease of formation
- Broader management due to a greater number of owners

Disadvantages:

- Unlimited liability of general partners
- Divided authority
- Difficulty disposing of limited partnership's interest

Comparison between LLC and LLP

LLCs and LLPs both provide personal asset protection from business debts and liabilities. However, in an LLC, the members are not protected from the liability of another member. An LLP provides this protection.

For example, an LLC member in a taxation practice makes a client error that is legally actionable, the LLC and all of its members can be held liable. But if a partner in an LLP is legally liable for something, the other partners cannot be held jointly liable.

Agency Problem

Agency problem usually refers to the problem arising from the conflict of interest between a company's management and the company's stockholders. The company's management, acting as the agent for the shareholders (or principals), is supposed to make decisions that will maximize shareholder wealth. When a company's management is naturally inclined to act in their own best interests, which are not always the same as the interest of stockholders, agency problem arises.

An extreme case of agency problem: The CEO of ABC appoints his nephew, who does not have enough managerial accounting background, as the CFO. This phenomenon is contradicting the shareholders' interests and benefits.

Tools to Align Stockholders' and Management's Interests

Here are three useful motivational tools that will aid in aligning stockholders' and management's interests.

Offer reasonable compensation packages. The compensation package should be sufficient to attract and retain able managers but not go beyond what is needed. Also, compensation packages should be structured so that managers are rewarded based on the stock's performance over the long run, not the stock's price on an option exercise date.

Direct intervention by shareholders, including firing managers who don't perform well. Stockholders can intervene directly with managers. Today, the majority of stock is owned by institutional investors, and these institutional money managers have the clout to exercise considerable influence over firms' operations. First, they can talk with managers and make suggestions about how the business should be run. In effect, these institutional investors act as lobbyists for the body of stockholders. Second, any shareholder who has owned $2,000 of a company's stock for one year can sponsor a proposal that must be voted on at the annual stockholders' meeting, even if management opposes the proposal. Although shareholder-sponsored proposals are non-binding, the results of such votes are clearly heard by top management.

Leverage the threat of takeover. If a firm's stock is undervalued, then corporate raiders will see it to be a bargain and will attempt to capture the firm in a hostile takeover. If the raid is successful, the target's executives will almost certainly be fired. This situation gives managers a strong incentive to take actions to maximize their stock's price.

Chapter III-10

The Delaware C-Corp

To be an attractive company for venture capitalists for investment purposes, you will want to establish your business as a C-Corp and more specifically, a Delaware C-Corp. There are several reasons why you should incorporate your company in Delaware along with half of all publicly-traded US firms and 60% of the Fortune 500.

- The Delaware Chancery Court focuses solely on business law and uses judges instead of juries (This is much less risky for everyone involved).
- Corporate case law in Delaware is more extensive than any other states due to the high volume of companies incorporated in Delaware and the corporate cases that are adjudicated. More case law means increased predictability and less uncertainty about the judicial outcome of litigated disputes. Investors are always looking to reduce risk.
- Delaware corporate rules allow a great deal of flexibility in the organization of a corporation and the rights and duties of board members and shareholders.
- Most corporate attorneys are familiar with Delaware business law. As a result, your attorney should be more efficient and

cost-effective in assisting you if your company is incorporated in Delaware.

- Because of all the above reasons, angel investors and venture capitalists prefer to invest in Delaware C-Corps, some will even require it. So, if you are serious about receiving investments from these types of investors, you must incorporate in Delaware. In addition, it sends the message that you are serious and understand the preferences of investors.
- There is no state corporate income tax for companies that are formed in Delaware but do not transact business there. However, there is a franchise tax which can be as low as $125 per year with reporting fees.
- Shareholders, directors, and officers of a corporation don't need to be Delaware residents.
- Stock shares owned by people of firms outside Delaware are not subject to Delaware taxes.

There are only a few drawbacks to incorporating in Delaware.

- You will be required to have a registered agent for service of process. The annual fees for this service vary, but companies such as Legal Zoom charge between $125 & $150.
- You will have to pay the annual franchise tax in the states in which you are "doing business," as well as in Delaware.
- There will be a second layer of reporting requirements, one for Delaware and one for the state(s) in which you "do business."

The bottom line is that you want to be a Delaware C-Corp. This is especially true for any pre-revenue company since the sum of the annual fees you will incur in Delaware will only be about $300 ($125 for franchise tax & $150 for a registered agent). You will need to add this to the taxes you'll need to pay in the state that your business is operating.

Chapter III-11

Search Engine Optimization (SEO)

There are hundreds of restaurants, retail stores, and local services vying for business. Many of these companies have a web presence. If a customer is searching for a business on Google, there will be about 10 hits in the first page (according to reports, 92% of the people check only the first page and only 6% check the second page). So, how can companies hope to get their websites listed on the first page and, thereby, increase traffic to their site? For this to happen, a company needs to optimize the content of their web pages so that they closely match what people search for. This is called Search Engine Optimization.

Search engine optimization (or SEO) is the process by which owners of a website attempt to rank higher in search results. SEO is the practice of increasing the quantity and quality of traffic (visitors) to your website through organic search engine results. Organic search results are all the traffic that you didn't pay for. Organic results cover more digital real estate, appear more credible to searchers, and generally receive more clicks than paid advertisements. Both quantity and quality of traffic matter. Quantity signifies that users are clicking to go to your site because you have what they're looking for. Quality of traffic matters because they are the types of users you want, e.g., who buy, who write positive reviews, etc.

A typical SEO campaign begins with a review of an existing website to determine its current rankings in the results produced by search engines, Search Engine Results Pages (SERPs). This review is done for different keywords on which users of the website may conduct a search. The website is then examined for its strengths and weakness of its content and structure. Once the baseline of the website has been established, the owner of the website selects a set of keywords for which they wish.

Over time the owner of a website, or webmaster, will make updates to the content and structure of their website to highlight these targeted keywords, and in turn, increase their rankings. However, not all of a search engine's ranking factors are located in the website itself, so a quality SEO campaign will also include improvements to several off-page factors in addition to website updates. Since several of the rankings factors are outside of the control of a webmaster, many relying upon other webmasters and users, the process of implementing an SEO campaign can take several months. SEO should, therefore, be viewed as a long-term solution to drive additional traffic, rather than as a quick fix.

SEO Basics

Here are a few terms that are useful for understanding SEO.

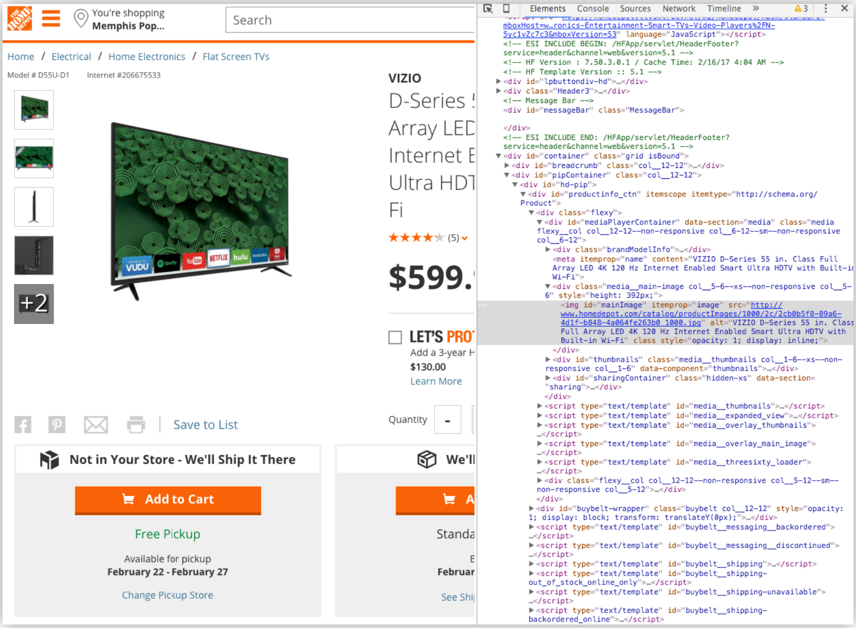
- Landing page – the page a business wants a user to land in when entering the business's website.
- Title Tag – the title as it appears within the SERP. This title is clickable for the user to get to the landing page.
- H1 (the header) – usually the first main line of text that appears on the landing page.
- URL (Uniform Resource Locator) – the web address of a page as it is directly displayed within your browser (e.g., https://www.google.com/).
- Content – the words and images on a webpage.
- Keywords – the words or phrases (search query) that users type into search engines.

- Impressions – the number of times a business's listing is presented to users within all SERPs. Impressions can be reported on a daily or monthly basis.
- Click-Through-Rate (CTR) – the rate at which users click on the business's listing when they are presented with the title tag in SERP.
- Domain – the main web address of your site.
- HTML – the code part of your website that search engines read.
- Metadata – data that tells search engines what your website is about.
- ALT Text/Tag – a description of an image in your site's HTML.

Before digging into SEO, it is important to understand the search engines themselves, including; how a search engine works, why SEO is so important to a website, and the current landscape of the search engine industry.

Search Engines

A search engine is a system that attempts to scan and index the content of all websites, making it easy for users to find their desired content. Search engines achieve this by using web programs called "Crawlers" that scan the HTML of each webpage, record the content of that webpage, and then follow any links to other webpages on that website and other websites. It does this in an attempt to see how often webpages are linked to one another across the web. It is important to note that "Crawlers" can read only the HTML of a webpage; they cannot understand the content in images, videos, or other digital media.



In the above example, a visitor sees the content as displayed on the left-hand side of the image, whereas the website crawler reads the HTML as in the image shown on the right-hand side.

Search Engines (such as Google, Yahoo, and Bing) then attempt to use the information they've gathered from the web to return the pages that are most relevant to a user's search queries. It is important for Search Engines to provide the best and most relevant results to a search in order to prevent their users from switching to a competitor. Each search engine has its own proprietary ranking algorithm that weighs any number of factors (Google uses over 200 different ranking factors) that approximate the quality of a website's content, as well as the quality of a user's experience. Therefore, the process of SEO can be described as improving the content and structure of your website so that search engines can find your content, understand it, and then rank your website higher in search results for a particular set of keywords.

SEO has become incredibly important to websites. Within the United States, approximately 92% of adult internet users make use of search engines, with 59% of these users doing so regularly. Worldwide, there are over 6.5 billion searches per day. The immense volume of searches provides an unequaled opportunity to draw traffic to a website and has, therefore, become one of the primary considerations in digital marketing. Of the most popular search engines, Google dominates the market with approximately 63.8% of searches in the United States. Bing by Microsoft comes in second place with 21.3%, and Yahoo comes in third place with 12.4% of searches. Together these search engines account for 97.5% of searches in the US and are, therefore, the primary three search engines that websites target for rankings.

It is important to be ranked highly among search results because the vast majority of users click on the top results. Studies have shown that approximately 32.5% of visitors click on the first link, 17.6% click on the second link, and 11.4% click on the third link in results. In total, over 91.5% of visitors click on a link in the first page of results (Top 10) with an additional 4.8% of visitors clicking on a link in the second page of results (Results 11-20). Therefore to take advantage of this massive volume of traffic, websites need to be returned in the top results of a search, or they will not receive significant traffic.

The following is a series of infographics that highlight the potential increase in revenue by climbing from the 5th rank for a keyword to the 1st rank for the same keyword. The calculations are shown for a 1% conversion rate and an average value of $500 per conversion.

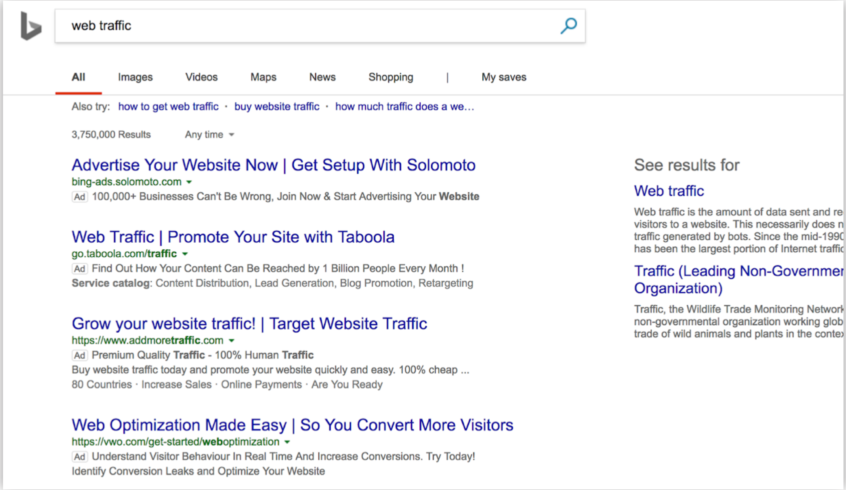
Top Search Engines

Google

- Undoubtedly the most popular search engine
- 3.5 billion searches per day
- 70% of search market share
- Captures almost 85% of mobile traffic
- Everyone competes for same traffic on there

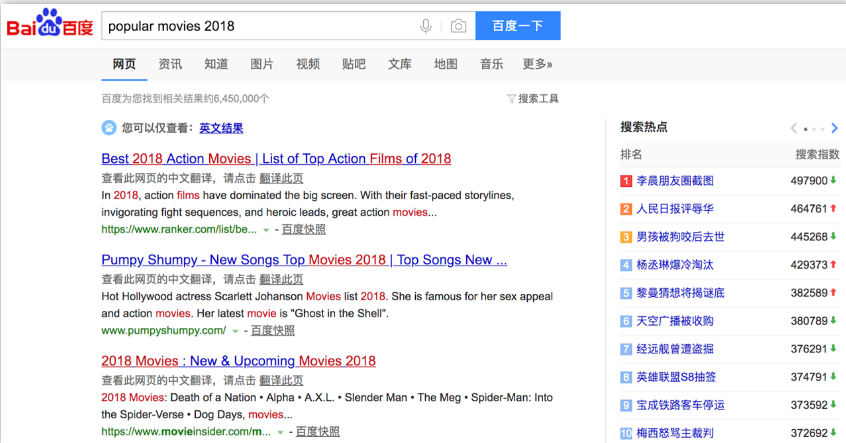
Bing

- 400 million searches per day
- Offers rewards to search or shop on the engine
- The US's third biggest search engine



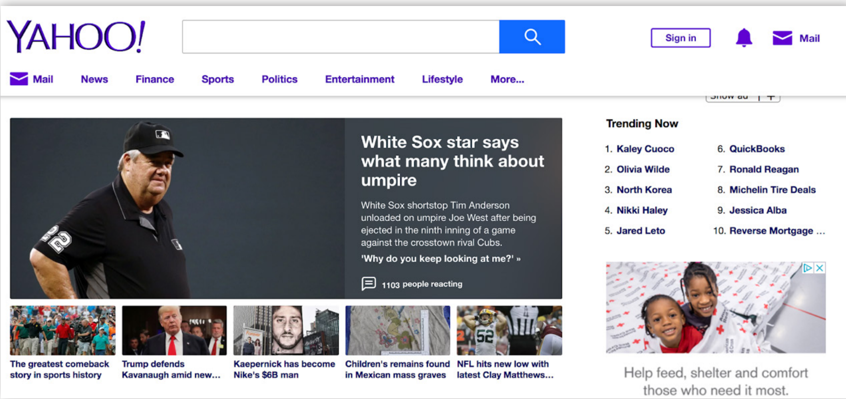
Baidu

- China's largest search engine
- 75% of China's search market
- Censures certain images and blocks pro-democracy website



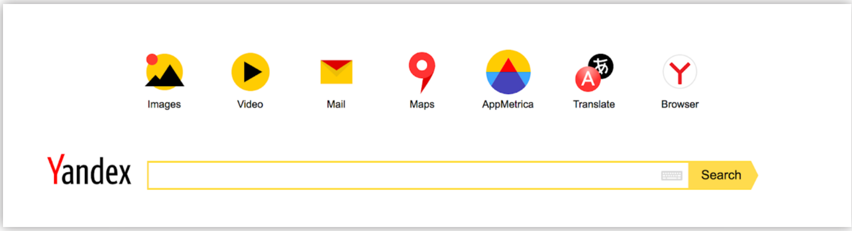
Yahoo

- Little over 3% of the worldwide market share
- Powered by Bing



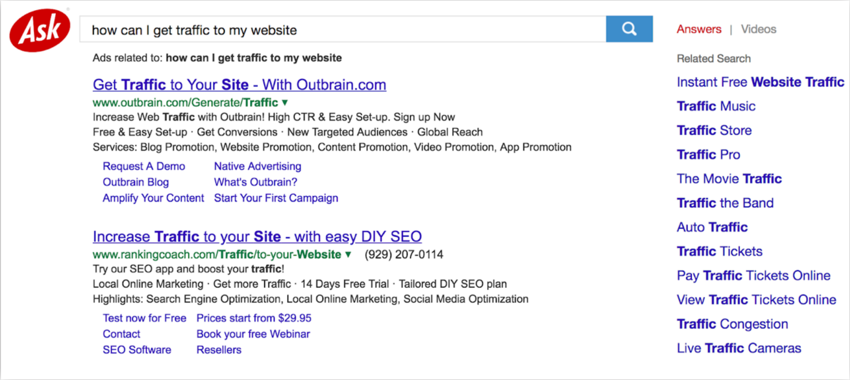
Yandex

- 65% of total Russian search traffic
- Also popular in European countries
- Offers a cloud storage service



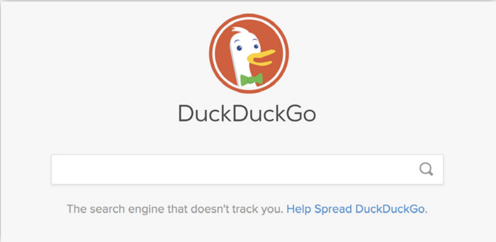
Ask

- Unique because of its question-and-answer format
- Some sponsored search results are powered by Google



DuckDuckGo

- Doesn't track, store, or collect information
- About 27 million daily searches



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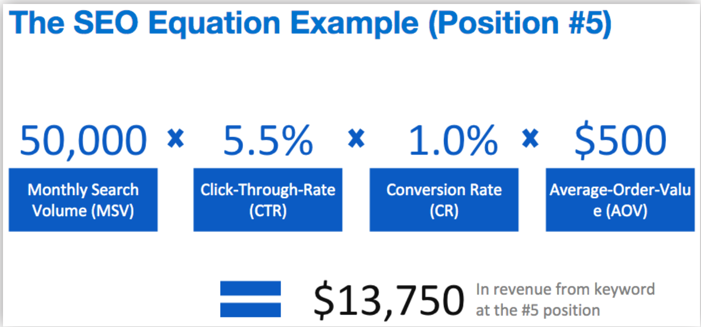
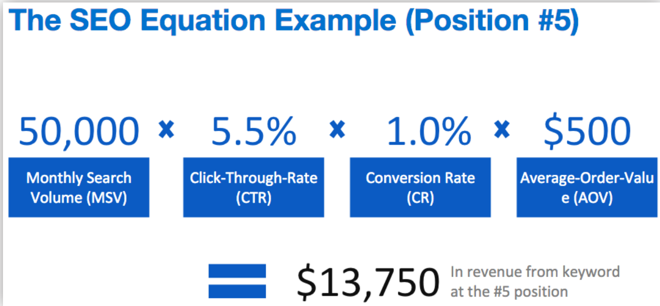
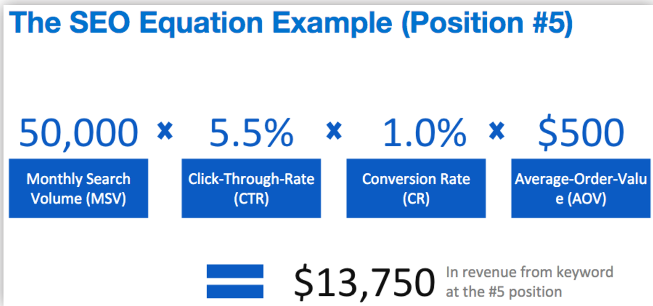
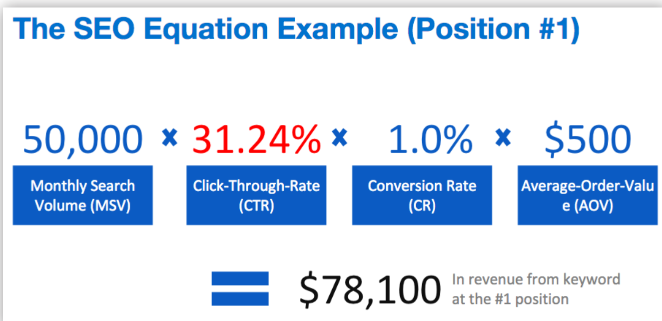
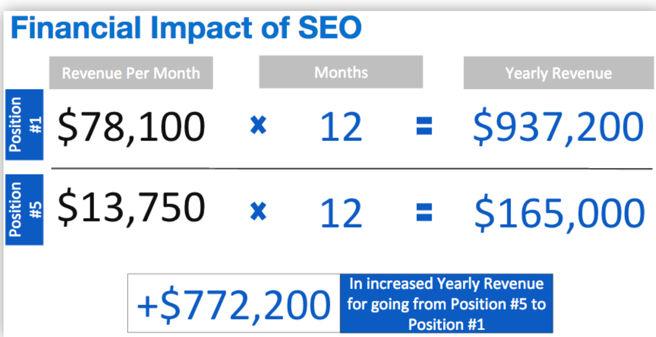



The SEO Equation Example (Position #5)
50,000 × 5.5% × 1.0% × $500
Monthly Search Volume (MSV)
Click-Through-Rate (CTR)
Conversion Rate (CR)
Average-Order-Value (AOV)
= $13,750 In revenue from keyword at the #5 position


The SEO Equation Example (Position #5)
50,000 × 5.5% × 1.0% × $500
Monthly Search Volume (MSV)
Click-Through-Rate (CTR)
Conversion Rate (CR)
Average-Order-Value (AOV)
= $13,750 In revenue from keyword at the #5 position


The SEO Equation Example (Position #1)
50,000 × 31.24% × 1.0% × $500
Monthly Search Volume (MSV)
Click-Through-Rate (CTR)
Conversion Rate (CR)
Average-Order-Value (AOV)
= $78,100 In revenue from keyword at the #1 position

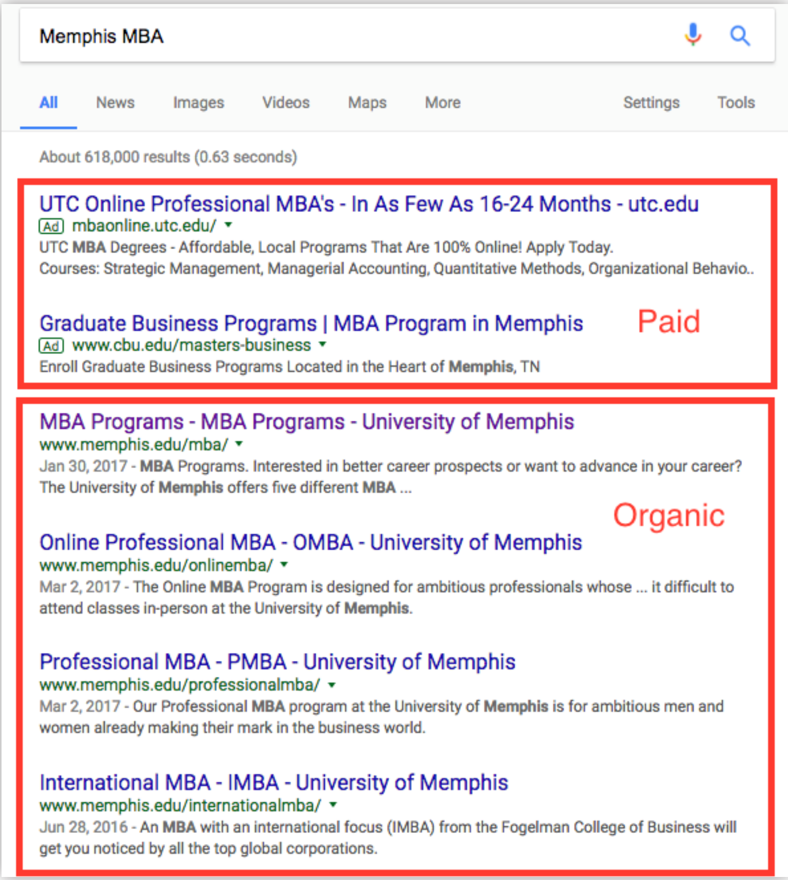

Financial Impact of SEO
Revenue Per Month
Months
Yearly Revenue
Position #1
$78,100 × 12 = $937,200
Position #5
$13,750 × 12 = $165,000
+$772,200
In increased Yearly Revenue for going from Position #5 to Position #1

Paid vs. Organic Search

There are typically two types of search results returned by a search engine when a user enters a query: **paid results** and **organic results**. Paid results are advertisements that are paid for by advertisers to search engines. Paid results usually appear above or to the side of the top organic results. By contrast, organic results are determined by search engines through an algorithm. Advertisers are not allowed to purchase these rankings. By separating paid results from organic results, search engines are able to collect advertising dollars from marketers, while also providing content that users may find most relevant. Separation also lets users know if they are clicking on a link that was generated through natural rankings, or if it is a paid advertisement. Advertisers use paid advertising with search results because 1) they can reach more relevant potential audience as compared to some other forms of advertising, 2) the probability of searchers clicking on the ad is higher as paid advertisement appears on top of the list of results, and 3) upkeep of the website to garner top results in organic search is not required.

SEO focuses on attempting to rank a website higher in the natural (organic) search results. In addition to the large volume of traffic that can be gained by tapping into search engines, a major benefit is that websites do not need to pay for traffic received through organic search results. The ability to generate long-term traffic without having to pay per visitor is the main reason why marketers pursue SEO so vigorously.

The below example shows a Google search for the term "Memphis MBA." The University of Memphis website has very strong SEO for this keyword phrase. Including the word "Memphis" in its domain name is one of the most important reasons in determining rankings when "Memphis MBA" are the keywords. However, The University of Memphis website only appears as the third link in these results because there are two paid advertisements. These advertisements are marked with the "Ad" designation, so users know that these links are paid advertisements. While the paid advertisements appear at the top of the results, users often skip paid links in preference to top organic results. This image also shows how having several *pages* in the top results for a keyword can have a positive impact. Searchers see that at least the top 4 organic results are links to the University of Memphis website. This indicates to the searchers that it is very likely the best resource for this search.



Common Search Engine Ranking Factors

While each search engine has its own proprietary algorithm, they are all attempting to return the most relevant results to a user's search. As a result, while there may be differences in how important a given factor is to a particular search engine, there are several common factors that are important across all search engines. This allows a website to run a single SEO campaign and achieve improvements across most search engines. Since Google has the largest market share of searches, many SEO campaigns focus on improving rankings in Google, and as a by-product achieve improved results in other engines.

To examine some of these common factors, we will look into Google's ranking algorithm. While the exact ranking algorithm is proprietary, marketers have been able to determine over 200 different factors they believe to have an impact on a websites' rankings. It is important to note, that these algorithms are continuously in flux as search engines attempt to improve their results or incorporate changes in technology and the user experience into their algorithms. For example, mobile responsiveness is now a significant factor in ranking results, but when Google was first released in 1998, mobile responsiveness wasn't nearly as important across the web. While there are continuous updates to ranking algorithms, major factors have been identified, and most SEO campaigns can focus on the most important attributes.

SEO Strategies

The process of SEO can be broken into two distinct categories, **strategy,** and **tactics**. The strategies of SEO are common across almost all websites regardless of the website's industry and its goals, while the tactical implementation of these strategies varies widely. We will discuss three of the primary SEO strategies: keyword selection, on-page ranking factors, and off-page ranking factors.

The first step is to make sure you understand the overall goal of your website, and how you will judge the progress and success of your SEO campaign. Are you trying to generate a large volume of traffic and make money off of advertisements? Is it a business website that is attempting to generate more foot traffic, or make online conversions? Is it a website whose goal is to provide quality and educational content to its visitors? Understanding the overall goal of your website will allow you to determine which SEO strategies will provide you with the best results. For example, strategies that would work well for an informational website will not be nearly as effective for a company that is attempting to generate online sales.

Keyword Selection

Once you understand the overall goal of your website, the next step is to determine which keywords you want to target (Remember search is done by users based on keywords). Since a website cannot be everything to everyone, you must decide upon which search terms you wish to get high rankings on. Searchers use keywords based on their interests. By determining upfront which keywords you want to optimize on, you can match your goals with the users' interests. For example, if your goal is to provide information on a specific item, you would target a shorter search phrase. If your goal were to sell an item, you would target a longer keyword phrase. This is because users tend to use shorter search phrases to research a topic and longer keyword phrases when they intend to purchase or interact directly with the search results.

When choosing which keywords to target, you will need to go beyond attempting to understand the searcher's intent. Understanding the search volume and competitiveness of your selected keywords is important too. Targeting keywords with very little search volume is likely to be ineffective because if you achieve a high ranking for the targeted keyword, not enough people are searching for it for you to achieve the desired results. On the other hand, choosing a very popular search term is likely to lead you towards a highly competitive environment in which it is very difficult to achieve your desired rankings. Typically, there is a direct correlation between the volume of a search term, and the competitiveness to rank for that search term. As more users search for a given search term, more websites will attempt to rank for those terms. The goal, therefore, is to select terms that are likely to achieve your desired conversion (or result) that have a sufficient level of search volume, without having too much competition.

- In some cases, though, going for terms with smaller search volume can be a great way of reaching a much-refined target audience who may be genuinely interested in your product
- Hashtags can be used as keywords. Hashtags are words or phrases beginning with a hash sign, that are used on social

media to identify digital content based on a specific topic. One of the greatest connections between hashtags and SEO is that search engines can amplify hashtags, and get it seen and shared by more people. Hashtags come with many benefits including the fact that they can:

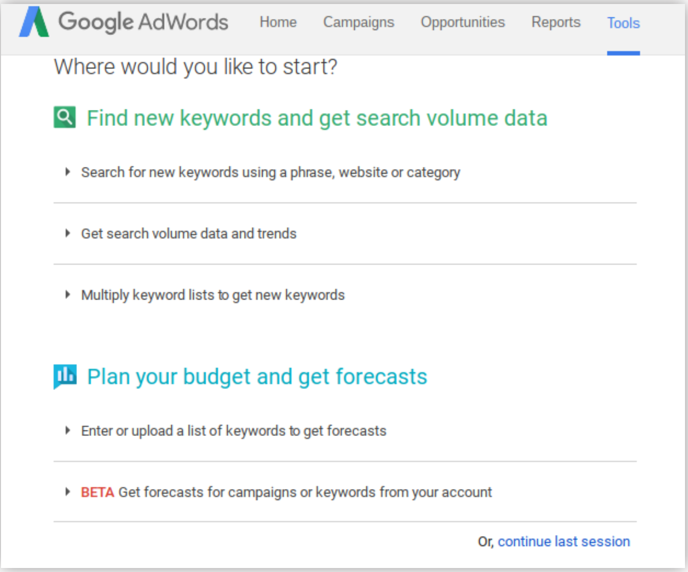
- help categorize posts
- increase engagement
- attract people
- strengthen brands
- connect users.

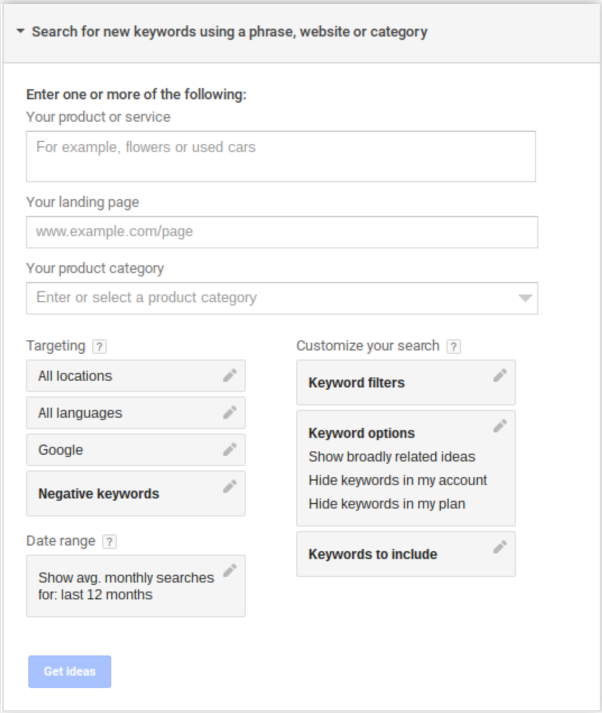
- There are a number of tools on the web that can help you determine the search volume and competitiveness of selected keywords. One of the most helpful tools is the Google Keyword planner. Planner tool allows you to:
  - o See what terms people use for searching in a particular category. For example, do people use a technician or exterminator when looking for a pest control solution?
  - o See how many times they search using a term (frequency). This gives the website optimizer and idea of how many people can be driven to visit the website.
  - o See the time periods, e.g., winter, summer, spring, or fall, in which they're searching.

There are several tools on the web that can help you determine the search volume and competitiveness of selected keywords. One of the most helpful tools is the Google keyword planner. The planner tool allows you to see

- *What* terms people use for searching in a particular category. For example, do people use a technician or exterminator when looking for a pest control solution?
- *How many* times they search using a term (frequency). This gives the website optimizer and idea of how many people can be driven to visit the website.
- *When*, e.g., winter summer, spring or fall, they are searching.

The Google planner tool output will look like this:





Once finished, it will look something like this:

Keyword Planner 2017-01-05 at 22:43:38

File Edit View Insert Format Data Tools Add-ons Help All changes saved in Drive

	A	B	C	D	E	F	G	H	I
1	Ad group	Keyword	Currency	Avg. Monthly Se	Searches: Nov 2	Searches: Dec 2	Searches: Jan 2	Searches: Feb 2	Searches: Mar 2
2	Seed Keywords	restaurants near me	USD	10K – 100K	10K – 100K	10K – 100K	10K – 100K	10K – 100K	10K – 100K
3	Seed Keywords	best burger in memphis	USD	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K
4	Seed Keywords	places to eat memphis	USD	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100
5	Keyword Ideas	restaurants	USD	10K – 100K	1K – 10K	1K – 10K	1K – 10K	1K – 10K	1K – 10K
6	Keyword Ideas	restaurants nearby	USD	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K
7	Keyword Ideas	places to eat near me	USD	1K – 10K	1K – 10K	1K – 10K	1K – 10K	1K – 10K	1K – 10K
8	Keyword Ideas	food places near me	USD	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K
9	Keyword Ideas	best restaurants near me	USD	100 – 1K	10 – 100	10 – 100	100 – 1K	100 – 1K	100 – 1K
10	Keyword Ideas	restaurants near me now	USD	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K
11	Keyword Ideas	good restaurants near me	USD	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100	100 – 1K
12	Keyword Ideas	restaurants near me for dinner	USD	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100
13	Keyword Ideas	diners near me	USD	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100
14	Keyword Ideas	local restaurants	USD	100 – 1K	10 – 100	100 – 1K	100 – 1K	100 – 1K	100 – 1K
15	Keyword Ideas	restaurants around me	USD	100 – 1K	10 – 100	10 – 100	100 – 1K	10 – 100	100 – 1K
16	Keyword Ideas	nearby restaurants	USD	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K	100 – 1K
17	Keyword Ideas	food around me	USD	100 – 1K	100 – 1K	10 – 100	10 – 100	10 – 100	100 – 1K
18	Keyword Ideas	restaurants near my location	USD	100 – 1K	10 – 100	10 – 100	100 – 1K	100 – 1K	100 – 1K
19	Keyword Ideas	restaurants near me for lunch	USD	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100
20	Keyword Ideas	local restaurants near me	USD	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100
21	Keyword Ideas	find restaurants near me	USD	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100
22	Keyword Ideas	salads near me	USD	100 – 1K	10 – 100	10 – 100	10 – 100	10 – 100	10 – 100

If you are able to have the budget for a paid search campaign, Google does give you more precise seasonal data.

Achieving results in SEO is a long-term investment, and sometimes it can be hard to see the effectiveness of targeted keywords until well into a campaign. Your SEO campaign may succeed in ranking for your targeted keywords only to discover they aren't generating the type of traffic you'd hoped to receive. One strategy to improve keyword selection for an SEO campaign is to run a short-term paid search campaign, which will achieve more immediate results. You can then determine the effectiveness of various keywords using the results of the short-term paid search campaign, before making the long-term investment to rank for those keywords.

On-page Factors

On-page factors are tied to the content on a website itself. These on-page factors revolve around the HTML markup of your website that the search engines are scanning. Google makes some assumptions about your website and how relevant it is to certain keywords based on how your website organizes and structures its content. In particular, Google looks at page titles, header content, placement of targeted keywords, and correct tagging of images and other content with "alt" tags, which is how search engines understand the media's content.

While proper HTML structure and markup of your website is important, the most crucial concept in SEO is, "Content is King." This follows from the primary goal of a search engine to serve a user the most relevant content to their search. A correctly designed website with the entire correct HTML markup will still fail to rank well if it provides no or little useable content. Conversely, a website that doesn't have the greatest structure and HTML markup but provides high-quality useable content still has a chance to rank for its targeted keywords. However, a website with quality content and poor HTML markup is likely to be out-ranked by another website with both quality HTML and content, which is why quality website structure is important regardless of how good a website's content is.

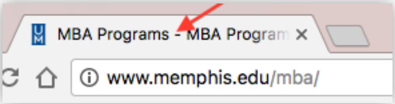
One important cautionary note when creating content is to try and avoid exact duplication of content across multiple pages. Duplicate content makes it difficult for a search engine to decide which versions they should include or exclude from their index. It is also difficult for a search engine to decide which pages or versions of the content that they should attribute several off-page factors too. As a result, while duplicate content doesn't incur a penalty, it is also generally not considered optimized content.

Other important on-page factors include mobile responsiveness and website load speed. With the growing prevalence of mobile devices and mobile search, Google and other search engines have introduced penalties to websites that are not mobile friendly. Additionally, with the increase in speed, and the corresponding decrease in the amount of time a user is willing to wait for a webpage to load, webpages that load slowly incur a similar penalty. These two factors are examples that show search engines are rewarding quality overall user experience with a website rather than just the website's content.

On-page Factors – HTML Components

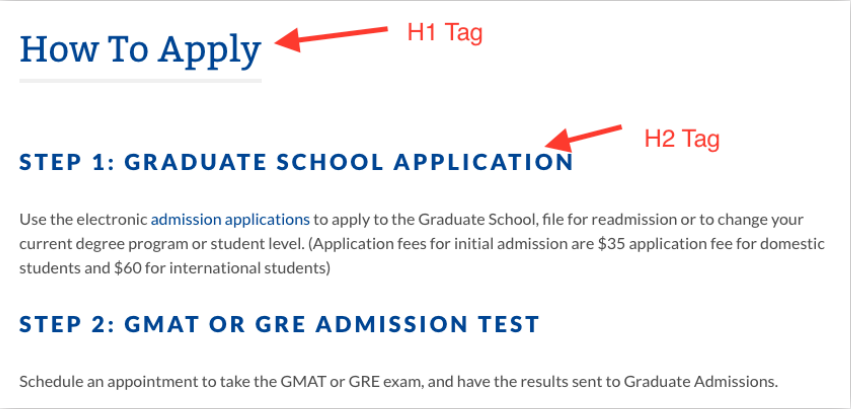
On-page HTML components are directly under the control of the website and can be updated as desired. Because of this, they are often the first components updated in an SEO campaign. The following is a list of some of the most important on-page HTML components, which should always include the keywords being targeted by that webpage. These are basic HTML components, and rather than highlight the exact HTML of how to implement them; we will discuss what they are and how they appear to both users and search engines.

- Webpage domain – the webpage's domain is the website's root upon which all of its pages are listed. In the below screenshot, The University of Memphis domain name is "memphis.edu." A domain name is one of the strongest ranking factors for a website as it highlights the website's overall content or brand.
- Webpage URL – much like the title tag of a page, the page's URL (www.memphis.edu/mba) is often a strong indicator of the content of the page and is a factor in many ranking algorithms.
- Title tag – a webpage's title tag appears in the browser tab above the website's URL and is one of the clearest indications of a page's topic. For the example shown below, The University of Memphis MBA programs page has a title tag "MBA Programs."

  This follows logically from the mission of search engines if the page's title matches a user's query the content on that page is highly likely to be relevant to their search.

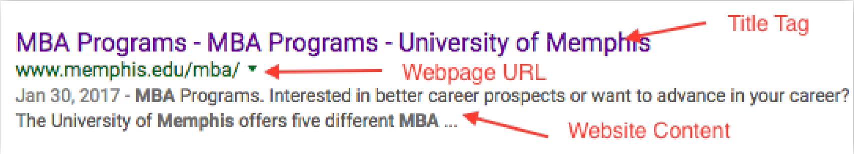
- Header tag – headers have a font that is typically larger than a standard paragraph font and are normally used to indicate a section of content that is relevant to a specific topic. Headers range in size from H1 (largest) to H6 (smallest) with the largest size usually being the one that is the most important. For example, on the Memphis University admissions website the "How To Apply" section is an H1 tag, and the graduate school application and GMAT or GRE Admission Test tags are H2 tags.



Again, this follows logically from the search engine's mission to display the most relevant content. A webpage that references keywords in a large header tag typically is a page that provides content related to the header content. While H1 tags carry the most weight, putting sub-headings and secondary keywords in H2 tags can also help increase rankings for these keywords.

- Alt tags – an Alt tag is text that is included along with images or other media content, but by default is not visible to visitors. An alt tag serves two important purposes. First and most importantly, in regards to SEO, it informs the search engines what the media content is about (since crawlers are unable to process this). Second, it improves a user's experience if the media content fails to load, by showing him or her the alt text rather than just an error.
- Meta tag – meta tags are HTML tags that are not visible to users but allow website owners to inform search engines about the content of a website. It is beyond the scope of this module to discuss these in more detail.

In addition to helping websites rank for search terms, on-page HTML elements are important because they control how your result of the search is displayed to users. Aesthetically pleasing search engine results encourage user clicks after rankings have been achieved. Below is an example of a search result, as well as the components used to create it.



On-page Factors – Targeted Landing Pages

One of the more effective strategies for ranking for different keywords is to create separate landing pages for each set of targeted keywords. Often a website's homepage gives an overall view and provides links to the different sections of the website. From the perspective of an SEO campaign, the difficulty of optimizing a homepage for a specific set of keywords is that the homepage discusses the website in general, rather than specific, terms. Even if a homepage can be correctly optimized for the highest priority keywords, it is often not optimized for secondary (but still important) keywords.

By contrast, a landing page is designed to target one specific set of keywords. These keywords will often be in included in all of the important HTML components of the webpage, and also included several times in the page's main content. The general idea is to focus the targeted keywords onto a specific page, so search engines deem it highly relevant to the targeted keywords. Since a website can create any number of pages, it is possible to create a separate landing page for each set of targeted keywords. These optimized landing pages will then rank better than a website with content mixed broadly throughout.

A common and effective tactic is to use this approach of separate landing pages to increase traffic from local searches. For example, when designing the website for a restaurant, the natural impulse might be to create a single page that lists each of the locations and dedicate the rest of the website to the menu and upcoming events. However, by creating separate landing pages for each location and properly structuring the HTML elements and content to highlight those locations, the website increases its chances to rank well for search terms when the specific location is included in the search.

Another popular approach to creating targeted landing pages is to include a strong call to action. A combination of a targeted landing page and a strong call to action can achieve not only a high SERP ranking but also better conversion results. For example, creating a targeted landing page to offer customers a free trial for a given product will help the page rank for searches for free trials for that product. If the page then contains a strong call to action, prompting visitors to sign up for a free trial, those visitors are much more likely than typical visitors to sign up for the free trial.

Off-page Factors

The most important off-page factor for SEO is the number and quality of inbound links. An inbound link, which is also referred to as a back-link, is a link from a different website to a page on your website. The more a website is linked to by other websites, the more it implies higher quality. Rather than just counting the total number of inbound links to a website though, the search engines attempt to factor in the quality of the link. Quality of a link is determined by the quality of the website it is coming from and the actual text used in the link. For example, a link from a highly ranked domain such as "CNN" is going to carry significantly more weight than a link from a random blogger.

There can be additional off-page factors depending on the type of website that you are hosting. If you are hosting a website for a business with a physical location, it is important to create business pages associated with the search engines. Google has an offering called Google Business, which allows business owners to supply their name, physical location, and website to Google's directory. Businesses that have registered themselves with a business listing on a system like Google Business will typically rank higher than similar businesses without these listings.

Having a presence on social media can not only improve rankings but can also help build trust in your website. For example, if users do a search for your business, and they see your business's website along with a Facebook page, Twitter account, and local business listing, it lends credibility to your website. While Google Business and Facebook are good examples of local listings and social media outlets, additional local listings and social media outlets (e.g., Better Business Bureau, Angie's List) may be relevant depending on your website's industry and goals.

Off-page Factors – Link Building Link building is the process of attempting to generate more inbound links to your website. Since one of the most important ranking factors in Google's ranking algorithm is the number and quality of inbound links, increasing the number of inbound links can help to drastically increase your website's ranking. There are a number of different approaches to generating additional links to your website, including writing link-bait articles, hosting guest bloggers to add content, putting products or content out for peer review, and requesting links from friends and other industry professionals.

Link-bait articles are attention-grabbing pieces meant to create genuine interest in the content and cause other content producers to link to it. They can vary from breaking news and controversial topics to humorous content. By creating quality articles with genuinely interesting or engaging content, the hope is to naturally generate interest and links from across the web. It should be noted, however, that due to the unpredictable nature of content going viral, successfully creating a link-bait article is typically a difficult task.

When executing a link building campaign, it is important to focus on seeking quality inbound links and avoiding paying for links or generating them through spam-like content (such as commenting on a blog post with a link to your own website). This is covered in more detail in the white hat vs. black hat SEO section later. The process of link building is often difficult and takes a significant amount of time, as it is beyond the control of the website. Therefore, a link building campaign takes significantly more time than on-page updates, and there are no guarantees a link-building campaign will achieve the desired results.

Tools for Tracking SEO Results

One of the most important tools to have installed on your website is a system that allows you to track the number of visitors and their engagement with your website. There are a few different tools that specialize in web analytics, but by far the most prominent of these is Google Analytics. Google Analytics is a free service provided by Google, that can be installed on your website by copy and pasting a few simple lines of JavaScript code into your website's header or footer so that it appears on every page of your website. By tracking the number of visitors to your website, and their interactions with it, you have the basic tools to understand and assess where your traffic is coming from, and if a given campaign or keyword is proving to be effective or not.

While installing Google Analytics on your website will allow you to monitor the traffic to your website, including the volume of traffic that reaches your website for each keyword, it does not track your keyword rankings or SERP results. Instead, you'll need to set up a separate tool to track your SERPs rankings for your targeted keywords. Unlike the web analytics space, there are several different tools that allow you to track your SERP rankings, including, but by no means limited to, SEOmoz, SmartSERP, and RavenTools. These SERP tracking tools all work similarly by making programmatic queries to search engines with your targeted keywords and then scanning the results to find the first link to your website. By using one of these tools, you can easily establish your current SERP rankings and monitor changes to them throughout the SEO campaign.

The true power in analyzing an SEO campaign is the combination of these two tool sets. By monitoring your traffic with Google Analytics, you can tell which keywords are converting or generating the most pageviews per visit. Using your chosen SERP tracking tool, you can monitor your rankings for these keywords. By combining these two pieces of information, you can ensure that your SEO campaign is not only effective in improving your targeted keyword rankings but also that you are targeting the keywords most in-line with your overall SEO campaign goals. For example, using Google Analytics, you may determine that a specific keyword you've been targeting actually has a very low conversion and pageviews per visit rate, even though according to your SERP tracker this keyword is rising in the rankings. You may decide to stop targeting this keyword since it is not driving the type of traffic you want. On the other hand, you may discover that users searching for keywords you did not think to target are converting at a higher rate than expected. Using a SERP tool to analyze this keyword, you may discover low-hanging fruit that with minor adjustments may allow you to achieve significantly improved rankings for your best-converting keywords.

White hat vs. black hat SEO

White hat SEO refers to the general practices outlined thus far. White hat means that a website owner understands the goals of a search engine and attempts to improve the content and structure of their website to genuinely improve their website, and thus achieve a higher ranking in results. White hat SEO is in line with guidelines provided by search engines and follows the rules established by these systems. Black hat SEO refers to strategies that instead of improving the quality of a website, are designed to trick search engines into believing they are of higher quality than they actually are, or that they are relevant for keywords that have nothing to do with their website's content.

Some examples of black hat SEO techniques include keywords stuffing, link farming, and hidden text and links. By stuffing irrelevant keywords into website content, owners are attempting to rank for keywords that are irrelevant to their website. Link farming refers to a process by which a group of websites all links to each other in an attempt to increase the number of each of their inbound links. Typically, a link-farm is a fake website, created solely to generate links, and often they are irrelevant or poor quality links. Hidden texts and links refer to a website that matches the color of the content to the color of their backgrounds so that they are invisible to users. However, since search engine crawlers read the HTML of a website they are still visible to the crawlers. By using this approach website are able to show search engines different content than what visitors see when they visit.

All three of these examples are instances of a website owner attempting to trick a search engine into ranking them higher than normal by generating irrelevant content, artificially inflating their inbound links, and providing a different view to visitors and search engines. In the early days of SEO, some of these types of tricks would fool search engines and provide temporary boosts in rankings. However, as search engines have evolved and learned to detect these practices, these types of black hat approaches are becoming less and less effective. In addition to being less effective, search engines can impose a penalty on websites determined to be using any of these practices. A penalty from a search engine can be incredibly difficult to overcome, and therefore, it is highly recommended to follow white hat strategies, rather than attempting to trick search engines through black hat practices.

New tricks to optimize search engine results are constantly emerging. Some of them border on being "Black Hat". A new term Grey Hat SEO has been coined that is a mix of White Hat and Black Hat techniques. Some new "fishy" techniques are cloaking, purchasing old domains, link buying, social media automation, and buying followers.

- Cloaking shows the user a different search result than the search engine.
- Purchasing old domains allow for creating backlinks.
- Buying links, automating social media for following and unfollowing thousands of people in an instant and buying followers are other shady practices employed by some optimizers.

Closing Comments and Trends in Search and SEO

- **Voice Search** With increasing usage of Apple's Siri, Amazon's Alexa, and Google's Assistant, the phrases used for searching tend to be longer and more natural than when one types. Voice recognition also responds well to longer more natural sounding phrases. Clearly, this needs to be considered in future SEO planning.
- **Visual Image** Search Search engines, like Google, are aiming to let people search and obtain info about products by using

images. Hence, it is becoming important that the images used on websites are optimized – high quality, relevant and have a customized file name.

- **Local Search** – Many people use the internet to find local goods and services. Local SEO is important to marketers and its evolving daily. Google is starting to allow more local businesses an opportunity to get more traffic by starting a "Google My Business" page. This will not only benefit companies, but also local customers.
- **Videos** – With YouTube having more than a billion users, and gaining more daily, it's no secret that videos are trending fast. Videos should be used as part of the content strategy. Careful consideration has to be given to the video's name and description. Just cramming the video with keywords and phrases might not result in long-term optimality.
- **In Short, Content is King** – The above points lead us to comment that in the final analysis, content is the king. It's important to focus on ideas that keep your customers' attention. Get them to the webpage, keep them engaged, get them to return and purchase and repurchase if relevant. These are 4 questions you can ask yourself:
  - Does my website have original and interesting content?
  - Are the links to the products and services that we are offering readily accessible?
  - Does the website create chances to incorporate keywords?
  - Will the keywords have reasonable search volume?

Chapter III-12
Social Media

Whether you are a small business or large, social media presence is very important in the era of the internet. A small business might have a different set of objectives as compared to large business for being active on social media. But no one can afford to ignore it completely. Social media is a big game-changer for businesses and is the topic for this chapter. Growth through digital strategies is an attractive proposition for VCs when they evaluate your company for funding.

Social media is defined as any tool or service that uses the internet to facilitate conversations. The emergence of social media has changed the way marketers interact with their target audience, moving from mass messages to intimate conversations. The rise of social media has allowed companies to gain access to a plethora of audiences that they would have otherwise never reached. It even allows for start-up companies to direct market to their target. Social media made engagement fast and easy.

The emergence of social media creates several implications for marketing. The ability to share experiences in real time with large numbers of people amplifies the impact of word-of-mouth that can eventually affect your company's bottom line. It is a great listening tool. Often you can discover unknown brand flaws simply by monitoring what your customers are saying. Also, social media provides more sophisticated methods to measure how you meet and interact with your customers than traditional advertising does. However, you must realize that you often do not control the content on social media sites. And, if you don't have a social media presence, it doesn't guarantee that your customers aren't already talking about you.

Here are a few general social media objectives to keep in mind.

- Listen and learn – monitor what's being said about your brand and your competitors.
- Build relationships and awareness – open dialogues with your target market by giving them compelling content across various social media sites. Engage in conversations. Answer their questions candidly. Ask for customer feedback. This will increase your web traffic and boost your search engine ranking.
- Promote products and services – if you get customers talking about your products, it will inevitably translate to an increase in sales.
- Manage your reputation and improve customer service – develop and improve your brand's reputation by responding to critical comments promptly. Customer comments won't always be positive, but by using social media sites you can engage directly with displeased customers to resolve their issues.
- Study the Trends: Keep watch for what things are currently popular with your target audience. This especially applies to companies with a younger target audience. A certain trend could be the major key in your next Marketing Strategy.

Once you have settled on your social media objectives, you then need to move on to **social media monitoring**. You can monitor how effective your social media presence is by evaluating buzz (the volume of consumer-created content about your brand), interest (the number of likes or fans you have on your pages), participation (the number of comments, ratings, social bookmarks, subscriptions, page views, uploads, downloads, embeds, retweets, posts, pins, and time spent on your various social media platforms), search engine ranks and results (climbs and drops on searches and changes in keywords), influence (brand mentions by bloggers), sentiment analysis (whether the overall tone about your brand is positive, neutral, or negative) and website metrics (the number of impressions and click-through rates your social media ads generate).

There are even tools that allow you to monitor multiple social media streams in one place. With these tools you can also schedule social media posts in advance, view analytics data, and listen. Some of these monitoring tools are:

- Hootsuite
- Google Alerts
- Talkwalker
- Mentionlytics
- TweetReach
- Buzzsumo
- Twazzup

SOCIAL MEDIA PLATFORMS

There are a number of platforms that can be employed in a social media strategy. They can be used for a variety of objectives, from networking and media sharing to news or review presentation, to facilitating social commerce and promoting location-based networking. Several social media platforms, supporting paid ads or sponsored or free content, will be discussed next.

Social Media – Networking

Social networking sites allow individuals to connect with friends, peers, and business associates. Connections can be made around shared interests, shared environments, and personal relationships.

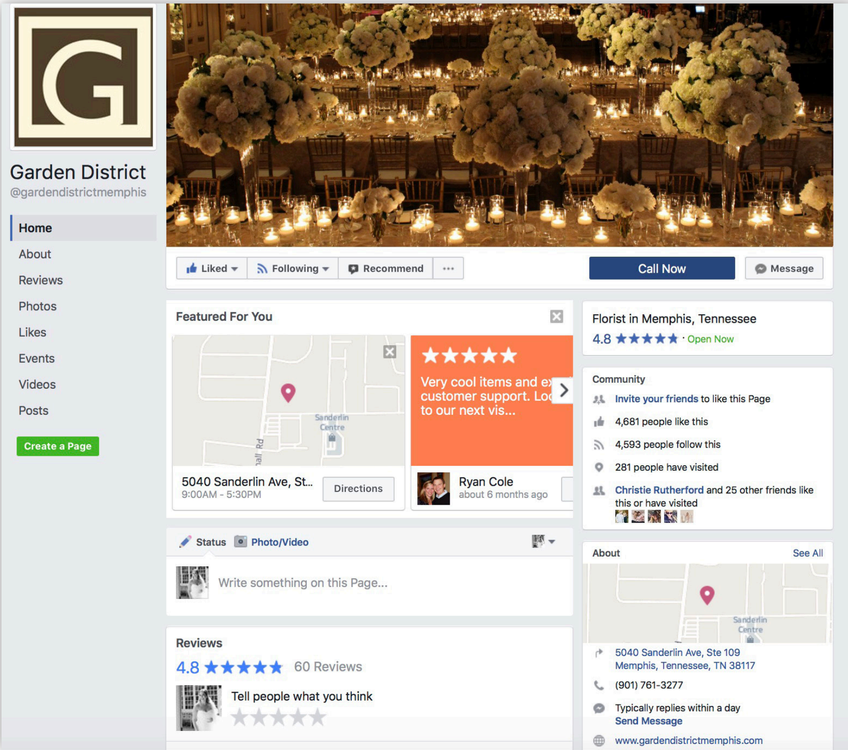
Social networking is an extremely popular method of digital communication. Businesses can use these platforms to connect with their target market in a conversational manner. Usually if a business can successfully connect with their target audience on networking sites, then the target audience itself does a lot of marketing for the company. The two most significant networking sites are Facebook (the largest social media site in the world), and LinkedIn (used primarily by professionals). Let's look at an example from each.

Facebook

Facebook is undoubtedly the largest and most popular of all social media platforms with 2.6 billion active monthly users. Engagement should be a top priority on this platform as access is possible to multiple audiences. As a company with a business page on Facebook, you need to make sure that the page is visually pleasing, and that people immediately know who you are and what products and services you offer. For example:

A local flower shop, Garden District, maintains a Facebook page. They utilize this page for several reasons.

- To grow a fan base within their target market
- To allow for customer reviews
- To post pictures of their latest arrangements and flower selections (i.e., their products)
- To provide information about their retail establishment (i.e., hours of operation, location, etc.)



Ultimately, their Facebook presence is designed to build better brand awareness among their target market and to generate brand loyalty among their current consumers.

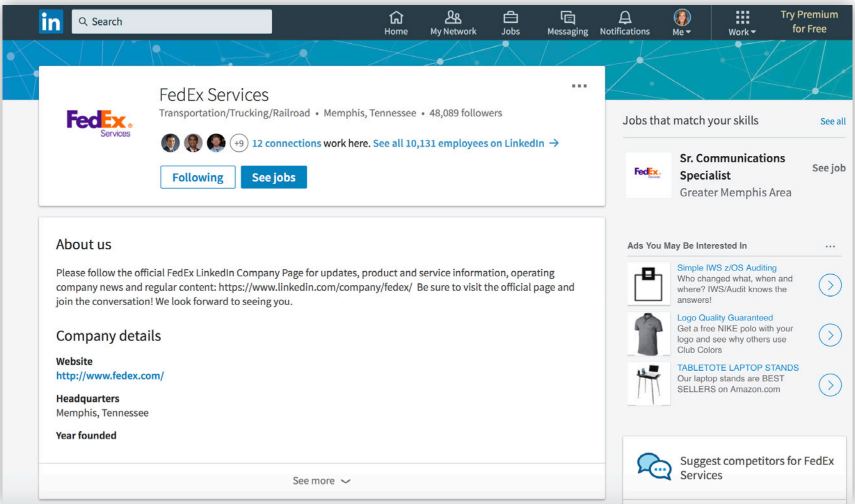
LinkedIn

LinkedIn deserves a different approach because it serves as more of a professional networking site. Companies use this platform to market to potential clients or prospective employees. For example, FedEx Services maintains a LinkedIn page.

- To connect with their employees and potential clients
- To recruit high-performing individuals
- To provide a link to their home website
- To enhance their brand awareness among their target market

- To provide information about their business (i.e., their specialties, their company size, their headquarters, etc.)

Ultimately, their LinkedIn presence is designed so that they may communicate with their target market in a professional, but more conversational, manner.



Social Media – Media Sharing

Media sharing sites allow users to upload and distribute multimedia content like photos and videos. Examples include Facebook, Flickr, and Photobucket (online photo albums that organizations can use to upload and share photos), and Snapchat (a mobile video platform that is primarily used for personal/social use). The three biggest media sharing sites are Instagram, YouTube and TikTok. Let's look at examples of each.

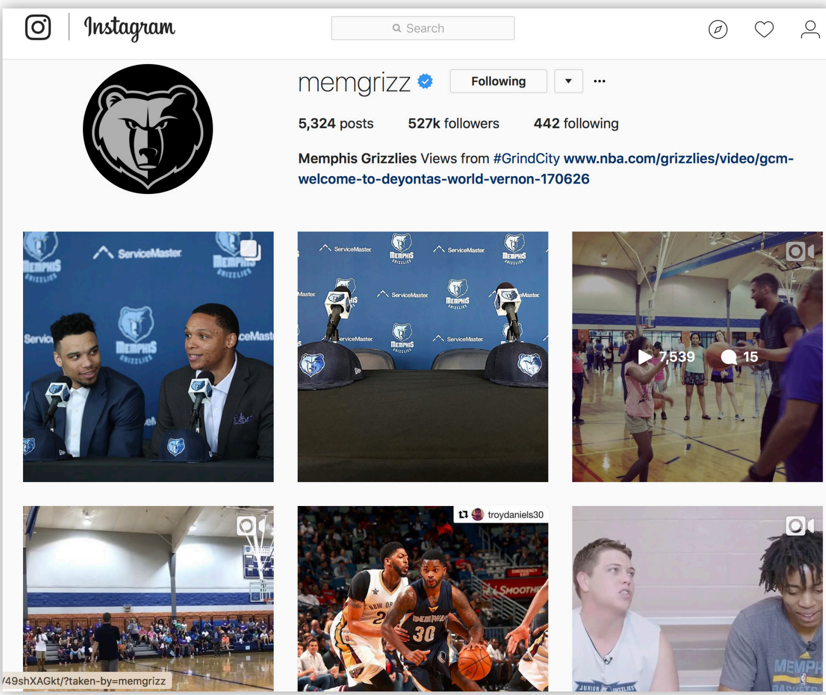
Instagram Example

Instagram is arguably the most popular visual marketing platform right now. With over 1 billion active users, digital marketers have a huge pool of audiences to target. The main demographic on Instagram is millennials, so if that isn't the target audience that a digital marketer is aiming to capture, then this platform is not for them.

The Memphis Grizzlies NBA team maintains an Instagram page. They utilize this page for several reasons including:

- To connect with their fans on an emotional level
- To promote their team's performance and their players' philanthropic activities
- To provide real-time scores during the basketball games for those unable to attend the games
- To advertise their fan gear (hats, t-shirts, jerseys, etc.) and generate additional sales
- To make fans aware of upcoming activities (games, press conferences, watch parties, etc.)

Ultimately, their Instagram presence is designed to communicate with their target market and encourage a more loyal fan base (which will inevitably drive higher revenues).



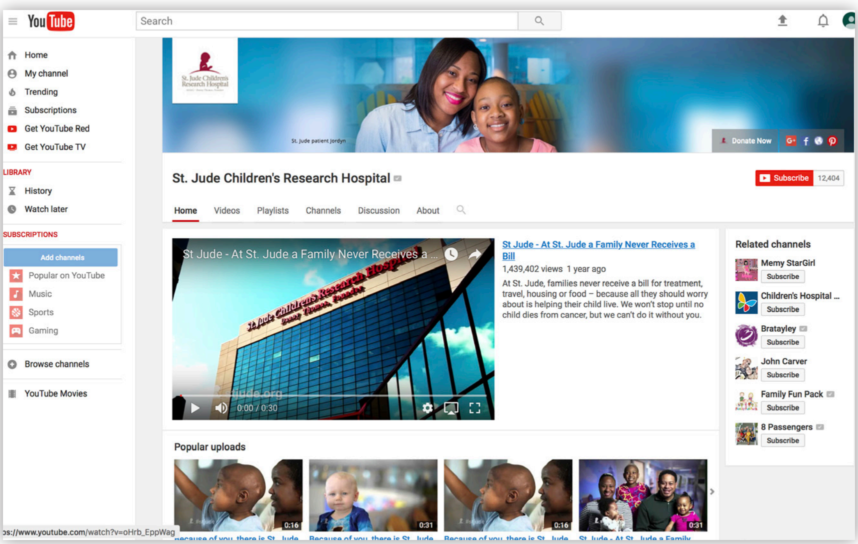
YouTube Example

YouTube has been around since 2005, but it wasn't until recently that it became a major area of interest for digital marketers. It now boasts 2 billion users. With the rise in popularity of vlogging, over the past few years, digital marketers saw it as a chance to improve their reach. Earlier, YouTube videos didn't support ads. Now, one may have to watch 2 ads before the video even begins and sometimes watch ads throughout the video.

St. Jude Children's Research Hospital maintains an Instagram page. They utilize this page for several reasons including:

- To generate philanthropic donations and overall support by posting videos of their patients and families
- To recruit high-performing individuals for employment
- To showcase their endorsements from celebrities
- To highlight their fund-raising events, including their annual marathon, galas, etc.

Ultimately, their YouTube presence is designed to post videos that promote their mission and grow their nation-wide support.



TikTok

TikTok is currently a hot social media platform. TikTok allows users to create, on phones and desktops, and share 15-second videos. There are over 700 million users on the app worldwide. That alone is enough to catch the attention of digital marketers. TikTok allows digital marketers to access an entire new level of creativity. Partnership with paid celebrities and influencers has boosted the usage of TikTok.

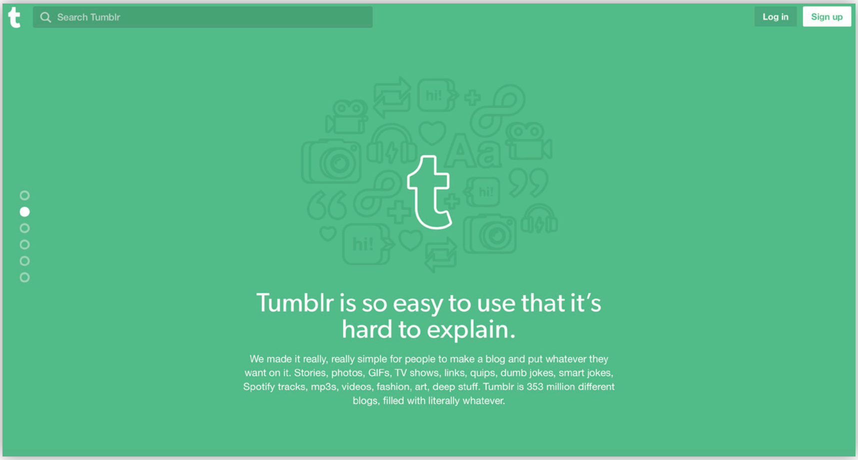
- Provides a user-friendly platform to add filters and special effects to make it easier to create content even for first time users.
- TikTok has captured a new demographic in the digital marketing world. Most of the biggest content creators on the app are millennials and younger. Marketers are drawn to TikTok as it reflects a key social media trend for creativity and collaboration amongst younger audiences.
- TikTok does not have any space for traditional display ads. Brands use TikTok to create challenges and contests by getting users to generate brand-related content. For example, Guess #InMyDenim campaign challenged US-based TikTok users to create video content wearing denim and using the hashtag.

Social Media – Blogs

A blog is a publicly accessible Web page that functions as an interactive journal, allowing readers to post comments on the author's entries. Tumblr and Twitter are two of the more popular Blog's media sites.

Tumblr

Tumblr is a subscription site that businesses can use to write online blog/ journal entries about their products and services. Tumblr has seen better days than they recently have. After a ban of inappropriate content, their users number dropped drastically. It is a testimony to the rise and fall of Social Media sites and companies. Some of what you read in these pages would have changed by the time you read it!



Twitter

Twitter, with 330 million users, is one of the more unique platforms. It's a platform where digital marketers can casually interact with their target audience, as if they are friends. Twitter is a microblog forum where users exchange small posts (a maximum of 280 characters). Twitter allows the exchange of posts that are not the norm on other platforms. Tweets can simply be a few words, a single GIF, or a poll created by the marketer.

The best points about Twitter are that you can:

- Create personalized content
- Reach people when they're most receptive
- Use different types of content

For example, Nespresso, a coffee manufacturer, maintains a Twitter page. They utilize this page for a number of reasons including: To promote their new products and services through posts with photos and videos

- To grow a fan base within their target market
- To allow for customer reviews/interaction
- To ultimately grow brand awareness among their target market

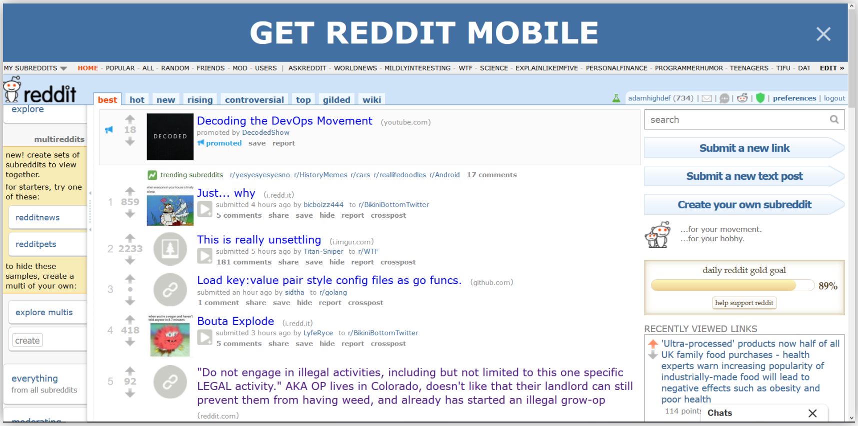
- To promote their new products and services through posts with photos and videos
- To grow a fan base within their target market
- To allow for customer reviews/interaction

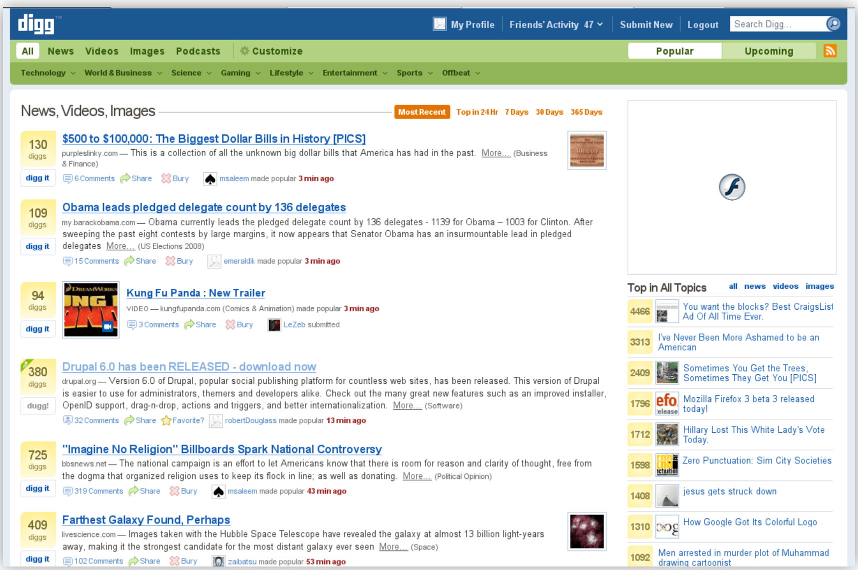
Ultimately, they hope to use Twitter to grow brand awareness among their target market.

Social Media – News

Social news sites allow users to decide which content is promoted on a given Web site by voting that content up or down.

- Reddit
- Digg
    - Reddit and Digg are social media platforms that allow users to discuss topics of their choice, and other users can vote up or down on these topics, based on if they like or agree with them.

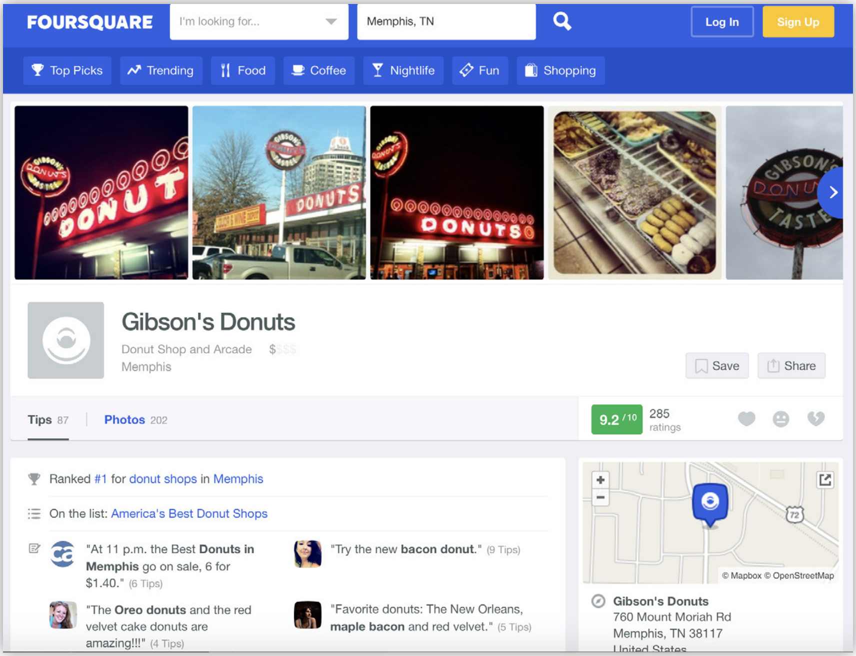




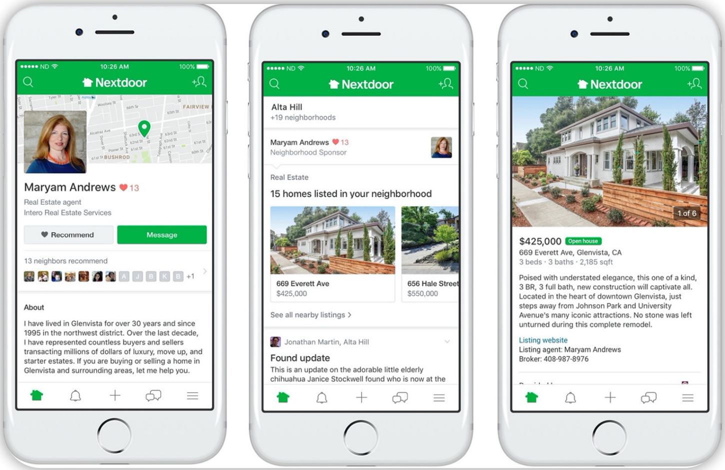
- While businesses do not generate the content for these sites, they can monitor and interact on this platform by reading and voting on the news that they find interesting.
- Businesses should frequent these sites to make sure that they are aware of any posts related to their products or services. Keeping a finger on the pulse of the media is good brand management.

Social Media – Location-Based Networking

Location-based social networking sites combine the fun of social networking with the utility of location-based GPS. Customers can "check-in" to show when they are at your store. FourSquare is an example of this type of site, and you can "check in" at locations on Instagram and Facebook as well. However, you may want to encourage your customers to be cautious when posting their locations. There have been instances of predators taking advantage of knowing exactly when and where a person is located.



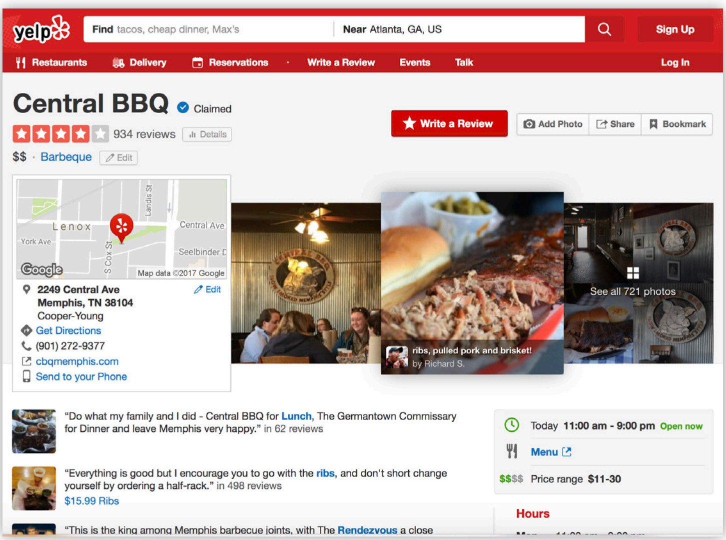
NextDoor connects neighbors, people and businesses, and happenings, to share news and information within a community. It is secure as all neighbors are verified.



Social Media – Review Sites

Review sites like Yelp, Urbanspoon and Zomato allow consumers to post, read, rate, and comment on opinions regarding all kinds of products and services.

It is important for businesses to monitor these review sites in order to see what customers are saying about their products and services. Doing so is good brand management.



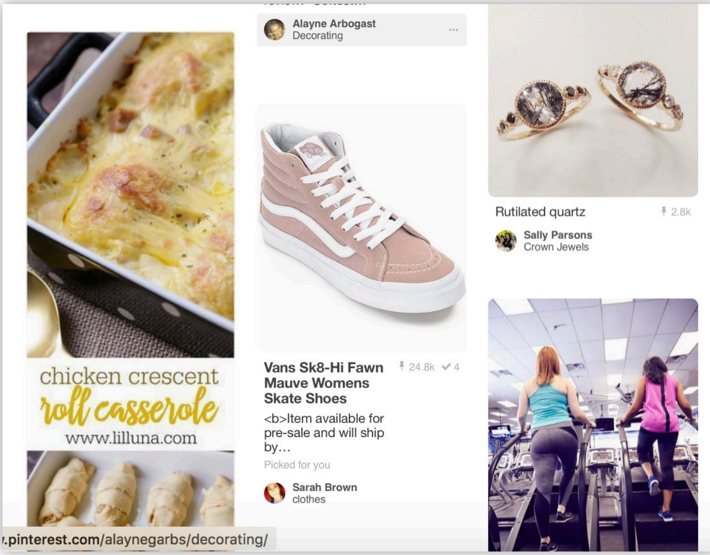
Social Media – Social Commerce

Social Commerce is a rising area of social media marketing, comprised of a combination of social networking sites and e-commerce. These sites are designed to help consumers make more informed decisions about their purchases and to encourage them to buy additional products that are similar to past purchases. Groupon and Living Social allow businesses to give their audience a specific offer. Daily/weekly emails are then sent to subscribers highlighting the businesses' offerings. The user can then click on the ad to purchase the deal online. Pinterest is another example of a social commerce site; here's an example of how it works.

Pinterest

Zumiez, a women's apparel manufacturer, utilizes a Pinterest presence. On the site, they create a "pin" featuring one or more of their products. Based on the user's preferences and recent likes, Pinterest promotes Zumiez's "pin" on the potential customer's dashboard. The user can then click on the "pin" to see a close-up view of the product. By double-clicking the "pin," the user is directed to Zumiez's Web page where the item can be purchased online.

Ultimately, Zumiez's Pinterest presence allows for potential target customers to easily find and purchase their products. It can be noted that while Pinterest's audience is 75% female, a growing number of new signups are male.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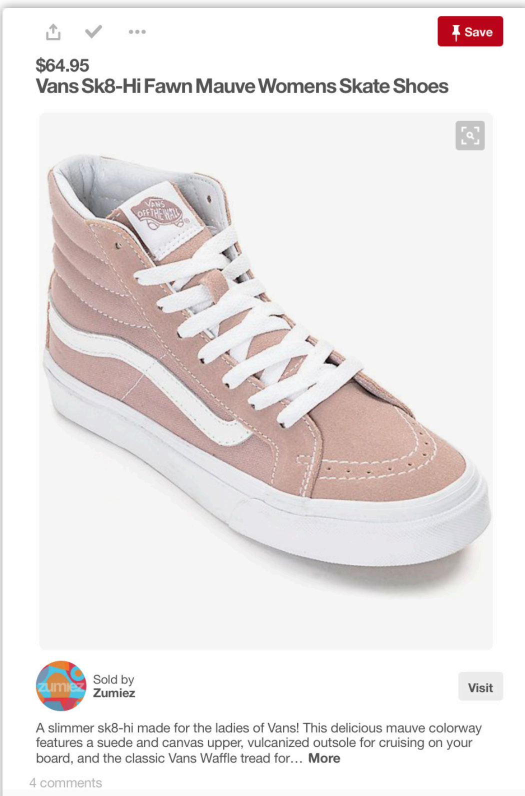
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Vans Sk8-Hi Fawn Mauve Womens Skate Shoes
Sold by
Zumiez
Visit
A slimmer sk8-hi made for the ladies of Vans! This delicious mauve colorway features a suede and canvas upper, vulcanized outsole for cruising on your board, and the classic Vans Waffle tread for… More
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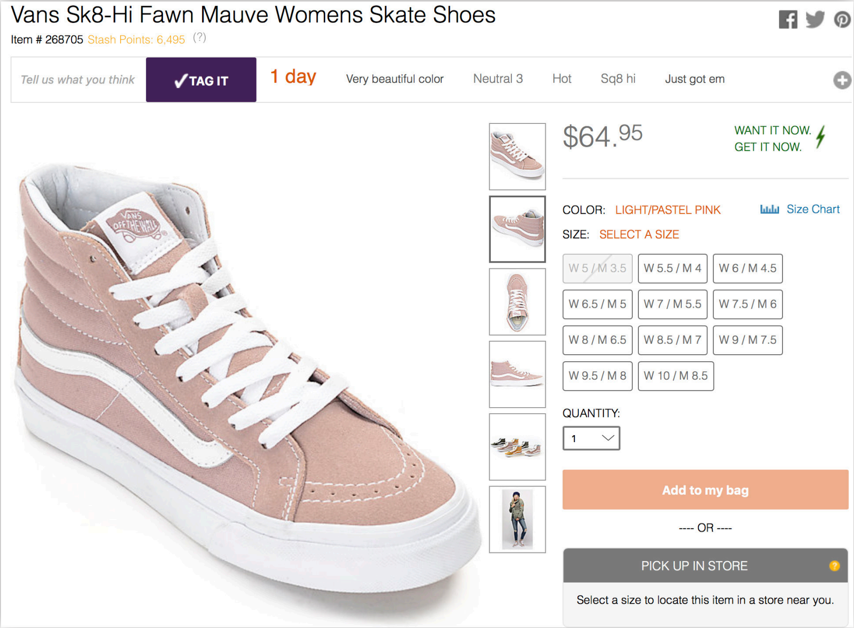
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Size Chart
SIZE: SELECT A SIZE
W 5 / M 3.5
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W 6 / M 4.5
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W 7.5 / M 6
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QUANTITY:
1
Add to my bag
---- OR ----
PICK UP IN STORE
Select a size to locate this item in a store near you.

Chapter III-13

Motivating Employees

Having hired employees legally to deliver the product and attracted customers through digital promotion strategies to consume the product, the organization now must ensure that employees function at their peak level. Motivating employees is one of the most important tasks a manager needs to accomplish. Human beings are complex. What irks one individual may energize another. Motivation is not only dependent on the intricate personality variables but also a multitude of external factors, e.g., other individuals in the organization or profession, and the environment. To get you to become a great motivator, this chapter succinctly reviews the models and theories on motivation that explain both, internal and external factors that influence motivation as well as various types of intrinsic or extrinsic rewards that help motivate.

MOTIVATION THEORIES

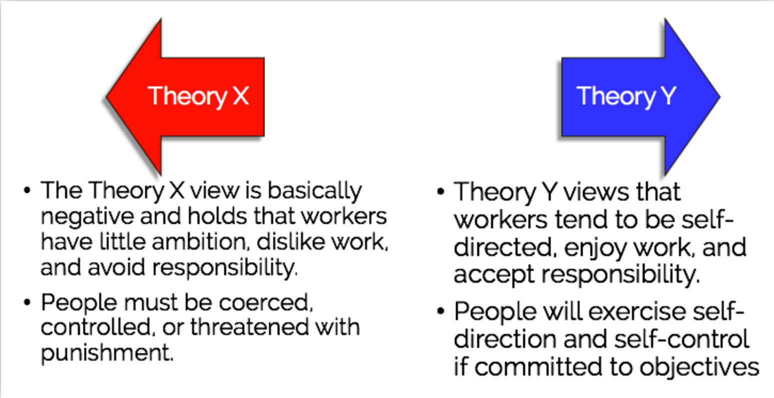
Maslow's Hierarchy of Needs Theory

This early theory of motivation was developed by Abraham Maslow in the 1950s. It states that there is a hierarchy of five needs: **physiological** (hunger, thirst, shelter, sex, and other bodily needs), **safety** (security and protection from physical and emotional harm), **social** (affection, belongingness, acceptance and friendship), **esteem** (internal: self-respect, autonomy, and achievement; and external: status, recognition, and attention), and **self-actualization** (the drive to become what one is capable of becoming; growth, achieving one's potential and self-fulfillment).

As each need is met or satisfied, the next need becomes dominant. People are stuck in their existing need level until it is satisfied, and then they can move on to the next level. For example, until their safety needs are met, they will not be able to move on to the social level.

Theory X and Theory Y

Douglas McGregor added to the motivation work done in the 1950s and developed the theory called Theory X, Theory Y. He believed that there are two distinct views of human beings that managers hold. The Theory X view is generally negative and holds that workers have little ambition, dislike work and avoid responsibility. In contrast, the Theory Y view sets forth that workers tend to be self-directed, enjoy work, and accept responsibility. And thus, managers' treatment of employees changes based on what view they hold about them.



Two-Factor Theory

McClelland's Theory of Needs

McClelland based his theory on the idea that people are motivated in the workplace by three main needs: **the need for achievement** or the drive to excel in relation to a set of defined standards, **the need for power** to make others behave in a way that they would not have behaved otherwise, or **the need for affiliation**, or the desire for close relationships.

Self-Determination Theory

- The self-determination theory is a contemporary motivation theory. It states that people prefer to have control over their actions. In this model, anything that makes a previously enjoyed task feel more like an obligation than a freely chosen activity will diminish their motivation.
- Self-determination theory proposes that in addition to being driven by a need for autonomy, people seek ways to achieve competence and positive connections to others.

Goal-Setting Theory

The goal-setting theory proposes that intentions to work toward a goal are a major source of work motivation. Goals tell an employee what needs to be done and how much effort is needed. Evidence strongly suggests that specific goals increase performance and that difficult goals, when accepted, result in higher performance than more simple goals do. People will do better when they get feedback on how well they are progressing toward their goals. Self-generated feedback is more powerful as a motivator than externally generated feedback.

Self-Efficacy Theory

Self-efficacy theory, also known as social cognitive theory and social learning theory, is a new theory gaining much attention. The theory defines four characteristics: **enactive mastery,** or gaining relevant experience with the task or job, **vicarious modeling,** or becoming more confident because you see someone else doing the task, **verbal persuasion,** occurring when a person is more confident because someone convinces him that he has the skills, and **arousal**, which leads to an energized state, driving a person to complete the task.

Equity Theory & Organizational Justice

Equity theory states that individuals make comparisons of their job inputs (work) and outcomes (pay) relative to those of others and then respond to any inequities. If we perceive our ratio to be equal to that of the relevant others with whom we compare ourselves, a state of equity is said to exist, and we view our situation as fair. When we see the ratio as unequal, we experience equity tension.

Increasingly, we think of equity as organizational justice, a larger perception of what is fair in the workplace. Employees perceive their organizations as just when they see that what they receive matches what they have put in. One key element of organizational justice is distributive justice. Employees tend to perceive that outcomes are fairest when they are distributed equitably.

Expectancy Theory

Expectancy theory is one of the most widely accepted explanations of motivation. It proposes that the strength of one's tendency to act in a certain way depends on the strength of the expectation that the act will be followed by a given outcome and on the attractiveness of that outcome to the individual.

It says that employees will be motivated to exert a high level of effort when they believe that: effort will lead to a good performance appraisal, a good appraisal will lead to organizational rewards, and those rewards will satisfy their personal goals.

Motivating by Job Design: The Job Characteristics Model

The job characteristics model looks at describing any job in terms of five core job dimensions. These job dimensions include: **skill variety**, the degree to which the job incorporates a number of different skills and talents; **task identity**, the degree to which the job requires the completion of a whole and identifiable piece of work; **Task significance**, or how the job impacts the lives of others; **Autonomy**, or how much freedom and independence workers have over their jobs; and

feedback, or how much direct and clear information about personal performance the worker receives.

HOW DO YOU BEST MOTIVATE EMPLOYEES?

- Make sure extrinsic rewards for employees are not viewed as coercive and recognize the importance of motivators that appeal to employees' desires for autonomy, relatedness and competence.
- Within reason, set clear and difficult goals; they will often lead to higher levels of employee productivity. Always incorporate feedback participation.
- Recognize individual differences and allow employees to participate in decisions that affect them.
- Help your employees feel successful in completing tasks. It will result in increased motivation.
- Ensure that employees feel fairly treated; check the reward system for equity.
- Link value rewards to job performance; employees should engage in activities they can perform and perceive the link between the two.

Chapter III-14

Job Descriptions and Performance Management

As discussed in the previous chapter, rewards and, hence, performance evaluation is one of the chief sources of content or discontent. Performance cannot be accurately and fairly evaluated if the job description itself doesn't detail out the duties and expectations. So, a company must have objective and quantifiable means to track performance. It needs performance evaluation metrics to figure out the quality and quantum of work done by a person. Proper and valid job descriptions and performance evaluation systems are helpful to companies in another way besides motivating employees. They let the companies know if their resources are being used effectively. This chapter reviews the components of a job description and discusses the development of an effective performance evaluation system.

JOB DESCRIPTION

Job descriptions identify the tasks, duties, and responsibilities of a job (the what/why/where/how data). The most important specific duties and details should be covered, but don't include every last detail of the job. Job descriptions should be written in the active voice, and should describe, not prescribe (for example: "operate cash register," rather than "must know how to operate cash register.") Be consistent, and define, before writing, how terms like occasionally and periodically relate to the duties in question. Finally, include a miscellaneous clause, like "performs other duties as assigned."

Parts of a Job Description

- Identification – job title, department, reporting relationship, location, pay grade.
- General summary – a brief description of the essence of the job.
- Essential functions and duties – a listing of clear, precise statements that outline the major tasks, duties, and responsibilities of the position.
- Specifications – the knowledge, skills, and abilities needed to perform the job successfully. These include education, experience, work skill requirements, personal abilities, and mental/physical requirements.

PERFORMANCE MANAGEMENT

This section discusses the purposes of an effective performance management system, how performance is measured, and the performance appraisal process.

To be effective, **performance management systems** must be: consistent with organizational strategy, beneficial as a development tool for employees, legal and job-related, effective in documenting performance and viewed as generally fair by employees.

There are four essentials to effective performance management: expectations must be made clear to employees, performance information must be provided to employees, strengths and weakness must both be identified in employees, and all of this must be documented for HR records.

Possible employee outcomes for proper performance management include pay increases, incentive rewards, promotions/advancement, training and development, career planning, and discipline. Organization outcomes include learning if goals were met or not, rating employee satisfaction, and coordinating performance with pay. When done right, good performance management yields better quantity/quality of output, better presence and attendance, and more efficient and effective workflow. Specifics from the job description are important—remember to relate performance measures to the original job specifics.

Performance Standards

We can break down performance in three ways: trait-based performance (attitude, teamwork, initiative, creativity, values), behavior-based performance (customer satisfaction, timeliness of response, ethics) and results-based performance (meeting sales/production quotas, cost reduction, improved quality).

It is important to set performance standards, benchmarks, or goals to strive for, in the business setting. These targets should be clearly communicated to employees before work begins. These can be numerical (quotas), or non-numerical for skills such as a foreign language (in this situation, there should be levels established to demonstrate proficiency). Service industry performance metrics focus on cost/employee, # incidents/employee/day, # calls per product, and cost/call.

Performance Appraisals

This section discusses the goals behind performance appraisals and techniques for implementing an effective performance appraisal system.

Performance Evaluations

Performance evaluations, or reviews, are opportunities to appraise and evaluate work or results of an employee. Evaluations are used to administer wages/salary package, give performance feedback, and identify individual employee strengths/weaknesses. It is critical to do these well—if done poorly, can produce bad feelings and damaged relationships between employers and employees. Signs of poor performance evaluations include vague rating terms, lack of honesty, gaps between actual job performance and performance ratings. Performance evaluations are important because without them, it is hard to help employees grow/improve and hard to justify discipline.

HR typically designs the appraisal, and operations management is generally responsible for the appraisal process.

Performance Appraisal Methods

There are two performance evaluation methods. The most common type of appraisal is called systematic. Systematic reviews are generally given at regular intervals (annually).

Informal reviews are gaining more popularity in business. In this system, feedback is given on a day-to-day basis. Immediate feedback can prevent surprises during the formal appraisal process.

Timing of Appraisals

The majority of appraisals are done annually. For new employees with an organization, an appraisal between 60-90 days from date of hire is common, followed by an appraisal at the end of the first six months of employment.

Types of Appraisals

The most common type of review is done by immediate supervisors to employees.

In some situations, including academia, employees rate managers. This can increase manager responsiveness to employees and communicate career development needs to the manager. Managers, however, often react negatively toward this type of appraisal.

The third type of evaluation is team/peer, where team members rate each other. Common in the military, team/peer review can hurt teamwork. One way to reduce the negative impact is to have HR or an outside neutral party interpret the findings to the team.

Self-Rating appraisal, a technique that is growing in popularity, is used when employees work in isolation. It calls for employees to self-identify their own strengths/weaknesses.

When HR or someone outside the organization performs the review, it is called outside evaluation. An example from the hospitality industry is customer ratings.

A newer form of appraisal is the multi-source/360 Rating. Here information is collected from multiple sources that have interacted with the employee over the rating period.

Performance Appraisal Tools

Category Scaling

Graphic ratings are the most widely used scale. Graphic ratings use uniform criteria, and the focus must be on job duties and responsibilities. But there are some drawbacks. Sometimes words used in graphic ratings can have subjective meanings/interpretations. And often, group traits blend together in larger categories. For example, dependability may be the category, but there are different elements to that—dependability involves being at work on time, and it can also mean having assignments completed accurately by the deadline. An employee may be outstanding in one area but may need improvement in the other component.

Behavioral ratings, or BARS (behaviourally anchored rating scales), are a rating system designed to measure behaviors. This system builds rankings around short statements that describe behaviors in key areas ranging from unsatisfactory to outstanding.

Comparative Methods

One way to compare results is by ranking. Individual employees from highest to lowest based on their performance levels and relative contributions to the organization. The problem with this method is there may be no clear indicator of performance differences between employees.

Another option is the forced distribution. Used by 30% of organizations that conduct performance appraisals, forced distribution places all employees on a bell curve where 20% of employees are above expectations, 70% meet expectations, and 10% are below expectations. This forces managers to identify high/average/low performers and ensures pay increases are related to performance. On the downside, it can lead to subjective ratings, supervisors may resist identifying employees as high or low performers, and it can promote conformity. The best way to address issues with this method is to use specific, objective criteria for ratings. Also, be inclusive. Involve employees in the development of the program, in manager training and rating review

Narrative Methods

Another method of evaluation is narrative. There are two types: for a critical incident, the manager keeps a written record/log of highly favorable and highly unfavorable actions performed by employees during the rating period.

Using the essay method, managers write brief essays describing employee performance during the rating period. Some are highly structured; others allow more freedom. This method offers more flexibility for rating, but the effectiveness depends on the manager's writing skills.

Management by Objectives

It is important to wind up on the same page after this process. The employee and supervisor should agree on the job review and agreement, the development of performance standards, and what the objectives are. Additionally, the performance discussion not be limited to the timeframe of a formal appraisal; it should continue regularly and be fluid and ongoing. Objectives can be modified as a result of discussions.

Training for Performance Appraisals

Training should happen on both sides of an evaluation. Employees should be educated on the purpose, as well as the process and timing, of a review. Reinforce the connection between performance standards and the job description duties/responsibilities. Managers should be educated on performance criteria, process and timing of reviews, how to communicate positive and negative feedback, when and how to discuss training and development goals, and how to avoid errors.

Errors to Avoid

- Employees performing the same or similar jobs should be rated using the same standards.
- Beware of recency and primacy effects. Recency effect involves giving more weight to incidents (good or bad) that happened closest to the appraisal date, while primacy effect involves giving more weight to older events or the first data gathered on an employee.
- Avoid central tendency, leniency, and strictness. Central tendency involves a tendency to rate all employees as average, while leniency involves rating all employees at the high end of the scale (above average) and strictness involves rating all employees at the low end of the scale (below average).
- Do not let rater bias towards or against a specific group distorts ratings.
- Sometimes a rater scores a candidate high or low in all areas, based on their performance in one area. This is called the halo/horns effect.
- Be mindful of contrast error, which happens when employees are compared to each other by the supervisor, rather than being compared to the established standards.
- Also, avoid similarity/difference error. Ratings can be affected by how similar the employee is to the rater (for example, a rater with an MBA might rate an employee with an MBA higher than an employee without one, even though the education level isn't an established rating standard.)
- Finally, if ratings are being done on a very small sample of an employee's work, a sampling error may occur. For example, an employee's reports may be 95% satisfactory, but if the sample

the supervisor pulled to evaluate all had errors, the rating might be negative for that function, when really the work was almost 100% accurate.

Appraisal Feedback

Feedback method

Feedback is usually given during a meeting or interview. The manager communicates positive and negative information to the employee; concern involves how to communicate the need for improvement in areas while still emphasizing positive aspects of employee's performance. The manager may consider asking the employee to identify their own areas where growth is needed.

Feedback as a System

Three components are required to give feedback as a system. Data, or the facts that report what happened, must be given. Secondly, there must be an evaluation of data, based on performance standards and how the feedback system responds to the data. Finally, there is action based on the evaluation. What changes (if any) need to be made based on the feedback?

Trends in Managing and Evaluating the Modern-day Workers (MDWs)

From annual, quantitative, and sometimes ranking employees to weed out the bottom performers, performance evaluation has become far more developmental in nature. This is so because a large majority of workers are now engaged in the knowledge or service economy. Such workers' effectiveness is driven by their attitude – attitude toward customers, innovation, organizational citizenship, and so forth. Even with more than adequate skills, a lack of proper attitude hinders their performance.

Much has changed in the desires of the modern knowledge/service worker, and the primary one of them is work-life balance. Money motivates only to a point. Career progression and professional growth are now of paramount importance.

Here is a laundry list of hot buttons of what is sought in employment by workers these days.

- Inclusive benefits that go beyond parenthood – such as "Pawternity" (taking care of pets).
- Flexibility and remote work – so that MDWs can split their time between the office and remote work. Shift to new ideas such as from "the workplace is my office" to "the workplace is wherever I am."
- Alignment of Pay and Purpose – MDWs would like to get paid fairly for the work they do. If they have a lighter workload and/or hours, they understand a lower pay; however, with a heavy workload and/or overtime, they would like their pay to match.
- Time-off – for mental health or any other reason.
- Timely and regular recognition – implies that MDWs would appreciate recognition at staff meetings or company events. This does not have to be frequent and specially held, but let's say once every quarter.
- Training and personal development opportunities – that allow employees to rise through the ranks.
- Access to updated technology – to effectively collaborate with colleagues wherever they are located.
- Mentorship programs – where a mentor can offer guidance while the mentee can give a fresh perspective.

Taking cues from the wishes of MDWs, many employers are moving away from annual and mechanical evaluations. Adobe, for example, evaluates its employees through ongoing conversations between employees and their managers. Priorities are discussed and adjusted regularly with no formal review, documentation, or rating. Salesforce runs a survey twice a year to ask employees how they feel about their jobs. Then, with responses anonymized, they publish the result for the entire company to view. This helps the company and employees see which management practices are working.

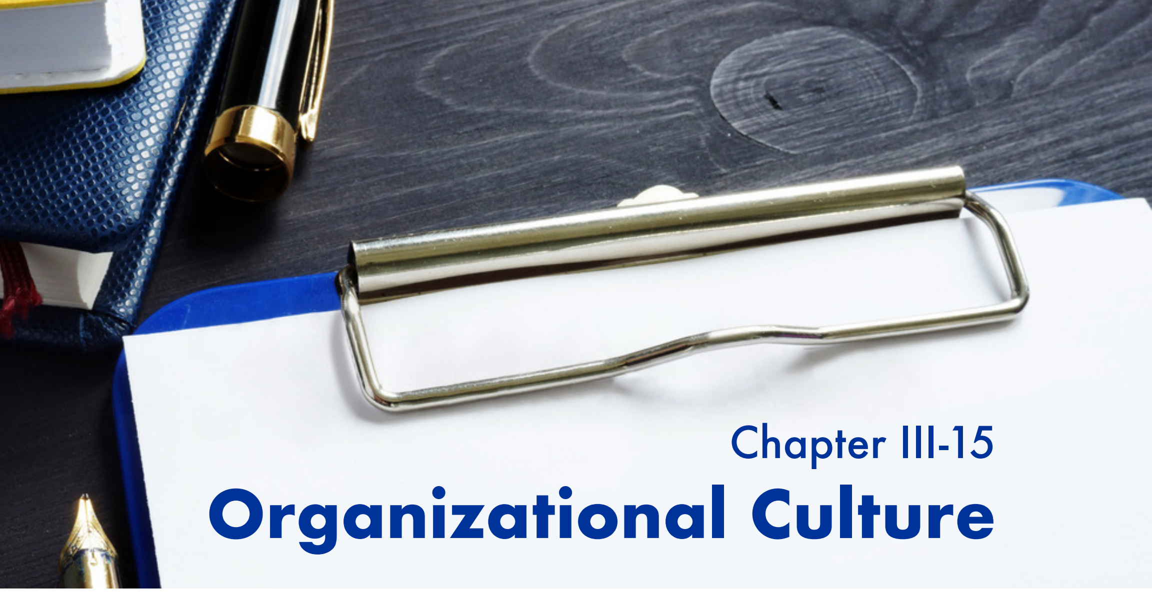
Many organizations are allowing as many days off as the employee wants, and some mandate paid time-off company-wide breaks. Additionally, a variety of benefits for employees and their families such as education, commuter, pet, travel, mental well-being, savings, fitness programs, at-home classes, internal clubs, volunteering, charity contributions, adoption assistance, support networks, and more are being offered.

While trying to keep the good in the brass tacks of the Job Description and Performance Evaluation as discussed in the previous pages, a new additional layer of meat on the bones is being added. Performance Evaluation is being conceptualized to promote cross-functional integration, as this definition adopted by the United States Office of Personnel Management shows, "the systematic process by which an agency involves its employees, as individuals and members of a group, in improving organizational effectiveness in the accomplishment of agency mission and goals."

Such an implementation implies that all members of an organization are measured and rewarded such that their efforts are toward the overall good of the firm while trying to accomplish their own piece of the goal. Such a system can only be achieved top-down – the evaluation criteria of the CEO determine the evaluation criteria of the C-suite members, then the next lower rung, and so on.

In the process of working collectively, besides proper incentives, one may need additional help. Such help could be in the domains of, for example, conflict resolution training, communication skills training, and collaboration spaces and technology.

In summary, Performance Evaluation now implies *frequent conversations, development opportunities; employees at the center of their growth;* and *leadership helping to enhance the performance of employees.*



Chapter III-15

Organizational Culture

Setting up the right motivating work environment within a company goes a long way in determining its success. Another element of a motivating environment is the culture of an organization. The company should know what its culture is, what it ought to be. Only those employees should be hired whose values align with those of the company's. The company, for its part, should provide the tools and training necessary to facilitate this alignment. The culture of the organization defines everything that the company stands for.

Organizational Culture – What is it?

Organizational Culture is a system of shared meaning held by members that distinguishes the organization from other organizations. It is concerned with employees' perceptions of the characteristics of the culture, not whether they like them or not. To measure an organization's culture, we explore three questions. Does an organization encourage teamwork? Does it reward innovation? Does it stifle initiative?

Primary Characteristics of Organizational Culture

- **Innovation and risk-taking**, which is the degree to which employees are encouraged to be both innovative and take risks.
- **Attention to detail**, or the degree to which employees are expected to exhibit precision, analysis, and attention to detail.
- **Outcome orientation**, or the degree to which management focuses on results rather than on processes used to achieve them.
- **People orientation**, or the degree to which management decisions consider the effect of outcomes on people within the organization.
- **Team orientation**, or the degree to which work activities are organized around teams rather than individuals.
- **Aggressiveness**, or the degree to which people are aggressive and competitive.
- **Stability**, or the degree to which activities emphasize maintaining the status quo.

Do Organizations Have Uniform Cultures?

Most organizations have a dominant culture and numerous sets of subcultures. The **dominant** culture expresses the core values that are shared by a majority of the organization's members, and it gives the organization a distinct personality. **Subcultures** tend to develop in large organizations to reflect common problems, situations or experiences of members.

Culture Strength & Formalization

In a strong culture, the organization's core values are both intensely held and widely shared. Strong cultures will have a great influence on the behavior of members and increased cohesiveness resulting in lower employee turnover.

Formalization and culture are two different roads to a common destination. The stronger an organization's culture, the less management needs to be concerned with developing formal rules and regulations to guide employee behavior. Those guides will be internalized in employees when they accept the organization's culture.

Organizational Culture - Its Function, Communication and Building

Functions of Organizational Culture

Cultures can be positive or negative for organizations, and they take on distinct functions. They define the boundary between one organization and others and convey a sense of identity for the members of the organization. If the cultures are strong, they can facilitate a continuous commitment to something larger than self-interest over an extended period. Cultures help people know what to expect in the organization and can enhance the stability of the social system.

Culture can also serve as a sense-making and control mechanism for fitting employees into the organization. The trend toward decentralized organizations makes culture more important than ever, but also makes establishing a strong culture more difficult. The "fit" between the individual and the organization – whether the applicant's or employee's attitudes and behavior are compatible with the culture – strongly influences who gets a job offer, a favorable performance review or a promotion.

Communication of Organizational Culture

Employees learn the organizational culture through a number of avenues. They can gain an understanding of culture by hearing stories that present the past and provide explanations for current practices. **Rituals**, or repetitive sequences of activities, can reinforce the key values of the organization and provide insight into the culture. **Symbols**, such as the layout of the corporation headquarters (office size or style), dress codes (formal or informal) and perks for key employees, can denote who is important in an organization. **Language** is another way to learn about organizational culture, as employees will express themselves in certain ways to indicate membership in the organization.

The Building of Organizational Culture

Organizational culture begins with the founder of the organization and continues through the hiring of people who see things similarly. It is enforced through top management and socialization.

The socialization process involves a few steps. First, the employee learns about the organization through literature, interviews, and other people. Once the employee starts interacting with other employees, he or she sees what the organization is really like. Expectations are measured against reality, and misalignment may emerge. Finally, the new employee adjusts to the organization and work.

Success in employee socialization depends on management's selection of socialization methods and the closeness of new employees' values to those of the organization.

Creating an Ethical Organization

As cultures are built, it is important to incorporate **ethics** into cultural norms early on. Certain characteristics will help develop high ethical standards. High tolerance for risk helps create an environment where people are not afraid to make mistakes. Aggressiveness must be held in check so that unethical behavior is avoided. And a focus on the means as well as the outcomes creates a culture where ethics are embedded in both.

Managers must be visible role models and communicate ethical expectations. Training on ethical behavior and guidelines is important, and ethical acts must be rewarded while unethical acts need to be punished. In addition, protective mechanisms must be in place to assist the workers in behaving ethically.

Chapter III-16

Soft Skills and Emotional Intelligence

Soft skills are all the rage in the business media these days. However, there is no defined and accepted set that constitutes soft skills. One way to determine that is to include all those skills that are required across the functional areas of an organization, e.g., finance, sales, R&D, and manufacturing. While skills such as time management, critical thinking/problem solving, perseverance, and other desired personality traits can also be considered soft skills, it is universally accepted that the core of the domain of soft skills is interpersonal skills, aka Emotional Intelligence (EI). Hence, we focus on this crucial aspect of soft skills – people skills or Emotional Intelligence, which includes *Self-awareness, Interpersonal Perception,* and *Effective Verbal and Non-verbal Communication.* Following this discussion, two difficult situations, *Providing Feedback* and *Conflict Resolution,* are illustrated as areas of application of EI.

SELF-AWARENESS

Self-awareness is one of the essential pieces of Emotional Intelligence. Self-awareness is understanding yourself, your emotions, and how the individual pieces of who you are affect your actions and decisions. Information on self-awareness can be used to understand how you think and how you react to the behaviors, feelings, and emotions of others.

Perhaps the most important reason for being self-aware is that the mirror-image fallacy can be somewhat managed. Mirror-imaging is a personality trap wherein one erroneously expects others to behave in ways you might. Even though it is easy to provide lip service to "people can be different," it is hard to escape this trap.

Too many personality traits make the task of complete self-awareness cumbersome. However, for the purposes of the workplace, it is best to focus on the values one holds in the work ecosystem rather than the individual traits. Such values could be, for example, uprightness and transparency, innovation and risk-taking, caring for other people, and task orientation. Further shrinking of workplace-relevant traits can be accomplished by considering the nature of the job. For example, public speaking may be more critical in a sales job than in a research lab.

Johari Window

One of the tricky aspects of self-awareness is that you may not be aware of some of your traits, but others are. The Johari Window model describes four different Selves that exist within every human. Although the boxes below are all of the same sizes, the sizes might vary depending on the individual. Thus, while one person may be very open (large "Open Self" box), another may naturally be more closed to others (large "Hidden Self" box).

The *Open Self* represents all the information, behaviors, attitudes, feelings, and ideas known to the Self and others. A person's Open Self varies depending on the situation and who the other is. If one does not have a large Open Self, communication will suffer because to communicate effectively we must somewhat open ourselves to express ourselves to others.

The *Blind Self* encompasses information unknown to the Self but known to others. Some individuals are oblivious to their own personality faults, yet these faults may be glaringly obvious to others.

The *Hidden Self* is the part of your Self containing all of your successfully kept secrets. While you are aware of this information, others remain unaware.

Unknown Self is a less concrete concept than the preceding three ideas of Self. This Self represents truths that exist, but its existence is not known to Self or those around us. While you may question whether this area of ourselves matters if nobody knows it exists, it occasionally can expose itself through unexpected events or when one lets their hair down.

	Known to Self	**Unknown to Self**
Known to Others	OPEN SELF Information about you that both you & others know.	BLIND SELF Information about you that you don't know, but others do know.
UnKnown to Others	HIDDEN SELF Information about you that you know, but others don't know.	UNKNOWN SELF Information about you that neither you nor others know.

Moods

Moods are a temporary state of Mind. Unlike emotions, feelings, or personality traits, moods are *less* specific and *less* likely to be brought on by a particular stimulus or life event. While one may feel emotions ranging from excited to terrified to surprised, moods are a more general state of Mind often classified as "good" or "bad." Additionally, sometimes people simply wake up one morning in a bad mood. Nothing necessarily caused the bad mood. Feelings and emotions, however, are caused by events, e.g., feeling angry because a driver cut you off. Although moods are different from personality traits, these traits can still affect what mood is most common for a person. For example, if one has a very positive, upbeat personality, one will likely be in a better mood more often.

Being self-aware of moods is very important for Emotional Intelligence. But being able to control moods is perhaps even more critical. Moods can be controlled even though it is difficult to change the underlying personality traits that cause good and bad moods. For example, one way to snap out of a bad mood is to acknowledge that you are in a bad mood and talk to yourself out of it. Though bad moods have had their share of criticism, positive moods, too much optimism, can also be harmful in making decisions. It is best to be even-keeled.

Lack of sleep and exercise, poor nutrition, alcohol usage, and some meditation have all been known to affect moods.

Working to Increase Self-Awareness

Increasing self-awareness is a life-long journey. Different attributes of Self become salient in different situations and with different people. The following are some of the ways in which Self-awareness can be increased.

- Ask yourself about yourself (honestly assess who you are as a person)
- Listen to others (especially unsolicited and non-verbal)
- Actively seek information about yourself (ask a close friend what they think of you or ask your supervisor during performance evaluation)
- Increase your Open Self (as you reveal yourself to others, you reveal yourself to yourself; exercise extreme caution in using this approach in a political workplace)

INTERPERSONAL PERCEPTION

Perception is the process by which we become aware of and assign meaning to *everything* around us. The assigned meaning is based on our past experiences, personal preferences, and personality. Interpersonal perception is the process of evaluating a *person* after perceiving a stimulus, e.g., a person's behavior. How we perceive others has a lot to do with how we interact with them or the Emotional Intelligence we exhibit in dealing with them.

One of the major processes used to understand people is the process of *attribution*. Attribution is the determination of behavior as either due to an internal cause or an external cause. Attribution of behavior to an internal cause results in forming a judgment about the person. If an individual acts in a way that most people do not or is highly consistent in how they react in different situations, we will attribute their behavior to internal causes. Or, in other words, judging that this is the way the person is.

Self-attribution is the attempt to explain our own behaviors. It is riddled with self-serving bias. When our behaviors turn out to be positive, self-serving bias leads us to attribute it to internal cause, yet the opposite is true if the behavior is negative. Generally, we attribute more of our own behaviors as externally caused, while we attribute internal causes to the behavior of those around us.

Stereotyping is another process used by individuals to perceive others. Stereotyping is the act of applying a fixed impression or perception of a certain social group to all individuals of that group. These groups can be racial, gender, professional, religious, and many more. While stereotyping is certainly a common shortcut for interpersonal perception, it often does more harm than good. No two individuals are exactly alike, so assigning the same traits to every person of a single group does not allow us to see an individual as a unique person. As a result, stereotyping often leads to inaccurate impressions or perceptions and negatively impacts our ability to understand the behaviors of these individuals.

The Implicit Personality theory suggests the third process by which we perceive others. The Implicit Personality theory makes us believe that some characteristics will automatically go with other characteristics. The "*halo effect*" makes us infer that if an individual possesses certain positive or negative characteristics, they are likely to possess other positive or negative characteristics.

EFFECTIVE COMMUNICATION

Apart from Self-awareness and Inter-personal Perception, the other major component of Emotional Intelligence is Effective Communication. Far too many times, a boss thinks that I am the boss and I don't need to be cautious with my subordinates during conversations. Or the subordinate thinks that I am here to take orders, so I'll be in the *yes-ma'am* mode. The world is changing in terms of workplace manners. The newer generations want to be treated with professional respect and trust. And hence, Effective Communication, as described below, becomes paramount for all parties.

Effective Communication is often just as much about listening as speaking. This is because effective Communication can only occur when both participants actively listen and respond to the words the other is expressing. The following is a list of factors that impact the effectiveness of one's communication:

1. **How** you say something (i.e., tone, volume, nonverbal body language)
2. **Why** you say something (either the actual or perceived message behind your words)
3. **When** you say something (during a somber moment or a fight or argument)
4. **What** you do not say (people can communicate as much with silence as they can with words)

Developing Effective Communication Skills

The following is a brief list of actions that can be practiced to build on or develop Effective Communication skills. Becoming an effective communicator does not happen at the snap of your fingers. It is a learned skill, and while it may come more naturally to some than others, everybody can always improve their communication skills. Also, given that communication is a two-way street, if one party is not adept at Effective Communication, it is difficult for the other party to have the patience to be a good listener. It is no wonder then that organizations send individuals to workshops to enhance their communication skills.

1. **Listen Actively** – One way to practice this method is to listen twice as much as talking, consciously stop interrupting, and reflect on what has been said during a pause.
2. **Clarify or Summarize** – Verbally clarify or summarize what has been just heard to ensure that the speaker's message was correctly heard. This works especially well when receiving a new set of instructions, for example.
3. **Ask Questions** – Asking questions can show that one is interested in the conversation.
4. **Trust the Other** – If one party begins by mistrusting the other, the self-fulling prophecy ensues, and both parties begin mistrusting the other. The best approach is to start with showing trust and establishing rapport.
5. **Be Present** – Texting and browsing the cell phone while trying to carry on a face-to-face conversation with somebody is not the path to Effective Communication. Accordingly, one of the best ways to practice Effective Communication may be by simply setting the phone down and making eye contact with the speaker. More accurate listening and responding follow, resulting in a higher satisfaction level with the communication for both parties.

Barriers to Effective Communication

Learning to communicate effectively is already a difficult skill. However, it becomes even more difficult when certain barriers are present.

1. **Not Paying Attention to the Speaker** – The first way to improve communication stated above was through "Active

Listening." Given this, it is obvious that not paying attention to the speaker is a large barrier to Effective Communication.

2. **Judging the Other Person** – Judging the other person while they are speaking will likely result in their message not being received correctly. This is because, while one is thinking and evaluating others, the words fall on distracted ears. Also, preconceived notions about the speaker may cause a misperception of the message, opening the door to miscommunication.
3. **Using Technical Lingo** – Technical lingo, or phrases, are a common barrier to Effective Communication. Just like French cannot be spoken to an Englishman, acronyms and jargon should not be used with the presumption that the listener understands.
4. **Using Inappropriate Jokes** – Inappropriate jokes can be many things. A joke may be inappropriate due to timing, audience, or content. Jokes, especially about a person's race, religion, gender, sexual preferences, or plain stereotyping, can be seriously offensive and much more hurtful to the individual on the receiving end than ever imagined.
5. **Emotions –** can be difficult hurdles because when emotions are high, it is challenging to convey a message articulately and receive a message accurately. One is less likely to be able to think clearly and speak easily when one is nervous. And when one is angry, one is more likely to interpret things said by the other to be inflammatory or rude.

Of all the above barriers, emotions are the most challenging in communication as they are the hardest to control. Emotions shouldn't be and probably can't be totally shut off. They have to be expressed, lest one is treated like a doormat. Hence, there is a need for careful regulation of emotions. Emotions are expressed through verbal, e.g., tone of voice, and non-verbal body language. While it might be easier to "shut" one's mouth, body language tends to give away what the mouth is not saying. It is to this type of non-verbal communication that we turn next.

Non-verbal Communication

It is said that up to 90% of all communication is non-verbal, through body language. Chances are that non-verbal communication is more honest and reveals what we really mean to "say." Non-verbal communication is the most natural and unconscious way in which we communicate. It can reinforce, complement, or contradict, the meaning of verbal messages or substitute for verbal messages. Understanding body language is a powerful tool that helps us connect with others.

Kinesics is a general term that includes body movements such as facial expressions, eye contact, posture, head movements, and gestures.

- *Facial expressions* can relay messages or cues without saying a word. The human face is very expressive and conveys emotions in many ways. Facial expressions for 6 emotions, happy, sad, fearful, angry, surprise, and disgust, are universal across cultures. But the complexity of body language arises because of the numerous possible diagnoses of body language. If someone is smiling, do we know whether they are pleased or just smiling at a ridiculous comment? To understand the message shown by a facial expression, we have to match it with the situation and what is being verbally said.
- *Oculesics* or eye contact is the way we look at someone. It can express many things, such as affection or hostility. It can regulate and monitor interactions with others, convey information, establish and maintain interpersonal connections, and gauge the other person's response and level of interest. In some societies, "look me in the eye" means "I trust you." On the other hand, some cultures feel intimidated by strong eye contact and view direct eye contact as rude and disrespectful. So one has to be careful in using and interpreting Oculesics.
- A *smile* is a powerful communication signal. It can be purely social (i.e., we are displaying a smile only for others to see), or it can be genuine. A genuine smile is hard to fake because it is expressed in our eyes and involves the muscles. So is the case with a blush. If someone is embarrassed, the face becomes

flushed or red. We have little control over this mechanism, but this reaction "speaks" volumes.

- *Posture and body movements* are reflected in the way we walk, sit, stand, or how we hold our heads. If we walk with our heads up and shoulders squared, we can be perceived as being confident or proud. If the head is lowered, we can be perceived as submissive or exhausted. If we lean closer to listen, it means we are interested in the conversation, whereas if the head is turned away, this can mean disinterest, indifference, or boredom.

  We use posture and body movements without thinking about it. We may not realize that standing with our hands on our hips is an unconscious attempt to make us look bigger and stronger. The body is sending an uncalculated message of dominance which can be translated as "Bring it on!" or "I'm ready for action!"

- *Gestures* are movements of the hand or body to express an idea or feeling. A person may wave, point, beckon, and animate a conversation with hand gestures. We also need to be aware that gestures are not universal and can be misunderstood. Hand gestures that are part of some cultures can be viewed as excessive by other cultures' standards.

- *Haptics* is a form of non-verbal communication involving touch. Touch can convey emotions such as empathy, sympathy, or love. For instance, a hug can express sympathy better than words if someone has lost a loved one. But touch can have vastly different meanings across cultures. In France, kissing on both cheeks is acceptable. In some cultures, men walking arm-in-arm does not imply any sexual connotation. Something as simple as patting a child on the head may be misconstrued as inappropriate by some Asian cultures, as the head is considered a sacred part of the body.

  Touching is an effective and important form of non-verbal communication if it is used correctly and appropriately. In today's society, there is a heightened awareness regarding sexual harassment, and it is important for someone to know if touching is appropriate or how another may perceive it. A person should exercise caution when touching subordinates (i.e., employees), people of the opposite gender, someone from another country or culture, and strangers. It is always a good idea to err on the side of caution and formality when touching those who are not personal friends or family members.

- *Proxemics* informs us of the amount of personal space needed. Of course, the situation and the closeness of the relationship we have with others are key determinants of the amount of space. Space can be used to signal intimacy, affection, aggression, or dominance. The amount of personal space a person needs varies across cultures.

We have to remember that people are complex beings. And things can go wrong in both sending and receiving signals.

- When people are *distracted,* daydreaming, thinking about something else, or planning on what they are going to say next, they miss the non-verbal cues and don't understand the nuances of what is being communicated.
- If a person is *stressed-out*, the ability to communicate is compromised. The person more than likely is going to misread or dismiss non-verbal signals.
- A person needs to see *all* the different signals (i.e., eye contact, tone of voice, posture) instead of just focusing on one single gesture or cue. Taken together, all these cues should be consistent with the words that are being said. It is ok to rely on your "gut feeling" and trust your instincts as the gut takes all the cues into account.

EMOTIONAL CONTROL

We consciously and unconsciously communicate emotions with our bodies, whether we like it or not. It affects how others see us, how much they respect and like us, and whether or not they trust us. Emotional competence means that an individual has achieved emotional self-awareness and the ability to regulate or control these emotions.

The root cause of both verbal and non-verbal expressions of emotions is the emotion itself. Whether the emotion is justified or not is a different analysis. Here we discuss how to regulate the emotion that we feel.

Of all the 4 components of emotional Intelligence, 1) the capacity to notice self- and other-emotions, 2) to think about, 3) to understand, and 4) to manage self- and other-emotions, the most important one may be managing one's own emotions. This is because one has the power to directly control one's emotions. And only through one's emotions can other's emotions be controlled. However, it is difficult because control does not mean feelings are never communicated. As mentioned earlier, feelings should be expressed, but very carefully to effectively achieve a purpose.

Knowing some common reasons behind the fear or hesitation many people experience in expressing one's emotions helps people to control their emotions and feelings effectively.

- **Conflict** – When some people feel negative emotions, e.g., disappointment, neediness, anxiety, or anger, they do not express their feelings for fear of entering into conflict with the other person.
- **Perfectionism** – Some people believe they should be better than having negative feelings. This fear of showing emotions is actually a fear of appearing less than perfect.
- **Fear of Rejection** – Relatively clear, some individuals bottle their emotions rather than express them because they feel that they will be rejected if they express their emotions.

- **Low Self-Esteem** – Often, individuals who struggle with low self-esteem believe they should be able to please those around them, swallowing their feelings rather than expressing them freely.
- **Expectations of Mind Reading** – Sometimes, individuals fall into a pattern of not expressing their emotions because they believe the other person should simply know how they are feeling. However, nobody is a mind reader, and properly expressing emotions is still an important aspect. Remember, it is emotional control and not emotional detachment.

Tips for Controlling Emotions Effectively: Here are some tips on how to express feelings and emotions. *Use them only if the situation allows.*

- **Use "I" language instead of "You" language** – Statement 1: "You make me feel sad and deficient when you talk about XYZ..." Statement 2: "I feel sad and deficient when XYZ is talked about..."

  The first statement blames the other person and paints the speaker as a helpless victim. Furthermore, it invites counter-accusations as the other person may get defensive. The second statement takes ownership of the personal feelings and gives the speaker the power to fix the negative feeling.
- **Understand Your Feelings** – Before feelings are expressed, they need to be understood precisely, e.g., disappointment at self or hurt. If possible, take a few seconds, reflect inward, and determine what exactly is being felt.
- **Choose the Right Time** – Emotions are best *not* expressed in the heat of the moment. Plan a time when both parties are free and not distracted. And, preferably, when the parties can meet face-to-face.
- **To the Extent Culture Allows, Be Direct** – Because expressing one's feelings can be so difficult and scary for many people, they tend to do so indirectly or unclearly. This completely

undermines the purpose of expressing one's emotions, however. Cryptic or indirect manner only leads to misunderstandings and confusion. To the extent culture will allow, feelings need to be direct to be heard and understood.

- **Watch out for Tone and Body Language** – When you express your feelings, your tone and body language must match what you say. For example, you can say "sorry," but if your tone is sarcastic, you are not expressing an apology. The tone of voice, including loudness and inflection, can relay anger, sarcasm, confidence, or affection.

It is important to keep in mind that some emotions or feelings need to be suppressed more than others. For example, anger should rarely be expressed, but happiness at a job well done should be. Expressing feelings and emotions to make the communication effective is HARD. Extreme care should be taken in a workplace while talking to a boss, colleagues, or clients. It is better to err on the side of not showing emotions than expressing them however well.

Having understood the details of Emotional Intelligence, we can now turn to apply the notion to two critical situations in organizations – Providing Feedback and Conflict Resolution.

APPLICATIONS OF EMOTIONAL INTELLIGENCE

Providing Feedback

We use feedback to influence the attitudes and behavior of others. Providing feedback demands interpersonal skills and EI. Though feedback implies talking, listening is critical in a feedback session. Listening ensures that the feedback will be heeded.

Listening is hard to do—it takes effort. It is different from hearing. Hearing is basically what you do all the time, one of the five senses of our bodies. It doesn't take effort. Listening takes a conscious effort to make sense of what is being heard. Listening is a bit difficult because it requires concentration and attention and because one may stop listening when one doesn't like or disagree with what is being said.

We listen for different reasons, and some of them include:

- Informational, listening to learn or get information.
- Critical, listening to evaluate and analyze.
- Empathetic, listening to understanding feelings or emotions.

You guessed it right. Empathetic listening is the most significant. And hard too, because it involves assessing emotions. In addition, many hard-charging, task-oriented macho people consider such listening to be a waste of time.

Talking should never consist of only criticism, however constructive. It is said that feedback should be like a sandwich.

(1) Start with something positive (this is the bottom piece of bread)—tell the person their strengths.
(2) Address the issue at hand (this is the meat in the middle of the sandwich) and the details and how to improve it (the lettuce, tomato, and pickle). This tells the person what you didn't like, where the person is falling short and lets the person know in detail how to improve.
(3) Reinforce the message (this is the top piece of bread) by telling the person how the fixes will benefit the organization and their development. This paints a positive picture. Playing on fear, such as threatening someone with "if you don't do this," is not as effective in changing behavior.

Finally, personal feedback needs to be as immediate as possible (i.e., the more delayed the feedback, the less impact it will have). It is no wonder that many organizations are getting rid of annual reviews altogether. Feedback and performance evaluation is almost continuous these days in progressive organizations.

Conflict Resolution

Conflict resolution is the process of resolving conflicts, disagreements, or arguments, peacefully and productively. The role of communication and EI cannot be overemphasized in the process of conflict resolution. Conflict resolution requires all the ammunition of Emotional Intelligence, vis. self-awareness, accurate perception of others, verbal and non-verbal communication, and listening skills. Both the facilitator, if there is one, and the two parties in conflict need to be high on EI for effective and efficient resolution of conflicts.

Conflicts always involve egocentrism – the tendency to focus on oneself. Both parties think they are right, and the other side is wrong. This egocentrism commonly biases one's sense of a fair resolution to the conflict. Conflicts tend to escalate if this self-centered perception of fairness is not removed—escalation results in threats like physical violence or lawsuits. When the parties involved are groups, the "Us" versus "Them" mentality makes the conflict messier because intragroup conflicts must be resolved simultaneously. It is well documented that to resolve conflicts, one has to go beyond the positions that the parties take. Taking positions usually results in one party's gain and another party's loss. Identifying the higher-level source of conflict goes beyond each party's positions to reach a compromised win-win solution. A high level of EI is required to reach the root cause of contention and get to compromises.

Chapter III-17

Time Value of Money

To summarize the journey of a company thus far, it has developed and fine-tuned its value proposition, set the basic "hardware" to deliver the value to its customers, developed accounting methods to track its financial performance, incorporated as a company, hired employees per employment law and managed them per best-practices. It is now ready to solicit financing from outsiders. Financing can be in the form of debt or equity. The difference between these two concepts is explained in the next chapter. But before we get into that, the basic notion of the time value of money needs to be expounded.

Is the $100 that you have today the same as the $100 that you had last year? Or will it be the same as the $100 that you will have one year from now? Obviously, you have answered no for both because you have factored in the 'time value of money.' Factors such as inflation eat away at your wealth. If a product costs $50 now, and the inflation rate is 4%, the same product will cost $52 in one year. So, you see, the money that you have today will be worth a little lesser in the future, as you will be able to buy fewer things with the same amount.

When the business venture is in its nascent stage, the impact of receivables (money that is owed to you) and payables (money that you owe) may not be extremely significant. For the most part, the business is happy to be up and running, and only trying to increase the top-line at every step. But once the business grows, one cannot afford to overlook the effect of 'time-value of money.' The impact is higher when you have more receivables than payables, when the value of the receivables is significantly large, and when the period for which you are owed is high as well (more than a couple of months).

The Concept of Interest

The concept of the *time value of money* states that having money now is better than having the same amount of money later. This is true because of the notion of **interest**. When you borrow money, you have to pay interest, and when you lend money, you receive interest.

Interest is expressed in percentage. In a simple case, the interest rate can be stated as a nominal rate (I_{nom}), which is the interest rate charged for a *given period of time*. Thus, if you took a loan of $100 at 4% *annual* nominal rate, you would owe $104 at the end of the year.

However, many loans do not calculate interest just once for the year as in the above simple example. A loan may specify that interest will be calculated more frequently than once a year. For example, the interest may be charged semiannually (twice per year), quarterly (four times per year), monthly (12 times per year), or daily (365 times per year).

When interest is charged more than once a year, compounding is said to occur. In compounding, the interest a borrower is charged includes interest on the interest they have to pay. Let's say that a borrower takes $100 at 4% nominal interest rate, but the interest is charge semiannually. So after the first six months, the borrower owes $102. But at the end of another six months (i.e., after a year), the borrower now owes $102×1.02 = $104.04.

Paying $104.04 after a year, effectively makes the interest rate 4.04%. Thus a 4% nominal rate compounded semiannually results in an effective annual rate (EAR) of 4.04%.

Rates that use compounding are calculated using the nominal rate and the number of periods in a year that the interest will compound (M). For example, the EAR of 4% nominal interest rate for different compounding periods are:

- EAR, when interest is charged semiannually is

$$\left(\frac{1+I_{nom}}{M}\right)^{M}-1=\left(1+\left(\frac{.04}{2}\right)\right)^{2}-1=.0404$$

- EAR, when interest is charged quarterly, is

$$\left(1+\left(\frac{.04}{4}\right)\right)^{4}-1=.0406$$

- EAR, when interest is charged monthly, is

$$\left(1+\left(\frac{.04}{12}\right)\right)^{12}-1=.0407$$

- EAR, when interest is charged daily, is

$$\left(1+\left(\frac{.04}{365}\right)\right)^{365}-1=.0408$$

Many loans charge a fee upfront too. If the fee is included in the principal upfront and the interest is charged on the fee too, the term annual percentage rate (APR) is used to capture the inclusion of the fee. So in the simple case of 4% annual nominal rate, a loan of \$100 with a fee of \$10 would require you to pay 110 × 1.04 = 114.4 at the end of the year. This is equivalent to a 14.4% APR.

APY (Annual Percentage Yield) takes into account both fees charged and compounding.

These names can be confusing. When you are taking a loan check on 1) frequency of compounding in a year and 2) if any fees are being tagged on to the original principal amount. EAR and APY both include compounding and will be the same if both include the fees.

Present Value (PV)

As mentioned earlier, \$100 a year later is of less value the \$100 now. Present Value of money tells us how much a particular *single* amount of money in the future or a stream of cash flows over the years in the future is worth now. Present Value is a great way of comparing two different payments or receipts or two different streams of payment or receipts at different points of time. The formula to calculate the present value (PV) of a future receipt or payment of money (FV) is:

$$PV = \frac{FV}{(1+I)^n},$$ where I = interest rate and N = number of periods.

Example: Suppose you owe someone $100, but you negotiate with him that you will pay him after a year. How much have you really paid the person assuming that the prevailing interest rate is 4%? In this example, I=.04 and N=1.

$$\text{PV1} = \frac{FV}{(1+I)^1}$$

$$\text{PV1} = \frac{\$100}{(1.04)^1}$$

$$\text{PV1} = \$96.15$$

What is $100 to be paid in 2 years worth now?

$$\text{PV} = \frac{\$100}{(1.04)^2}$$

$$\text{PV2} = \$92.45$$

Similarly, Present Value of $100 in 3 Years is:

$$\text{PV} = \frac{\$100}{(1.04)^3}$$

$$\text{PV3} = \$88.90$$

If $100 was paid after 1, 2 and 3 years, the present value of of this stream would be

PV1 + PV2 + PV3 = $96.15 + $92.45 + $88.90 = $277.50

Any and all streams of cash flow at any points of time can be brought down to present value.

Future Value (FV)

Future Value is the amount of money at a future date given the amount currently. Using the same terminology as for Present Value, Future Value is given by

FV = PV, where I = interest rate and N = number of periods.

Using the same example as for PV, let's assume we have \$100 now. What is its future value after 1, 2, and 3 years?

$$FV1 = PV(1 + I)^1, = \$100(1.04)^1, = \$104.00$$
$$FV2 = PV(1 + I)^2, = \$100(1.04)^2, = \$108.16$$
$$FV3 = PV(1 + I)^3, = \$100(1.04)^3, = \$112.49$$

If there is a stream of money, \$100 coming in for 3 years, at the end of 3 years the future value would be FV3 + FV2 + FV1 = \$112.49 + \$108.16 + \$104.00 = \$324.65

\$100 borrowed/lent at 4% annually at the beginning of each year for 3 years is equivalent to \$324.65 at the end of 3 years.

Chapter III-18

Debt vs. Equity Financing

As has been stated in the previous chapter, a corporation can finance itself in two ways: it can either borrow or raise capital. In the case of borrowing, the cost of debt would be the interest rate at which the lender lends the money. In the case of equity, the owner gives up a part of the business to others. The cost of capital, in this case, is unknown. If the business does well, the owner would have paid a considerable sum for the money it received. If the business doesn't do well, the owner gets the money at a less price. (In the case of the owner using its own money, the cost of equity would be the return on the next best alternative that the money could have been invested in.)

DEBT FINANCING

Debt financing is a means of obtaining money through borrowing as opposed to giving up ownership, which is done through **equity financing.** Debt financing often comes with strict conditions and the requirement of paying interest and principal amounts due at specified dates.

The **principal** amount is the amount of money originally borrowed. The **interest** amount is money paid regularly for the use of money lent, or for delaying the repayment of debt. **Long-term debt** is obligations that the company expects to pay more than one year into the future. These obligations are most often in the form of bonds or long-term notes.

Notes

Notes are a promise to pay an amount in the future. Essentially accounts payable in the form of a written document, Notes are used to give the lender written documentation in case legal remedies are needed to collect the debt. The borrower is usually required to pay interest on the amount borrowed.

Companies usually issue notes in order to meet short term financing needs. Long-term notes may be issued in an exchange when purchasing assets, such as machinery or equipment, and may also be issued when borrowing money directly from a bank.

Bonds

A **bond** represents a promise to repay a stated amount of money at the designated **maturity date**, plus periodic interest payments based on a percentage of the borrowed amount. This maturity date refers to the final payment date of the bond, at which point the principal and all remaining interest are due to be paid. Maturities typically range from 10 to 40 years.

Bonds are evidenced by a paper **bond certificate**, which is issued to the investor to prove evidence of the investor's claim against the company. The main purpose of bonds is to borrow for the long term when the amount of capital needed is too large for one lender to supply. The **face value** is the amount of principal due at the maturity date. Bonds are typically issued with a face value of either $100, $1,000, or $10,000; which is stated on the bond certificate.

The **contractual interest rate** is the rate used to determine the amount of interest the borrower pays, and the investor receives, usually stated as an annual amount and paid semi-annually. The selling price of a bond is set by the supply and demand of buyers and sellers, relative risk, market conditions, and the state of the economy.

Types of Bonds

Secured bonds are those backed by a pledge of some sort of collateral. Two types of secure bonds are **mortgage bonds**, which are secured by a claim on real estate, and **collateral trust bonds**, which are secured by stocks and bonds of other corporations.

Debenture Bonds are unsecured and not backed by any collateral. "**Junk bond**" is a term for an unsecured and risky debenture bond; these, however, pay a very high interest rate.

Term Bonds mature on a single date, while **Serial Bonds** mature in installments.

Callable bonds give the issuing company the right to call and retire the bonds before maturity.

Convertible bonds may be converted into other securities, such as stock, for a specified time.

Used to attract capital in a tight money market, **commodity-backed bonds** are redeemable in measures of a commodity such as barrels of oil, tons of coal, or ounces of metal.

Deep discount bonds have no interest but are sold at a discount which provides the buyer an amount equivalent to total interest upon payoff at the maturity date of the bond.

Coupon bonds are not recorded in the name of the owner/investor and may be transferred from one owner to another by merely delivery.

Income bonds pay no interest unless the issuing company is profitable.

DEBT FINANCING VS EQUITY FINANCING

When obtaining long-term capital, corporate managers must decide whether to issue bonds or to sell common stock. There are many issues to consider when determining whether to rely on debt or equity financing. The main disadvantage of debt financing is a risk. In general, debt increases the risk of a company. Debt financing is riskier than equity financing because debt repayment and interest must be paid at specific points in time, whether the company is performing well or not. With equity financing, a company can decide to pay low dividends or no dividends at all if their earnings are low. Companies with fluctuating earnings and a relatively weak cash position will experience great difficulty in meeting interest requirements in periods of low earnings.

Debt financing does have the following three primary advantages relative to equity financing.

- Ownership – Bonds do not have any voting rights and do not give up any ownership in the company. Current stockholders are able to retain full control of the company.
- Tax savings – Bond interest payments are deductible for tax purposes, while dividends paid on stock are not.

  Leveraging return on equity – A company's **return on equity (ROE)** is a measure of profitability that calculates how many dollars of profit a company generates with each dollar of shareholders' equity.

  ROE= Net Income / Shareholder's Equity

  Although bond interest expense reduces net income, ROE is higher under bond financing because no additional shares of common stock are issued. This will increase the stock's value on the stock market.

The **debt-to-equity ratio** compares the use of borrowed funds compared with resources invested by the owners.

Debt To Equity Ratio= Total Liabilities / Shareholder's Equity

This ratio is used to measure the **default risk**, which indicates the likelihood a company will be unable to pay their obligations. The higher the ratio, the greater the creditors' claims on assets, raising the likelihood an individual creditor would not be paid in full if the company is unable to meet its obligations. Potential creditors examine this ratio when determining whether or not to lend companies money or invest in company bonds. When companies default on debt payments, creditors have several legal remedies, including forcing a company into bankruptcy and possibly liquidating the company's assets.

Issuing Bonds

The process of issuing bonds is not an overnight process and may take weeks or months. Most corporations, per their bylaws, require approval by the board of directors and the stockholders before bonds can be issued. Corporations must then decide whether or not to use an underwriter. **Underwriting** refers to the process where a company sells the entire bond issue to an investment bank, which acts as a selling agent in the process of marketing and selling the bonds to investors.

An **investment bank** is a financial institution that assists people and corporations in raising capital by underwriting or acting as the client's agent in the issuance of securities. **Firm Underwriting** is the process when investment banks underwrite the entire bond issuance by guaranteeing a sum of money to the company, thus taking the risk of selling the bonds for whatever price they can get. When investment banks sell the bond issue for a commission on the proceeds of the sale, it is called **best efforts underwriting**.

Alternatively, the issuing company may sell the bonds directly to a large institution without the help of an underwriter, which is known as a **private placement**. The corporation then must obtain approval of the bond issue from the Securities Exchange Commission, who usually require an audit. Once completed, the corporation issues a **Prospectus**, a document which describes the features of the bond and related financial information and has the bond certificates printed.

There are costs associated with issuing bonds, which can include commission fees to the underwriters, costs to promote bond issuance, legal and accounting fees, and engraving and printing costs. GAAP requires these costs to be recorded as a long-term assets account called **unamortized bond issue costs,** which are allocated over the life of the debt. However, most accountants today disagree with GAAP's ruling on the recording of these costs and believe companies should be allowed to expense the costs.

Issuing Stock

When issuing stock, the company must receive approval from the board of directors, the Securities Exchange Commission, and the state where the corporation resides. They then must decide on the number of shares and class of shares to issue, and whether or not to use an underwriter.

The stock issuance costs reduce the net proceeds from selling the shares and are recorded as a decrease to the additional paid-in capital account.

Debt vs. Equity Example

Acme Corporation needs to raise $1,000,000 to invest in new equipment. To decide how to raise the capital, the chief financial officer evaluates the different impacts that will occur from choosing debt financing or equity financing.

Before considering the security issue, the company will have the following account balances:

Beginning Retained Earnings	$1,000,000
Total Assets	5,000,000
Total Liabilities	3,000,000
Total Revenue	2,000,000
Total Expenses	1,000,000
Tax Rate	35%
Current Shareholders	20,000

The costs associated with issuing either bonds or stock include the following:

Legal Fees	$15,000
Accounting Fees	15,000
Commission Paid to Underwriter	25,000
Promotion Costs	2,500
Printing Costs	2,500

Debt Financing

If Acme Corporation decides to raise the $1,000,000 in capital from debt financing, it will be issuing 100 $10,000 face value, 5% bonds with a 10-year maturity. These bonds will be dated as of January 1, 2016, with interest paid semiannually.

In Year 1, Acme Corporation will record:

1/1/16	Cash		1,000,000	
		Bonds Payable		1,000,000
*To record bond issuance (100 x $10,000) = $1,000,000				
6/30/16	Interest Expense		25,000	
		Cash		25,000
*To record semiannual interest payment (1,000,000 x 5% x ½) = $25,000				
12/31/16	Interest Expense		25,000	
		Cash		25,000
*To record semiannual interest payment (1,000,000 x 5% x ½) = $25,000				

The company must also record the costs associated with the bond issue and amortize them over the life of the bond:

1/1/16	Unamortized Bond Issue Costs		60,000	
		Cash		60,000
*To record initial Bond Issue Costs (15,000 + 15,000 + 25,000 + 2,500 + 2,500) = $60,000				
12/31/16	Bond Issue Expense		6,000	
		Unamortized Bond Issue Costs		6,000
*To amortize Bond Issue Costs for 1 year (60,000 / 10) = $6,000				

Equity Financing

If Acme Corporation decides to raise the $1,000,000 in capital from equity financing, it will be issuing 20,000 shares of $1 par value common stock for $50 per share. On January 1, Acme Corporation will record:

1/1/16	Cash		1,000,000	
		Common Stock		20,000
		Additional Paid in Capital: In Excess of Par Value - Common Stock		980,000
*To record Par Value of Common Stock (20,000 x $1) = $20,000				
*To record amount received in excess of par value ((20,000 x $50) - $20,000) = $980,000				

Acme Corporation must also record the stock issuance costs as a reduction to additional paid-in capital:

1/1/16	Additional Paid In Capital: Stock Issuance Costs		60,000	
		Cash		60,000
*To Record Stock Issuance Costs (15,000 + 15,000 + 25,000 + 2,500 + 2,500) = $60,000				

In order to maintain comparability, we will assume that every year, Acme Corporation will pay the same amount of dividends as they would in bond interest, which is $50,000 per year. However, it is important to note that this is not required and Acme could pay very small dividends or no dividends at all if they prefer.

At the end of the first year, and every year after that, Acme will make this entry:

10/31/16	Retained Earnings		50,000	
		Dividends Payable		50,000
*To record declaration of cash dividend				
12/31/16	Dividends Payable		50,000	
		Cash		50,000
*To record payment of cash dividend				

2016 Taxes

Recall that Bond Expense is a taxable deduction. However, the payment of dividends is not. The difference between taxes paid under each method is calculated this way:

DEBT FINANCING	
Total Income:	
Revenue	2,000,000
Deductions:	
Expenses (before issuance)	1,000,000
Interest Expenses	50,000
Bond Issue Expense	6,000
TAXABLE INCOME	944,000
Tax Rate	35%
TAX OWED	$330,400

EQUITY FINANCING	
Total Income:	
Revenue	2,000,000
Deductions:	
Expenses (before issuance)	1,000,000
TAXABLE INCOME	1,000,000
Tax Rate	35%
TAX OWED	$350,000

The following journal entries would be made upon payment of taxes:

DEBT FINANCING				
12/31/16	Tax Expense		330,400	
		Cash		330,400

EQUITY FINANCING				
12/31/16	Tax Expense		350,000	
		Cash		350,000

2016 FINANCIAL STATEMENTS

After the first year of issuing securities, the financial statements for Acme Corporation under the debt financing method are presented below:

DEBT FINANCING 2016 INCOME STATEMENT	
Revenues:	2,000,000
Expenses:	
Expenses (before issuance)	1,000,000
Interest Expense	50,000
Bond Issue Expense	6,000
Tax Expense	330,400
NET INCOME	**$613,600**

DEBT FINANCING 12/31/16 BALANCE SHEET	
Assets:	
Assets (before issuance)	5,000,000
Cash *(1,000,000 - 50,000 - 60,000 - 330,400)	559,600
Unamortized Bond Issue Costs	54,000
TOTAL ASSETS	**$5,613,600**
Liabilities	
Liabilities (before issuance)	3,000,000
Bonds Payable	1,000,000
TOTAL LIABILITIES	4,000,000
Stockholder's Equity	
2016 Retained Earnings	1,613,600
TOTAL STOCKHOLDERS EQUITY	1,613,600
TOTAL LIABILITIES &SE	**$5,613,600**

DEBT FINANCING 2016 RETAINED EARNINGS	
1/1/16 Retained Earnings	1,000,000
2016 Net Income	613,600
12/31/16 Retained Earnings	$1,613,600

DEBT FINANCING 2016 INCOME STATEMENT	
Revenues	2,000,000
Expenses:	
Expenses (before issuance)	$1,000,000
Tax Expense	350,000
NET INCOME	$650,000

2016 FINANCIAL STATEMENTS

After the first year of issuing securities, the financial statements for Acme Corporation under the equity financing method are presented below:

EQUITY FINANCING 2016 RETAINED EARNINGS	
1/1/16 Retained Earnings	1,000,000
Dividends Declared	(50,000)
2016 Net Income	650,000
12/31/16 Retained Earnings	**$1,600,000**

EQUITY FINANCING 12/31/16 BALANCE SHEET	
Assets:	
Assets (before issuance)	5,000,000
Cash *(1,000,000 - 50,000 - 60,000 - 350,000)	540,000
TOTAL ASSETS	**$5,540,000**
Liabilities:	
Liabilities (before issuance)	3,000,000
TOTAL LIABILITIES	3,000,000
Stockholder's Equity	
Common Stock	20,000
Additional Paid-In Capital: Excess of Par Value	980,000
Additional Paid-In Capital: Stock Issuance Cost	(60,000)
2016 Retained Earnings	1,600,000
TOTAL STOCKHOLDERS EQUITY	2,540,000
TOTAL LIABILITIES & SE	**$5,540,000**

Acme Corporation's chief financial officer now evaluates the data presented in the financial statements and notes the following differences between accepting either the debt financing method or the equity financing method after Year 1:

ACCEPTING THE DEBT METHOD

Taxes

By issuing debt securities instead of equity securities, Acme Corporation would save $19,600 in income taxes. This $19,600 of cash saved by Acme Corporation could be used to help pay future bond interest expense. More importantly, the cash carries a high **opportunity value**. The opportunity value concept expresses that a dollar received today is always worth more than a dollar received tomorrow because the cash can be invested today and continually generate interest income.

Stockholders

By issuing debt securities instead of equity securities, Acme Corporation could leverage its return on equity, therefore making each share of stock more profitable. This would also increase the market value of a share of stock.

Return on Equity (Debt Method) = (613,600 Net Income / 20,000 original shares) = $30.68/share

Return on Equity (Equity Method) = (650,000 Net Income / 40,000 shares) = $16.25/share

Risk

By issuing debt securities instead of equity securities, Acme Corporation will take on a higher debt-to-equity ratio. Therefore, issuing debt securities instead of equity securities will make the corporation riskier, which is not what creditors are looking for.

Creditors will evaluate the debt-to-equity ratio to find the default risk of the company; they will use this to determine whether or not the company will be able to pay off their obligations.

Debt-to-Equity Ratio (Debt Method) = (4,000,000 Liabilities / 1,613,600 Equity) = 2.48

Debt-To-Equity Ratio (Equity Method) = (3,000,000 Liabilities / 2,540,000 Equity) = 1.18

By issuing debt securities instead of equity securities, Acme Corporation will be TWICE as risky. Acme Corporations chief financial officer now evaluates the data presented in the financial statements and notes to following differences between accepting either the debt financing method or the equity financing method after Year 1:

ACCEPTING THE EQUITY METHOD

Shareholders

By issuing equity securities instead of debt securities, Acme Corporation would give up 50% of their ownership, which allows for twice as many shareholders to participate in corporate votes. This dilutes each share of stock and lowers each stock's share of earnings and potential assets upon liquidation.

However, by issuing equity securities, Acme would be able to pay out $50,000 per year in dividends instead of paying bond interest. This would appeal to stockholders and raise the market value of a share of stock.

Once again, the $50,000 would be paid out as dividends for the sake of comparability. By issuing equity securities instead of bond securities, Acme Corporation could do anything with the $50,000 saved per year, as dividend payments are at the corporation's discretion.

Risk

By issuing equity securities, the company will assume less risk because they do not have a liability they need to pay back. Less risk also means the company does not need to be as concerned about their revenue fluctuation or cash flow, because they will not be obligated to pay regular interest payments, nor will they be required to pay off the amount borrowed.

Chapter III-19

Equity Financing Your Business

Now that the technical aspects of debt and equity financing are covered, the actual process of how equity capital is raised follows. Raising money is always a formidable task, with a lot of procedures in place. Which venture capitalists, will the company reach out to for funds? What will the lenders expect in return for cash? What are the legal formalities involved? How many rounds of funding does an organization usually go through? All this and more will be covered in this chapter on raising equity capital.

When you start a business, you and your co-founders (if any) own 100% of your company. With the equity method of raising funds, you give up some portion of your company. How much that portion is, depends on how much you want to raise and what the valuation of the company is. Venture capitalists, the primary source of large capital, are active investors and routinely look for opportunities to invest capital in early and late stages of businesses. Several important factors influence a VC's perception of value and thus the decision to fund, including team, technology, market opportunity, timing, the risk versus reward, and ability to exit at a high multiple of their invested capital. Ultimately VCs are always looking for talented teams with good ideas. Once identified, they would seek good deals (value) and invest in businesses that they can help grow.

In our example of a hypothetical company's growth journey, the company has already successfully met the above criteria and has been incorporated as a Delaware C-Corp.

This chapter will review:

- The company's capital structure which is impacted by selling equity and often summarized on a cap-table.
- The mechanics of their investment.
- The process of attracting a term-sheet (TS).
- The components of the term-sheet and their implications on the company.
- The closing of a venture capital round of financing and the associated documents.
- The impact of taking VC money on the founder's control and ownership, also known as dilution.

Your Capital Structure – the Cap-Table

Ownership in corporations is conveyed via stock ownership. Shares of stock can be "common" or "preferred." As the names imply, common shares have no special privileges or features and are usually subordinate (paid out behind) preferred shares (which, incidentally, are behind debt).

Employee stock options are on the purchase of common stock. Preferred shares usually come with preferences which can include an enhanced return-on-investment as well as enhanced voting features and control features. This is the reason sophisticated investors, like VCs, generally only invest in preferred shares. Preferred shares are typically issued in a series of investment rounds (more on this below). The result is that there can be series A shares, series B shares, series C shares, and so on.

It's important to appreciate that the preferences of the series A, B and C shares can be the same or different, and as a result, there may be a misalignment of economic interests between holders of different series/classes of stock. The way these different classes of stock (common, series A, B, and C) all interact is known as the capital structure of your company. The capital structure is, therefore, important to you as well as your investors.

Cap-Table Example

Before you take any money your capital structure is very simple, you and your co-founders (if any) own 100% of the company. If you have incorporated as a Delaware C-Corp, you and your co-founders own 100% of the common stock. The table might look something like this:

	Founding Stage	
	Common Shares	Initial %
Common Stock Owners		
Founder #1	500,000	45.5%
Founder #2	500,000	45.5%
Founder #3	100,000	9.1%
Total Common	**1,100,000**	100.0%

In every example of the cap-table, **inputs are BLUE,** and **calculated values are BLACK.** The actual number of shares is completely arbitrary; this company has 1.1M, but it could just as easily be 11, 110, or 1000 shares. It's the percentages that matter.

If you set aside some shares for future or current employees, you would do that in an employee stock option pool (ESOP), and the cap-table will have some additional lines (see the figure below). First, the increase or number of new shares added to the ESOP (in this example: 200,000). Secondly, the portion of these shares that have been allocated (granted and issued) to employees (in this example: 0). Third, the remaining shares available to be allocated (in this example: 200,000).

Throughout this cap-table example, we will continue to add new shares to the ESOP co-incident with each round of financing but will not allocate any of the shares. We could have allocated them but made the arbitrary decision not to. Thus they are all "options available for issuance."

	Founding Stage	
	Common Shares	Initial %
Common Stock Owners		
Founder #1	500,000	38.5%
Founder #2	500,000	38.5%
Founder #3	100,000	7.7%
Total Common	**1,100,000**	84.6%
Option Pool		
Increase in Pool (new Shares)	200,000	15.4%
Granted & Issued Options	-	0.0%
Options Available for Issuance	200,000	15.4%
Total Option Pool	**200,000**	15.4%
Subtotal:	**1,300,000**	**100%**

Note that when the ESOP is established, the founders all have a slightly smaller percentage of ownership. This effect is known as dilution. Dilution is the inevitable result of increasing the number of owners of, and investors in your company. It will be discussed further in this example.

The next step is to get some seed capital. This can be done by going to friends, family, and individuals of high net worth who are comfortable making private investments in early-stage companies. We call these investors angels.

Typically, the angel will loan the company money with the intent of converting to preferred stock in the future. The conversion is usually at a significant discount to the share price (often 20%-50%). This is done to reward the angel for taking risk early-on in the company's life. In the example below, two angels loan the company $25k each via a promissory note.

	Founding Stage		Convertible Debt Financing		
	Common Shares	Initial %	$ Invested	Total Shares	Overall %
Common Stock Owners					
Founder #1	500,000	38.5%	$ -	500,000	38.5%
Founder #2	500,000	38.5%	$ -	500,000	38.5%
Founder #3	100,000	7.7%	$ -	100,000	7.7%
Total Common	**1,100,000**	84.6%	$ -	1,100,000	84.6%
Option Pool					
Increase in Pool (new Shares)	200,000	15.4%	n/a		0.0%
Granted & Issued Options	-	0.0%	n/a	-	0.0%
Options Available for Issuance	200,000	15.4%	n/a	200,000	15.4%
Total Option Pool	**200,000**	15.4%		200,000	15.4%
Subtotal:	**1,300,000**	**100%**			
Preferred Stock Owners					
Angel #1			$ 25,000		0.0%
Angel #2			$ 25,000		0.0%
Series A VC #1					
Series A VC #2					
Series B VC					
Series C VC					
Total Preferred			**$ 50,000**	-	0.0%
Total Series Capitalization	**1,300,000**	**100.0%**	**$ 50,000**	**1,300,000**	**100.0%**
Total Paid-In Capital	**$ -**		**$ 50,000**		
Post Money Valuation	**$ 130**		**$ 130**		

Note that the ownership percentages are not affected by taking in this $50k. That is because the $50k was a loan and not "equity capital." When the $50k is converted to stock, then it will have an impact on the ownership percentages (which dilute, going down further).

There are some important points about negotiating with an angel (or anyone else) to take on debt through issuing a promissory note that you need to know. On the front end, you will need to define a few parameters of the note: the amount, the interest rate, the discount to the next round, maturity date, liquidation event before the next round, and no next round.

In this case, the **amount** is $25k each for a total of $50k. Typically, the **interest rate** is about 3 points higher that 30-fixed mortgages. Currently, we see 6, 7, or 8%. The debt (and accrued interest) is usually convertible into the next round of stock at a pre-negotiated discount rate known as the **discount to the next round**. These discounts typically range between 20% and 50%. Sometimes they are even designed to increase as time goes on. The **maturity date** is the date by which the note must be repaid or converted into stock.

The promissory note will need to address what happens to the note if the company gets to an exit before the next round is raised. This is often handled by providing the note holder with a fixed, pre-determined multiple on their investment. These multiples are typically 1.5x-3x but can range as high as 5x or higher. By the same logic as above, the promissory note must address what happens if there isn't a "next round" for the note to convert into, or if it simply matures and comes due before a next round is raised. In most cases, the note plus the accrued interest simply convert into the last series of stock and the last round share price.

One thing you do not need to do, at this stage, is to negotiate the valuation of the business. You are only borrowing money, not selling the stock. Thus, there is no need to place a value on the business at this time. That will come later when you raise equity capital.

Now that you have the angel investment, you should use it to build value in your business. There are several ways, depending on your business, to do this. You can prototype your product, develop "alpha" versions of the App or software, validate your market opportunity or the customer need, or any other activity that would demonstrate to a potential investor that your business has potential and is on a path to success.

Once you have built the value of the company up a bit, you are ready to share your story with potential investors and begin to raise an equity round or Series A round of investment. The process for attracting an investor and raising the Series A will be discussed later. Here's what happens.

Once a Series A investor has indicated they want to invest, they will make you an offer which will be summarized in a Term-Sheet (TS). The TS will include a surprisingly large number of paragraphs (terms) including the valuation, the share price, the composition of the new board of directors, voting rights and other protective provisions designed to protect the interest of the new investor. The valuation of your company, before the investment, will be stated in the TS and defined as the "pre-money valuation" of your company. This number (the pre-money value) is extremely important to you and your cofounders. It defines the worth of your efforts and impacts the amount of the company ownership you will retain after taking an investment from others. The pre-money value is proposed in the TS by the lead investors, who is the author of the TS. You can choose to accept it or negotiate it. Remember, the higher it is, the less dilution you will experience when you sell equity.

Just to illustrate the point with a highly simplified example, assume you are raising $3M, and your pre-money value is set at $3M. After the closing, the post-money value would be $6M, and you would own 50% of the company. If the pre-money had been set at $6M and you raised the same $3M, the post-money would be $9M, and you would own 66.66% of the company. The higher the pre-money, the less the dilution.

Once the pre-money value is determined, and the number of new ESOP shares for the option pool (investors like to know that employees will be incentivized to stay and work hard with stock options) is defined, then price per share (PPS) can be determined by dividing the pre-money value by the number of outstanding shares prior to the financing (pre-financing). It follows that the post-money valuation is determined by multiplying the total number of outstanding shares (including the ESOP) in existence after the financing (post-financing) by the PPS.

At this point, you might have a few questions. So how does the VC determine the pre-money valuation of my company? Is it negotiable? Is higher always better?

Valuation is an ART, not a SCIENCE. Companies that are generating revenue or have profits are typically valued as a multiple of either sales or EBITDA. The specific multiple and whether it's on sales or EBITDA will depend on your specific market sector. In these cases, the VC will look at comparable data to determine the appropriate multiple, discount it or enhance it depending on your specific company, its needs, opportunities and growth potential and then begin a negotiation. However, assuming your business is pre-revenue, in other words, you haven't started generating revenue yet, you will be somewhat dependent on market dynamics when it comes to defining the appropriate valuation for your business. For these early-stage, pre-revenue enterprises, VCs determine the value of your company by evaluating other similar companies like yours, considering the amount of invested capital in your entity so far, and thinking about the appropriate rate of reward the founders should receive. The VC also considers the amount of total money required to take the company to a successful exit and the typical valuations at the exit for companies in your specific market sector. The VC will then calculate backward assuming certain step-ups in valuation at each round of fundraising (explained more below) and the VC firm's own expectations and targets for return on investment (ROI). VCs can also look to the public markets and market capitalizations of the strategies in your sector and do the same back calculation for the expected exit value at certain sales, growth or profit levels. Additionally, factors like the experience and track record of the team, the uniqueness of the technology, the receptiveness of the market place all come in to play. Ultimately the VC picks a value and proposes it in the TS.

Term sheets are DEFINITELY negotiable. Once the VC proposes a valuation for your business, you are free to negotiate that valuation as well as all of the other terms in the TS. Your ability to negotiate the terms aggressively will be determined by the level of interest in your business. If you have multiple TSs, you will be in a much better position to negotiate aggressively than if you just have a single TS from a single interested investor or VC firm. In the end, it comes down to who has the most leverage. As hard as it is to accept, sometimes the value of your company is simply determined by how much a buyer, or the market, is willing to pay for it (market price).

Higher ISN'T always better. While starting with the highest valuation possible and suffering less dilution seems appealing, it isn't always the best path. It's generally better to start an appropriate valuation, build value, enjoy appropriate step ups at each new financing round, and ultimately exit the company delivering good returns to every shareholder, preferred as well as common. The problem with having too high a valuation early in the cycle is that you run the risk of a down round. A down round occurs when you raise money, in a new financing round, at a lower valuation than the previous round. It's an indication that your company has either lost value or was previously overvalued. Either way, it's a negative event in your company's life-cycle. If this happens, you will have a group of investors who are unhappy because they have overpaid for some of your stock. There are protections to the investors called anti-dilution provisions that can reduce the negative impact of a down round, usually at the expense of the common shareholders (think founders & employees with stock options). Most importantly, having the down round will create an immediate misalignment between the different series of investors in your company. Slow and steady is always better.

The cap-table below illustrates the changes to your capital structure after two series A investors invest $1M each for a total of $2M. Compare it to the cap-table above just after the angel investment:

	Founding Stage		Convertible Debt Financing			Series A (Preferred) Financing			
	Common Shares	Initial %	$ Invested	Total Shares	Overall %	Series A $ Invested	Series A Shares	Total Shares	Overall %
Common Stock Owners									
Founder #1	500,000	38.5%	$ -	500,000	38.5%	$ -	0	500,000	13.9%
Founder #2	500,000	38.5%	$ -	500,000	38.5%	$ -	0	500,000	13.9%
Founder #3	100,000	7.7%	$ -	100,000	7.7%	$ -	0	100,000	2.8%
Total Common	**1,100,000**	84.6%	$ -	1,100,000	84.6%	$ -	0	1,100,000	30.6%
Option Pool									
Increase in Pool (new Shares)	200,000	15.4%	n/a		0.0%		200,000	200,000	5.6%
Granted & Issued Options	-	0.0%	n/a	-	0.0%			-	0.0%
Options Available for Issuance	200,000	15.4%	n/a	200,000	15.4%			400,000	11.1%
Total Option Pool	**200,000**	15.4%		200,000	15.4%		200,000	400,000	11.1%
Subtotal:	**1,300,000**	**100%**							
Preferred Stock Owners									
Angel #1			$ 25,000		0.0%	$ -	50,000	50,000	1.4%
Angel #2			$ 25,000		0.0%	$ -	50,000	50,000	1.4%
Series A VC #1						$ 1,000,000	1,000,000	1,000,000	27.8%
Series A VC #2						$ 1,000,000	1,000,000	1,000,000	27.8%
Series B VC									
Series C VC									
Total Preferred			**$ 50,000**	-	0.0%	**$ 2,000,000**	**2,100,000**	2,100,000	58.3%
Total Series Capitalization	**1,300,000**	**100.0%**	**$ 50,000**	**1,300,000**	**100.0%**	**$ 2,000,000**	**2,300,000**	**3,600,000**	**100.0%**
Total Paid-In Capital	**$ -**		**$ 50,000**			**$ 2,050,000**			
Post Money Valuation	**$ 130**		**$ 130**			**$ 3,600,000**			
Legend	Price/Share	**$ 0.0001**	Note Amt		$50,000		Series A Total	$	2,000,000
Inputs are always BLUE			Discount %		**50%**		Pre-Money Valuation	$	**1,300,000**
Calculated values are BLACK			Cap Amt		**None**		Post-Money Valuation	$	**3,600,000**
							Price per Share	$	**1.00**

A few things should be noted about this example of series A financing:

- 200,000 new shares were added to the stock option pool.

- The angel investors converted their $50k investment to Series A stock at a 50% discount ($0.50) to the series A share price of $1 per share.
- The pre-money value was $1.3M, and, after the investment of $2M, the post-money value is $3.6M.

The founders have seen their percent ownership dilute (from 38.5% each to 13.9% each) as a result of selling equity shares, but the value of their equity stake has increased dramatically. If you think of it as a pie chart, they now own a thinner slice of a much larger pie. The value of this thin slice is much more than the value of a wide slice of a tiny pie.

With the series, A investment secured, you will now need to become a much more disciplined company. You will have to conduct board meetings (at least four, but probably more like six, per year) assemble a compensation committee and audit committee and consult your board before making any significant financial commitments or major hires. You will also need to consult with your board on matters of strategy and spending (your operating plan).

Your goal with this series A financing is to build value in your company by further developing your idea/device/technology. You or your series A investor(s) may have even identified a few value-driving milestones or targets for your company to achieve. If that wasn't the case (and it usually is the case), the board should discuss the most efficient path to value creation and identify targets. By targeting these value drivers, you will increase the value of each shareholder's equity and the overall business. In other words, you will positively impact the value of each share of your company's stock.

Your goal is to use the capital you've just raised to maximize the company's value to minimize the number of new shares you would have to issue/sell in the next round (series B). By doing this, you minimize the dilutive effect on each shareholder as the new investment comes in. You and your board will decide together when to go out and how much to raise.

In the example below the company raises $10M in a Series B financing.

	Founding Stage		Convertible Debt Financing			Series A (Preferred) Financing				Series B (Preferred) Financing			
	Common Shares	Initial %	$ Invested	Total Shares	Overall %	Series A $ Invested	Series A Shares	Total Shares	Overall %	Series B Investment	Series B Shares	Total Shares	Overall %
Common Stock Owners													
Founder #1	500,000	38.5%	$ -	500,000	38.5%	$ -	0	500,000	13.9%	$ -	0	500,000	5.1%
Founder #2	500,000	38.5%	$ -	500,000	38.5%	$ -	0	500,000	13.9%	$ -	0	500,000	5.1%
Founder #3	100,000	7.7%	$ -	100,000	7.7%	$ -	0	100,000	2.8%	$ -	0	100,000	1.0%
Total Common	**1,100,000**	84.6%		1,100,000	84.6%			1,100,000	30.6%			1,100,000	11.3%
Option Pool													
Increase in Pool (new Shares)	200,000	15.4%	n/a		0.0%		200,000	200,000	5.6%		500,000	500,000	5.1%
Granted & Issued Options	-	0.0%	n/a	-	0.0%			-	0.0%			-	0.0%
Options Available for Issuance	200,000	15.4%	n/a	200,000	15.4%			400,000	11.1%			900,000	9.3%
Total Option Pool	**200,000**	15.4%		200,000	15.4%		200,000	400,000	11.1%		500,000	900,000	9.3%
Subtotal:	**1,300,000**	**100%**											
Preferred Stock Owners													
Angel #1			$ 25,000		0.0%	conversion	50,000	50,000	1.4%	$ -	-	-	0.0%
Angel #2			$ 25,000		0.0%	conversion	50,000	50,000	1.4%	$ -	-	-	0.0%
Series A VC #1						$ 1,000,000	1,000,000	1,000,000	27.8%	$ 2,500,000	1,428,571	2,428,571	25.0%
Series A VC #2						$ 1,000,000	1,000,000	1,000,000	27.8%	$ 2,500,000	1,428,571	2,428,571	25.0%
Series B VC										$ 5,000,000	2,857,143	2,857,143	29.4%
Series C VC													
Total Preferred			**$ 50,000**	-	0.0%	**$ 2,000,000**	**2,100,000**	2,100,000	58.3%	$10,000,000	5,714,286	7,714,286	79.4%
Total Outstanding Capitalization	**1,300,000**	**100.0%**	**$ 50,000**	**1,300,000**	**100.0%**	**$ 2,000,000**	**2,300,000**	**3,600,000**	**100.0%**	**$10,000,000**	**6,214,286**	**9,714,286**	**100.0%**
Post Money Valuation	**$ 130**		**$ 130**			**$ 3,600,000**				**$17,000,000**			
Legend	Price/Share	**$ 0.0001**	Note Amt		$50,000		Series A Total	$	2,000,000		Series B Total	$	10,000,000
Inputs are always BLUE			Discount %		**50%**		Pre-Money Valuation	$	**1,300,000**		Pre-Money Valuation	$	**6,300,000**
Calculated values are			Cap Amt		**None**		Post-Money Valuation	$	**3,600,000**		Post-Money Valuation	$	**17,000,000**
							Price per Share	$	**1.00**		Price per Share	$	**1.75**

In this series B, the new investor (series B VC) leads the round with a $5M investment. The lead investor provides the term sheet and therefore, sets the terms for all the series B investors.

These terms will probably include a seat on the board as well as a new set of protective provisions and voting rights that replace the previous protective provisions and favor the series B investors. Generally, the series A investors will want to patriciate in the series B financing to protect their ownership stake and maintain some alignment of interests with the new (and unique) series B VC.

In this example, the existing investors (series A VCs #1 & #2) participated by investing $2.5M each in the series B round. The angels did not participate. (This is typical for angels although some will participate). 500,000 new common shares were added to the stock option pool, bringing the overall percentage (aka full diluted percentage) of the pool to 9.3%. This is a very typical level. Many VCs like to see the pool between 5 and 10% of the company depending on the stage. Thus, the pre-money value was $6.3M, which is a significant step up from the last post-money valuation of $3.6M. This occurred because the new investor proposed a new share price of $1.75 (up from $1.00/share). The new Post-Money value, after the $10M Series B, is invested, is now $17M. The founders have now seen their percent ownership dilute from their initial 38.5% to 13.9% after the Series A to 5.1% after the Series B round. However, 5.1% of a company with a $17M valuation is $867,000. So even though they continue to dilute on a fully diluted basis, the value of their ownership continues to increase. This cycle can continue indefinitely although hopefully the company either gets bought, goes public (both topics for later) or simply gets profitable and no longer needs to raise new capital. As a profitable business, you will have other ways to raise working capital, e.g., debt (also a topic of discussion for later).

The last scenario we will discuss will be a series C financing. In this example, a $15M capital raise will be used for the commercial launch of your company's products. This $15M capital raise will result in the issuance of series C shares.

In this example, a new investor, a lead investor (series C VC), has stepped forward with a term sheet for the $15M financing. The series C VC values the current business at $24.3M (a significant step up from $17M post-money valuation of the series B) and has proposed investing $9.5M of the $15M at $2.50/share. Insiders (series A VC #1, series A VC #2 and series B VC) will make up the remaining $5.5M of the series C round. The term sheet calls for the expansion of the option pool by an additional 500,000 shares bringing the entire pool up to 1.4M shares or 8.6% on a fully diluted basis. The new post-money valuation after this round of financing will be $40.5M. See the new cap-table below.

	Founding Stage		Convertible Debt Financing		
	Common Shares	Initial %	$ Invested	Total Shares	Overall %
Common Stock Owners					
Founder #1	500,000	38.5%	$ -	500,000	38.5%
Founder #2	500,000	38.5%	$ -	500,000	38.5%
Founder #3	100,000	7.7%	$ -	100,000	7.7%
Total Common	**1,100,000**	84.6%		1,100,000	84.6%
Option Pool					
Increase in Pool (new Shares)	200,000	15.4%	n/a		0.0%
Granted & Issued Options	-	0.0%	n/a	-	0.0%
Options Available for Issuance	200,000	15.4%	n/a	200,000	15.4%
Total Option Pool	**200,000**	15.4%		200,000	15.4%
Subtotal:	**1,300,000**	**100%**			
Preferred Stock Owners					
Angel #1			$ 25,000		0.0%
Angel #2			$ 25,000		0.0%
Series A VC #1					
Series A VC #2					
Series B VC					
Series C VC					
Total Preferred			**$ 50,000**	-	0.0%
Total Outstanding Capitalization	**1,300,000**	**100.0%**	**$ 50,000**	**1,300,000**	**100.0%**
Post Money Valuation	**$ 130**		**$ 130**		
Legend	Price/Share	**$ 0.0001**	Note Amt		$50,000
Inputs are always BLUE			Discount %		**50%**
Calculated values are			Cap Amt		**None**

	Series A (Preferred) Financing				Series B (Preferred) Financing			
	Series A $ Invested	Series A Shares	Total Shares	Overall %	Series B Investment	Series B Shares	Total Shares	Overall %
Common Stock Owners								
Founder #1	$ -	0	500,000	13.9%	$ -	0	500,000	5.1%
Founder #2	$ -	0	500,000	13.9%	$ -	0	500,000	5.1%
Founder #3	$ -	0	100,000	2.8%	$ -	0	100,000	1.0%
Total Common			1,100,000	30.6%			1,100,000	11.3%
Option Pool								
Increase in Pool (new Shares)		200,000	200,000	5.6%		500,000	500,000	5.1%
Granted & Issued Options			-	0.0%			-	0.0%
Options Available for Issuance			400,000	11.1%			900,000	9.3%
Total Option Pool		200,000	400,000	11.1%		500,000	900,000	9.3%
Subtotal:								
Preferred Stock Owners								
Angel #1	conversion	50,000	50,000	1.4%	$ -	-	-	0.0%
Angel #2	conversion	50,000	50,000	1.4%	$ -	-	-	0.0%
Series A VC #1	$ 1,000,000	1,000,000	1,000,000	27.8%	$ 2,500,000	1,428,571	2,428,571	25.0%
Series A VC #2	$ 1,000,000	1,000,000	1,000,000	27.8%	$ 2,500,000	1,428,571	2,428,571	25.0%
Series B VC					$ 5,000,000	2,857,143	2,857,143	29.4%
Series C VC								
Total Preferred	**$ 2,000,000**	**2,100,000**	2,100,000	58.3%	$10,000,000	5,714,286	7,714,286	79.4%
Total Outstanding Capitalization	**$ 2,000,000**	**2,300,000**	**3,600,000**	**100.0%**	**$10,000,000**	**6,214,286**	**9,714,286**	**100.0%**
Post Money Valuation	**$ 3,600,000**				**$17,000,000**			
Legend		Series A Total	$	2,000,000		Series B Total	$	10,000,000
Inputs are always BLUE		Pre-Money Valuation	$	**1,300,000**		Pre-Money Valuation	$	**6,300,000**
Calculated values are		Post-Money Valuation	$	**3,600,000**		Post-Money Valuation	$	**17,000,000**
		Price per Share	$	**1.00**		Price per Share	$	**1.75**

	Series C (Preferred) Financing			
	Series C Investment	Series C Shares	Total Shares	Overall %
Common Stock Owners				
Founder #1	$ -	0	500,000	3.1%
Founder #2	$ -	0	500,000	3.1%
Founder #3	$ -	0	100,000	0.6%
Total Common			1,100,000	6.8%
Option Pool				
Increase in Pool (new Shares)		500,000	500,000	3.1%
Granted & Issued Options			-	0.0%
Options Available for Issuance			1,400,000	8.6%
Total Option Pool		500,000	1,400,000	8.6%
Subtotal:				
Preferred Stock Owners				
Angel #1	$ -	-	-	0.0%
Angel #2	$ -	-	-	0.0%
Series A VC #1	$ 1,800,000	720,000	3,148,571	19.4%
Series A VC #2	$ 1,800,000	720,000	3,148,571	19.4%
Series B VC	$ 1,900,000	760,000	3,617,143	22.3%
Series C VC	$ 9,500,000	3,800,000	3,800,000	23.4%
Total Preferred	$ 15,000,000	6,000,000	13,714,286	84.6%
Total Outstanding Capitalization	**$ 15,000,000**	**6,500,000**	**16,214,286**	**100.0%**
Post Money Valuation	**$ 40,535,714**			
Legend		Series C Total	$	15,000,000
Inputs are always BLUE		Pre-Money Valuation	$	**24,285,714**
Calculated values are		Post-Money Valuation	$	**40,535,714**
		Price per Share	$	**2.50**

As previously mentioned, these financings can continue indefinitely. There are companies that get to an exit before raising a series A and those that continue to series G, H & J (although that is rare).

Now that we have covered the capital structure of a company, from founding on through angel investments and multiple rounds of equity financing, it's time to back up and discuss where the money actually comes from and how to attract it from investors.

Sources of Capital

There are several sources of capital available to draw from when starting and building a company. In this section, we will identify and discuss the various sources.

Self: If you are lucky enough to have enough personal wealth to fund the early stages of your business, you should consider doing so for as long as you can tolerate it. One obvious and overlooked form of self-funding is simply not taking a salary.

Banks: While banks are a large potential source of capital, the reality is that banks are not in the business of high-risk/high-reward investments. They are a potential source but will want you to either seek a home equity line of credit (HELOC) which effectively means you are securing your loan with your home or simply provide a personal guarantee.

SBIR & STTR Grants: Small Business Innovation Research (SBIR) & Small Business Technology Transfer (STTR) are government programs coordinated by the Small Business Administration, intended to help certain small businesses conduct research and development (R&D). Funding is through contracts or grants and therefore, non-dilutive. In other words, you do not need to sell or provide equity for these funds. If your business meets the criteria for these programs, these are great sources of early-stage capital.

Friends & Family: Just what it implies, these are your friends and family members stepping in and making early investments in your business. They are essentially a subset of angels.

Angel Investors: Angels are generally high-net-worth individuals (rich guys) who enjoy making direct investments in early-stage companies. These are often former executives and entrepreneurs themselves and can often be a good source of mentoring.

Strategic Investors: Strategic investors are companies that have a strategic interest in your market or business. They are generally the large industry leaders in your sector and tend to be less sensitive to valuation and financial matters because they invest for strategic and business reasons. These investors may seek some strategic rights as part of their investment. They may want to distribute your product or license your technology. They may also view your business as a potential future acquisition and want a "first right of refusal" or "first right of negotiation" should you decide to consider selling the business. Essentially, they are seeking a seat at the table as part of their investment. Managed carefully, the right strategic investor can be a value driver; for one thing, it validates the importance of your company to the industry.

Venture Capital: Venture capital firms (VCs) represent the primary source of funding for your company. These firms raise funds from public & private endowments, other investment vehicles (like hedge funds & mutual funds), corporations and private individuals. Once a fund is raised, the fund managers (aka venture capitalists) begin searching for private companies to invest in. Venture capital firms are enormous sources of capital that have invested in and driven technologies that impact every aspect of daily life. Once invested in a company, VCs generally like to take active roles in oversight by joining the board of directors. Effectively, VCs become unpaid consultants with a vested interest in your business.

VCs are purely economically driven. They look to maximize the ROI for their investors, and they measure their success in terms of the multiple returned from invested capital (e.g., "3x" or "10x").

They want to buy low/sell high.

VCs strive to mitigate risk appropriately. They know they can't make 100% risk-free investments, so they work to reduce and eliminate as much risk as possible and then understand the details of the risks they are taking with an investment. VCs will conduct extensive due diligence on each investment. VCs will want details about how you plan to use the capital that's being raised. One way a VC firm mitigates its risk is to build a diversified portfolio (invest in multiple companies in multiple business sectors). VCs usually target active investments: where they can add value & influence the outcome.

VCs will only invest if they understand the exit. They want to know when and how they will get out of the investment, and about how much they can expect to make in the investment.

The Venture Capital Process

The Pursuit

Long before you arrive at the point of wanting or needing venture capital investment, you need to begin developing relationships with venture capital firms and the investment partners and professionals within those firms. Seek out networking opportunities at local, regional, and national industry events, and attend and even present at venture conferences.

Venture conferences are produced with the specific intent of having early stage, start-ups present one after another, to an audience of investors made up of mostly VCs and business development executives from the strategics. These events can generate direct connections between you and a VC investor.

Another method of identifying venture firms to target is to go to the websites of your competitors and other early-stage firms in your industry sector. By reviewing the bios of the board of directors (many of whom will be venture capitalists), you will be able to develop a list of VC firms to target. With this list, the connections you may have made at conferences, and by working your network, you will be ready to begin reaching out to VC firms.

Your mission is to share enough information in either a written one-page teaser or an oral 2-3 minute pitch with the target that you get invited in to give a more thorough 15-30 minute pitch (either in person or on a conference call). During that pitch, you can expect to get peppered with many questions, some of which will be more relevant than others. If that meeting goes well and the firm decides it wants to continue looking at your company as a potential investment, they will ask you for the business plan and the economic model (pro forma) that goes along with the business plan.

Do not give them a 50-page business plan! Nobody wants to read 50 pages. Provide a clear and concise 10–15 (max) page business plan that lays out the market opportunity, how you will address it with your unique and proprietary technology/business model, some information about you and the team, and why you are particularly well suited to execute your plan. Also, address the risks and challenges you will need to overcome to be successful. Also include a pro forma income statement, balance sheet, and cash flow statement (be realistic when it comes to projecting future revenues).

If, after reviewing your business plan and studying financial projections, the VC is still interested, they will start their internal diligence process. They might begin getting educated in the particular field, asking more focused questions, talking with leaders and competitors in the field and potential end users (customers), and working to identify and characterize the competing companies and technologies.

They will reach out to any experts they have access to. They will continue to communicate with you and come back with more pointed questions and challenges to financial projections and ask for your documents of incorporation to assess the legal structure. If technology is involved, they will hire outside counsel to do an IP review. Both for patentability and freedom to operate. Ultimately, they may ask you to come in and present to the entire partnership for a final decision of their investment committee. A positive decision means they will develop a term sheet to summarize the terms of their proposal to lead a round of financing.

The Catch (Term Sheet)

Getting a term-sheet from a VC firm willing to lead a round of investment is a significant milestone for a company. In hot markets, you might be faced with multiple offers from a few venture firms that you will have to choose between. This may provide you with the opportunity to negotiate for terms more favorable to the management & founders. However, it's more often the case that when VC firms realize they are both conducting diligence on the same investment they often agree to partner up, share the diligence work and submit a joint term sheet where they co-lead the investment round.

Teaming up serves multiple purposes for the venture firms; it spreads the diligence work-load, it reduces the leverage of the company to negotiate for better terms, and it ensures at least one other venture investor in the round. VCs hate to invest alone and generally welcome another deep pocket to the table, as it reduces the risk of running out of money as market conditions change, plans get derailed, and the unpredictable happens – and the unpredictable always happens. Companies always seem to need more capital than originally projected, and there is always one more round of financing.

The term sheet will lay out the general terms under which the lead investors are willing to invest. These terms will include the **pre-money value**, which is what the lead investor believes the business is worth before the investment is made. It will also address the **size of the round**, or the total amount of money being invested and from whom. It is common for the lead investor to define a round that is larger than their commitment. The implication is that additional investors need to be identified in order to close the investment.

It will lay out the **timing** of capital availability, either all at the initial closing or a portion at the initial closing with additional "tranches" at clearly defined milestones. Tranched investments are very common. Investors prefer to tranching their money into a company as a method of mitigating risk. These tranche milestones can be defined simply as a date or more specifically as the completion of a certain key, value driving goals (e.g., 1st prototype, completion of a market survey, issuance of the patent or first commercial sale).

The closing documents, including the certificate of incorporation (or the charter), is where the board **structure** (size) is defined and where actual directors can be named, or the process for electing them is defined.

While it takes a vote of all of the shareholders to sell a company or go public, most of the significant operating decisions are taken by the board of directors. Having the right mix of individuals on your board is vital to your company's success. Typically, the smaller the company is, the smaller the board. Boards tend to include the CEO, any major investors, and, at later stages of the start-up cycle, may include an independent director (a board member without a significant investment, equity stake or management role). Boards can have any number of members; an odd number is not required. Ideally, board members are seasoned in the industry, strategic in their thinking, and valuable concerning their counsel. They are your business consultants, and, when used properly, can represent a significant corporate asset.

Preferences are special privileges the investors want or require as part of their investment. These preferences are what differentiate preferred stock from a common stock. The most important of these preferences is usually the **liquidation preference**. Understanding the impact of any liquidation preferences is vital to fully understanding the Term Sheet. A liquidation preference means that one class of stock (typically preferred) has a preference over another class of stock (like common) when the company is liquidated (sold). The preference can be a 1x, 2x 3x or higher, meaning that the preferred stockholder may get 1, 2, 3 (or more) times their investment back before any other shareholder sees a nickel.

After a liquidation preference (if any exists) is paid out to investors, the preferred shareholders may or may not participate in the distribution of the rest of the funds to the shareholders on an "as converted basis." This means all classes of stock are treated as if they have been converted to common stock, and all have the same rights. When companies go public, all classes of shareholders are usually converted to common stock. Thus, the preferred shareholder would have to believe that their potential return is better by converting to common and going public than if they received whatever liquidation preference was defined in the corporate documents.

To illustrate the above, let's assume VC A invested $2M for 40% of a company that was sold for $20M and that the founders owned the other 60%. Also, let's assume that VC A owned preferred stock that had a 2x participating liquidation preference (2x is a little high, but 1x is a very typical liquidation preference). Of the $20M, VC A gets their 2x first. So, VC A gets the first $4M. Then VC A gets 40% of the remaining $16M while the founders get 60% of the remaining $16M. The final totals would be $10.4M for VC A & $9.6M for the founders. So, as a result of the liquidation preference, even though VC A owns less than 50% of the stock on an as-converted basis, they end up with over 50% of the return. This difference would be even greater in lower exits and would be less of an issue at higher exits.

It should now be obvious that liquidation preferences are intended to protect preferred investors in low exits (downside protection). It should also be noted that some liquidation preferences are non-participating. In these scenarios, the investor would get their liquidation preference back first and nothing else. The remaining proceeds would be distributed to the other shareholders on an as-converted basis. These non-participating liquidation preferences tend to be 3x or higher since the return is capped. It is also typical in non-participating liquidation preference scenarios for the investor to have the option to convert their preferred stock to common stock, giving up the 3x fixed return for the ability to participate on an as-converted basis with no liquidation preference at all. This only happens in higher exits.

It is also important to understand **protective provisions**. These are features that provide the new investors with additional protections and are often required as a condition of their investment.

Let's start with **voting rights**. For initial board structure, it is standard to appoint a director to the board to represent a class of stock (like the series A). Often there is a series A director, a series B director and, if applicable, a series C director. Each is typically appointed by the lead investor in the respective round of financing.

Another protective provision is **veto power**. The newest investors will routinely want their director to be able to veto certain decisions if they deem them not in their best interest. This might include raising additional capital, taking on debt, making acquisitions, issuing new stock, the list can be extensive.

Additional **voting rules** can also be set up to provide one class of stock the ability to control certain decisions like those mentioned above. For example, a voting rule might require 66% or even 75% of the shareholders to approve a certain size or type of transaction.

Anti-dilution protection safeguards investors from selling additional stock in future financing rounds at a lower price-per-share than the previous round (aka a down-round). As an example, if the series B shares were sold at $2/share and in the new series C financing, the stock was priced at $1.5/share, anti-dilution provisions would come into play for the series B shareholders. There are a few different ways to define anti-dilution protection, but no matter how it is defined, additional shares end up being awarded to the protected shareholder at no additional cost. The net result is an effective adjustment of the earlier series share price, essentially a retro-active repricing of the protected series. This all comes at the expense of the common shareholder as well as any earlier shareholders who do not enjoy the same anti-dilution protection and end up being diluted when new shares are awarded to the protected shareholders. There are a few different ways to define anti-dilution protection.

The ultimate protection for investors is called **full ratchet anti-dilution protection**, which effectively reprices the series B round at the new series C PPS of $1.5/share. This results in each series B investor receiving an additional allotment of shares to compensate for the lower, series C, share price. Full ratchet anti-dilution protection affords maximum protection to the series B investor at the expense of the other shareholders, especially the common shareholders.

Here is an example of full ratchet protection. The series A investor in a company invests $1M for 1M shares (at $1/share) of a company that, post-financing, has a total of 2M shares. So, the Series A investor owns 1M preferred shares or 50% of the stock on an as-converted basis and the founder also owns 1M Common shares or 50% of the stock on an as-converted basis. (As converted means as if all the shares have been converted to common stock.) This would be the case for a company that is publicly traded.

If a new round of 1M series B shares ends up being sold for less than $1/share, then anti-dilution protection would come into play for the series A shareholder but not the common shareholder. Let's consider the case where the $1M series B shares are priced at $0.50/share.

In this example, the new series B shareholders will receive 2M shares for their investment of $1M. The series A shareholders will be offered the additional 1M share to compensate them for paying too much for the series A stock. This effectively brings the series A share price to $0.50/share, the same as the series B (hence the full ratchet).

After this adjustment occurs, there are:

- 1M common shares (20% on an as-converted basis)
- 2M series A shares (40% on an as-converted basis)
- 2M series B shares (40% on an as-converted basis)
- The big loser here is the common shareholder who went from 50% fully diluted ownership after the Series A to 20% after the Series B.

Full-ratchet anti-dilution protection is relatively rare. More common is **weighted average anti-dilution protection** which also results in the issuance of new shares but on a proportional scale to the size of the new down round in respect to the other rounds. Stated another way, the way to calculate the appropriate number of new series A shares to award the series A shareholder is by calculating a new effective share price for the series A shares (**SP_2**). This is done with the following formula:

Typical weighted average:

$$\mathbf{SP_2 = SP_1 * (A+B) / (A+C)}$$

Where SP_2 is the *new* series A share price that results from this down round (we will use this *new* share price to calculate the incremental number of series A shares that should be awarded to the series A investor to compensate them for the drop in the share price); SP_1 is the original series A share price; A is the total number of all shares of stock outstanding immediately prior to the series B (this can be referred to as common stock equivalents and includes all shares of outstanding common stock, all shares of outstanding preferred stock on an as-converted basis, and all outstanding options on an as-exercised basis, and does not include any convertible securities converting into this round of financing); B is the amount of money invested in the (new) series B round divided by SP_1; and C is the number of new series B shares of stock issued in the (new) series B round.

So, using the equation from above with the same transaction parameters, we have the following:

series A was a $1M investment at $1/share with a post-money valuation of $2M, and series B will be a $1M at $0.50/share.

$$\mathbf{SP_2 = SP_1 * (A+B) / (A+C)}$$

- SP_2 = the new series A share price that results from this down round
- SP_1 = original series A share price: which is $1.00
- A = the total number of all shares of stock (common + preferred) outstanding immediately before the Series B: which is 2,000,000
- B = the amount invested in the (new) series B round divided by SP_1 (the original series A share price) which is 1,000,000 divided by $1.00 = 1,000,000
- C = the number of series B shares of stock issued in the series B transaction, which is 2,000,000

Thus:

$$\mathbf{SP_2 = SP_1 * (A+B) / (A+C)} \text{ or}$$
$$\mathbf{SP_2 = \$1.00 * (2{,}000{,}000+1{,}000{,}000) / (2{,}000{,}000+2{,}000{,}000)} \text{ or}$$
$$\mathbf{SP_2 = \$1.00 * (3/4)} \text{ or}$$
$$\mathbf{SP_2 = \$0.75}$$

This seems to make intuitive sense. So, if the series A share price were $0.75/share instead of the $1.0/share, then the series A shareholder would have received 1,333,333 shares instead of the 1,000,000 shares they actually received. As a result, the weighted average anti-dilution protection affords the series A shareholder an additional 333,333 series A shares.

So, in this weighted average anti-dilution protection scenario, after the Series B down round investment we have: 1M common shares (23% on an as-converted basis), 1.333333M series A shares (31% on an as-converted basis), and 2M series B shares (46% on an as-converted basis). Again, the big loser here is the common shareholder who went from 50% fully diluted ownership after the series A to 23% after Series B.

Of course, there is a time when no anti-dilution protection is provided to any of the shareholders. This is by far the best situation for the common shareholder and the newest investor. When comparing the two forms of anti-dilution protection to no anti-dilution protection at all, we see the following:

Post Series B Fully Diluted Ownership

	At Founding		After Series A		After Series B w/ Full		After Series B w/ Weighted		After Series B w/ No Anti-	
Series of Stock	Shares	FD %age	Shares	FD %age	Shares	FD %age	Shares	FD %age	Shares	FD %age
Common	1.0M	100%	1.0M	50%	1.0M	20%	1.0M	23%	1.0M	25%
Series A			1.0M	50%	2.0M	40%	1.333M	31%	1.0M	25%
Series B					2.0M	40%	2.0M	46%	2.0M	50%

This example has used simple numbers but, depending on the number of investors, the number of rounds affected, and the price differences, anti-dilution calculations can become very complex. These are complicated formulas and are typically managed by the attorneys and accountants involved.

What you need to remember is that **full-ratchet anti-dilution is the most punitive to founders, employees, and common shareholders**, while **weighted average anti-dilution protection is considered by most everyone to be fair and reasonable**.

There are a few other ways to calculate anti-dilution protection, including broad-based weighted average and narrow-based weighted average anti-dilution protection. However, the weighted average is the more typical approach and the one you should push for.

The investors will include an **anticipated closing date** statement in the term sheet. It's not unusual for this date to slip.

Even though most Term Sheets are titled "non-binding," almost all term sheets will have a **deadline for acceptance** or an expiration date and time. The period to accept a term sheet typically ranges from a day to a week, although you can always ask for more time.

Once you agree on and accept the terms in the TS, the VC will begin conducting their due diligence. Once the due diligence is completed, you will move on to closing the investment.

THE CLOSING

Once the due diligence is complete, the only thing left to do is close on the financing. The following documents will all be part of any venture-backed financing. You should familiarize yourself with each of them, their purpose, implications, and important components:

Stock Purchase Agreement

The Stock Purchase Agreement (or SPA) lays out the basic terms of the purchase and sale of the preferred stock to the investors. **The key parameters in the SPA are the purchase price, closing date, and the conditions required to close**. These conditions may include items like non-compete and confidentiality agreements with management (very typical). You may even be asked to re-vest in your founder's common stock position. These are both interned to protect the investor(s) from management departing immediately after the investment closes.

The SPA also identifies the other financing documents that are included. The main items of negotiation in the SPA are therefore the price and number of shares being sold, as well as the representations and warranties that the company, and sometimes the founders, must make to the investors.

A representation is defined as an account or statement of facts. **Representations** present everything from its past to its current status. For example: "We have no claims against us." By contrast, **warranties** generally move from the present to the future. "The company that you are investing in is warranted as being free of issues, and the company agrees to address any matters for a specified amount of time into the future." You must make sure you fully understand the representations you are making and agreeing to and the warranties you are providing.

Certificate of Incorporation

After the SPA, the Certificate of Incorporation (COI) is the most important document in the closing binder. The Corporation's COI establishes the rights, preferences, privileges, and restrictions of each class and series of the Corporation's stock.

The key aspects of the COI include defining the rights associated with the common stock and establishing the rights, privileges, preferences, limitations, and restrictions on the preferred stock. These generally include dividends (if any) and how and when they might be paid, as well as a liquidation preference. In case of a liquidation of the company, the order and amounts of payouts to the different classes and series of stock. This is often referred to as the waterfall. Additionally, the mechanics of converting preferred stock to common stock are defined. Though there is also a separate voting agreement, voting rights are usually discussed, including who gets to vote, how votes are counted and any required thresholds that must be met beyond 51% of shares. Anti-dilution provisions (if any) are also included here.

If **pay-to-play provisions** are part of the financing, they will also be defined in the COI. Pay-to-play provisions are designed to motivate investors (usually just the VCs) to participate in future rounds of financing by penalizing them for non-participation. The penalties are usually rather severe and generally include the conversation of the VC's stock from Preferred to Common. Sometimes this conversion occurs at a diluting ratio, for example, one common share for every ten preferred shares. The impact on the VC's equity can be massive.

Why would a VC agree to this? The answer is they don't, the rest of the board does. Pay-to-play provisions are intended to motivate VC to participate in future financings and reward those that cover for the non-participating VC if they still choose not to participate. The idea is to reduce the financing risk for investors.

Investor Rights Agreement

The Investors' Rights Agreement (IRA) covers several topics. The most frequent are information rights, registration rights, preemptive rights of the first offer, and various post-closing covenants (promises) of the Company.

Information rights imply the right to certain information. Usually, this is quarterly financial information, but it can be defined broader.

Registration rights are a bit more esoteric and represent an investor's right to require a company to list the shares publicly so that the investor can sell them. Registration rights, if exercised, can force a privately-held company into an IPO. Registration rights are intended to help investors gain access to the broader market in order to sell shares, which isn't always in the company's interest. You would have to go through the IPO filing process, which is expensive. Typical negotiation points include the number of rights allotted to the investor, with management likely preferring fewer rights due to IPO expenses. The company may prevent registration rights from being enacted for several years, especially if the company is in the early stages of raising funds. This prevents you from taking your company public before it has operated long enough to be stable. It is in your interest to limit the effect of the registration right.

In situations where one shareholder may want to sell their stock, other investors have a **preemptive right first to offer** to purchase that stock. These also cover the existing investors' right to purchase stock in future equity financings conducted by the company.

Indemnification Agreement

The Indemnification Agreement is used to protect the officers and directors of the corporation. It commits the company to indemnify the director or officer against shareholder or employee civil actions. These generally do not protect the director or officer if there has been gross negligence or some intent to deceive.

Management Rights Letter

This is generally a toothless agreement. The Employee Retirement Security Act (ERISA), places restrictions on the investments of retirement plan assets. VC firms, which often receive some of their funds from retirement plans, are exempt from these restrictions, provided they qualify as a Venture Capital Operating Company (VCOC). To qualify as a VCOC, the fund manager needs to have management rights in portfolio companies representing at least 50% of the fund's assets. In other words, a fund is only considered a VCOC if it actively participates in the management of a portfolio company. VC Funds, therefore, ask their portfolio companies to provide them with a toothless management rights letter which specifies activities such as scheduled management collaboration meetings, periodic access to data and reports and the right to address the board of directors. The management rights letter does not give the VC any executive power or control.

Legal Opinion (or Fairness Opinion)

A Fairness Opinion is a professional evaluation from a third party (usually a law firm) as to whether the terms of the financing are fair. It is rendered for a fee. The specific functions of a fairness opinion are to aid in decision-making and mitigate risk.

The Opinion usually needs to indicate that your company is validly existing as a corporation and in good standing, has the corporate power to execute and deliver the transaction documents (in other words, the board approves), has the authorized shares to complete the transaction, and that no laws, contracts or covenants will be violated by doing this transaction.

Right of First Refusal and Co-Sale Agreement

The right of first refusal and co-sale agreement prevents a founder or major common shareholder from selling shares without the company and the investors being allowed to purchase the shares or participate in the sale of the shares. This agreement is standard and rarely negotiated.

Voting Agreement

The voting agreement defines the board structure; both the size and how the board is elected or appointed. Usually, each class of stock will have the right to appoint one or more directors. So there may be a common director, a series A director, perhaps two series B directors, and so on.

The National Venture Capital Association (NVCA) website (www.nvca.org) is a valuable resource for both entrepreneurs and investors. The site provides model documents of all those listed above (http://nvca.org/resources/model-legal-documents/) with explanations of the many different potential components of each document. **You absolutely must spend time on the NVCA website.** Common terms are defined, and the model documents are put into context.

Once all of these documents have been drafted, reviewed, negotiated, finalized, and executed, the investors will be given the signal to wire the funds, and you are closed. Congratulations!

Making an Exit

It may seem like as soon as have you closed the round, you're back out on the circuit talking to potentially new investors and looking to raise additional capital. As previously mentioned, the cycle repeats and repeats until you get to an exit.

In each new cycle, you will be discussing the appropriate valuation of your company. As discussed, the process of determining your company's value can be objectively driven by multiples of your revenue or EBITDA, or it can be subjectively driven by a competitive process or lack thereof. If multiple VCs are interested in leading your financing, you might find your valuation being driven upwards in a bidding war. On the other hand, you may struggle to find a single lead investor, so the one interested VC could low-ball your valuation. In this case, the VC could deliver good value to the VC's limited partners (the investors in the VC fund) with a down round to your company and your existing investors.

A Few Words about Exiting

Exits come in a few different flavors and can take several forms. The most common is the acquisition of either your stock (the entire company) or your assets. Less common would be an IPO.

Getting your company to an exit can be the ultimate success point or ultimate failure point depending on how things go. Interestingly, some shareholders may view it as a success while others consider it a failure. This will depend on the class of stock (and associated rights) held by each shareholder and the price paid per share. Recall that we have discussed the misalignment that can occur between the different classes of preferred stock and between the preferred and common shareholders. Remember misalignments are generally more pronounced in lower, less lucrative, exits while it washes away in larger lucrative exits.

Acquisition, the most common exit, is generally preferred method. Selling your company to a strategic allows you to avoid many (if not all) of the steps you might otherwise have to take to go public. The Sarbanes-Oxley Act (Sarbanes Oxley Act) details these requirements. They are extensive and expensive (in the millions of $).

Along with valuation, one of the first points of discussion will be whether the acquisition is of company-stock or company-assets. When the stock is acquired, the acquiring company takes on all of the assets and liabilities of the target company, known and unknown. This is generally a lot of risk to be taken for a strategic. The alternative is for the acquirer to only acquire the assets only. In this case, the acquiring company simply purchases the valuable assets: IP, customer lists, inventory, distribution channels, etc. This leaves you with a shell of a company but cash to distribute to the existing shareholders.

The big difference between these two approaches, stocks versus assets, are the tax implications for the company being acquired. You would prefer that your stock be acquired. In a stock transaction, the investors of the acquired company can treat that as a capital gain on their stock. They paid one price when they bought the shares and received a higher price when they sold the shares. That gain is a capital gain and taxed as a capital gain to the shareholders.

In the case of an asset sale, the company selling assets is taxed on the sale of those assets to the acquirer. Then the company (your company) distributes money to the shareholders and begins the process of winding down. In that case, the shareholders must pay the tax that is on their income from the stock. You can see in this example that the money gained from the sale of an asset are taxed twice, once at the corporate level and a second at the shareholder (investor) level.

It is preferable to have your stock, rather than your assets, acquired to reduce your tax burden. On the other hand, most strategics would rather acquire assets than stock to reduce their risk of acquiring unknown liabilities. This ends up being a point of negotiation.

A company's value ultimately depends on many factors: the industry, revenues, profitability, growth rate, assets (balance sheet – IP, inventory, cash, debt, capital equipment, and other non-cash assets like real estate). As we discussed above in the financing section, some companies sell for multiples of revenue and some companies sell for multiples of EBITDA. These multiples will vary widely depending on your industry and whether you sell to companies (B to B) or end users. In addition, the multiples will be attenuated by a host of factors, notably profitability and growth rates.

Should you decide to go public in an **initial public offering (IPO)**, you will need to engage bankers and lawyers who will guide you through the process. They will help you publish the required SEC filings (S1), develop the investor presentation, take you on a roadshow to generate interest, secure a stable of institutional investors and guide you through the process which is long, expensive, intricate, and, if successful, very rewarding.

Concluding Section III

With the end goal of rendering the organization attractive for venture financing, the key focus of organizations in this stage is to showcase the implementation of the best management practices and demonstrate informed decision-making. A necessary condition for implementing the best management practices is possessing the knowledge, and for rigorous decision-making is the availability of the required information. This section provided the knowledge and the methods to have the requisite information available.

SECTION IV
RUNNING AN ENTREPRENEURIAL ORGANIZATION

With financing secured, a firm needs to show quarter-by-quarter growth in its topline revenue. It does so by focusing on the operations of the company, e.g., ensuring that the structure, processes, and systems of the organization hum like a well-oiled machine; its financial status compares well with the industry benchmarks; using the latest digital techniques for attracting customers; and staying away from legal troubles. All these to have a financial exit by being acquired, merged, or going public. These are the topics for this section of the book.

Chapter IV-1

Working Capital

When venture financing is received, big money can bring in big problems. Organizations flush with cash tend to spend lavishly. All departments suddenly have urgent and important requests. Money begins to be spent on physical premises, information technology, beefing up critical human-capital, equipment and machinery, employee raises and benefits, and on and on. And before one knows it, the money is gone. And it is time for the next round.

We have often heard the phrase "keep the burn-rate low." While it is impossible to give general prescriptions on where to spend and where not to, what one should definitely avoid is a cash-crunch for working capital. Such a critical situation can result in a down-round which is not desirable at all.

This section begins with presenting an essay on Working Capital. It continues with the next chapter that imparts an understanding of the different components of the financial health of an organization with the intent to help the organization avoid financial pitfalls.

Working Capital is the capital of a business that is used in *daily operations*, calculated as the excess of current assets over current liabilities. Positive working capital is critical to ensure a company can continue to operate. Companies must have sufficient cash and liquid assets to ensure they can pay off any short-term debt obligations and operational expenses.

LIQUID ASSETS

Liquid assets are assets that can be converted into cash quickly. In order of their liquidity, those are cash, marketable securities, accounts receivable, and inventory. A company that lacks liquidity will be forced into bankruptcy if it is unable to convert assets into funds that can be used to meet debt obligations. You must effectively manage working capital to ensure ongoing business operations.

Cash

Cash management is the process of collecting and disbursing cash payments. If a company has too little cash on hand, there is a substantial risk that they will be unable to pay off their liabilities, meet unexpected expenses, or handle regularly occurring expenses (payroll, rent, taxes, etc.). Alternatively, if a company has too much cash on hand, they are inefficiently investing their cash, resulting in a low return on assets and investor dissatisfaction with the allocation of company assets. To increase cash levels, companies may speed up cash collections or slow down cash disbursements. The following are methods to speed cash collections.

Customer screening and credit policy – a company should only extend credit to customers who are responsible and likely to pay bills promptly.

Prompt billing – customers using credit should be billed timely in order to speed collections.

Payment discounts – offering discounts for fast payments will encourage customers to pay faster.

Expedite deposits – funds should be deposited and credited to the company's bank account quickly.

Concentration banking – the designation of a single bank improves controls of cash inflows and outflows and reduces idle balances.

Factoring accounts receivable – the collection of accounts receivable may be sold to a third-party in exchange for immediate cash. By delaying cash disbursements, a company will allow interest to accrue on current cash holdings for longer; they will also have more cash on hand for any unexpected or unforeseen expenses. One way to delay cash disbursements is by deferring payments. If a company is confronted with a short term cash shortage, postponing credit payments until the due date will allow for a larger current cash balance, or a company could use checks instead of cash leads to a longer amount of time it takes the vendor to withdraw funds, allowing interest to accrue in the bank for longer. A line of credit may be used as a safety net where the bank will pay off the company's trade credit when the company doesn't have sufficient funds. This will be done in exchange for a loan which the company may pay off over a longer period of time. Also, disbursements should only be made when there is a demand for it. For example, when using a payroll account, funds should be deposited into the account on the day payroll is issued, if it is deposited into the account beforehand, the cash is not accruing any interest.

Marketable Securities

Marketable Securities are highly liquid and have relatively low risk. Although not as liquid as cash, they result in higher returns than cash because they accumulate more interest. Therefore companies will often hold marketable securities instead of large cash balances. The higher the risk of the security, the higher return the security will yield.

The following marketable securities are listed in order from lowest to highest risk:

- **U.S. Treasury bills** are short term bills sold by the U.S. government. They are default risk-free, liquidity risk-free, and maturity risk-free. Therefore they are the safest securities on the market.
- **Negotiable certificates of deposit** (CDs) are money market instruments that typically mature in one year or less. They

are slightly more risky than U.S. Treasury Bills due to the possibility of bank failure and default.

- **Banker's acceptances** are short-term IOUs from corporations that are guaranteed by commercial banks.
- A **commercial paper** is short-term lending of idle cash from one corporation to another.
- **Stocks** are risky because of the volatility of the stock market. Gains are far greater than yields from other marketable securities, but losses are also more likely.

Accounts Receivable

A strict credit policy will decrease the number of days it takes to collect cash from credit customers. A less strict credit policy will entice customers to make larger purchases. To effectively manage accounts receivable, a company should find the appropriate balance in order to convert receivables into cash quickly enough to meet short term debt obligations, while not angering customers and allowing them credit policies in exchange for larger sales.

Inventory

Similarly, a company must figure out optimal levels of inventory to keep on hand. The optimal level of inventory will depend on the accuracy of sales forecasts, storage costs, and the likelihood of lost inventory due to obsolescence or spoilage. If the inventory is too low, there are lost sales opportunities. If the inventory is too high, the carrying costs will reduce profitability. Inventory is much less liquid and riskier than other current assets since there is a chance it may not sell. Therefore, investing money into inventory can lead to disastrous effects if sales predictions are not accurate.

A company should keep enough inventory on hand to reduce customer dissatisfaction due to back-orders, meet seasonal demand fluctuations, and reduce the lead time that elapses from the placement of an order until the product delivery.

CASH CONVERSION CYCLE

The **cash conversion cycle** is a measure of how long a company takes to recover costs incurred for the production of goods by revenue generated from customers when the goods are sold. It is a good way to measure the company's operating cycle since it serves as a measure of the effectiveness of the company's inventory management, the effectiveness of the company's credit policy, and the effectiveness of a company's attempt to delay payment to creditors. The lower the cash conversion cycle, the more effectively the company is managing cash.

Cash Conversion Cycle = Inventory Conversion Period + Receivables Collection Period – Payables Deferral Period:

- Inventory Conversion Period = 365 Days / Inventory Turnover
- Inventory Turnover = Cost of Goods Sold / Average Inventory
- Receivables Collection Period = 365 Days / Accounts Receivable Turnover
- Accounts Receivable Turnover = Sales / Average Accounts Receivable
- Accounts Payable Deferral Period = 365 Days / Accounts Payable Turnover
- Accounts Payable Turnover = Cost of Goods Sold / Average Accounts Payable

Example

ABC Company has annual sales of $35 million. On average, the company carries $5 million in inventory, $3.5 million in accounts receivable, and $3 million in accounts payable. The annual cost of goods sold for ABC Company is $25 million.

Inventory Conversion Period

- Inventory Turnover = 25,000,000/5,000,000 = 5x
- Inventory Conversion Period = 365/5 = 73 days

<u>Receivables Collection Period</u>

- Accounts Receivable Turnover = 35,000,000/3,500,000 = 10x
- Receivables Collection Period = 365/10 = 36.5 days

<u>Payables Deferral Period</u>

- Accounts Payable Turnover = 25,000,000/3,000,000 = 8.3x
- Payables Deferral Period = 365/8.3 = 43.9 days

Cash Conversion Cycle = 73 + 36.5 – 43.9 = <u>65.6 days</u>

Chapter IV-2

Financial Statement Analysis

The chapter on Financial Statements in Section II explained at length the 4 financial statements, Profit & Loss, Stockholders Equity, Balance Sheet, and Cash Flow. Each statement provided scores of numbers. We now discuss 1) what these numbers convey about the financial health of the company and 2) the performance of the company relative to other companies in the industry. Such an analysis will reveal the changes that can be made by management to improve the company's financial situation.

Different companies have different characteristics. Comparing the raw numbers in financial statements of the different companies might not give us the accurate assessment we desire. Therefore, some kind of standardization of raw numbers is required. And this is the essence of Financial Statement Analysis (FSA). Besides cross-company comparisons, FSA is used to compare the past, current, and projected performance of a single company.

An understanding of FSA will be imparted by taking the example of a hypothetical company, ABC Foods. The 4 statements for ABC Foods are presented below. After which the techniques for calculating the dozen or so popular ratios are presented.

ABC Foods Co. Income Statement	2019	2018
Sales	6,034,000	3,432,000
COGS	5,528,000	2,864,000
Other Expenses	519,988	358,672
Total Operating Costs	6,047,988	3,222,672
EBITDA	**$ (13,988)**	**$ 209,328**
Depreciation & Amortization	116,960	18,900
EBIT	**$ (130,948)**	**$ 190,428**
Interest Expense	136,012	43,828
Taxes	(106,784)	58,640
Net Income	**$ (160,176)**	**$ 87,960**

Income Statement

ABC Foods Co. Statement of Stockholders' Equity	Common Stock			
	Shares	**Amount**	**Retained Earnings**	**Total Stockholders' Equity**
Balance as of 12/31/2018	100,000	460,000	203,768	$ 663,768
Issuance of Stock				$ -
Add: Net Income			(160,176)	$ (160,176)
Less: Dividends			(11,000)	$ (11,000)
Balance as of 12/31/2019	100,000	$ 460,000	$ 32,592	**$ 492,592**

Statement of Stockholders' Equity

ABC Foods Co. Balance Sheet	2019	2018
Assets		
Cash	7,282	57,600
Accounts Receivable	632,160	351,200
Inventories	1,287,360	715,200
Total Current Assets	$ 1,926,802	$ 1,124,000
Gross Fixed Assets	1,202,950	491,000
Less: Depreciation	(263,160)	(146,200)
Net Fixed Assets	$ 939,790	$ 344,800
Total Assets	$ 2,866,592	$ 1,468,800
Liabilities		
Accounts Payable	524,160	145,600
Accrued Payables	489,600	136,000
Notes Payable	636,808	200,000
Total Current Liabilities	$ 1,650,568	$ 481,600
Long-Term Debt	$ 723,432	$ 323,432
Stockholders' Equity		
Common Stock	460,000	460,000
Retained Earnings	32,592	203,768
Total Equity	$ 492,592	$ 663,768
Total Liabilities & Equity	$ 2,866,592	$ 1,468,800

Balance Sheet

ABC Foods Co. Statement of Cash Flows		
		2019
Operating Activities:		
Net Income		(160,176)
Depreciation & Amortization		116,960
Increase in Accounts Payable		378,560
Increase in Accruals		353,600
Increase in Accounts Receivable		(280,960)
Increase in Inventories		(572,160)
Net Operating	$	(164,176)
Investing Activities:		
Additions to Property Plant & Equipment		(711,950)
Net Investing	$	(711,950)
Financing Activities:		
Increase in Notes Payable		436,808
Increase in Long-Term Debt		400,000
Payment of Cash Dividends		(11,000)
Net Financing	$	825,808
Net Decrease in Cash		(50,318)
Cash at 12/31/2018		57,600
Cash at 12/31/2019	$	7,282

Statement of Cash Flows

TECHNIQUES FOR FINANCIAL STATEMENT ANALYSIS

Several techniques are commonly used as part of financial statement analysis, including:

- **Horizontal analysis**, which compares two or more years of financial data in both dollar and percentage form
- **Vertical analysis**, where each category of accounts on the balance sheet is shown as a percentage of the total account, and
- **Ratio analysis**, which provides quantitative data to compare financial results to historical performance or industry standards.

Ratio Analysis

Ratio analysis is the most popular way of analyzing financial statements as ratios standardize numbers and facilitate comparisons. These ratios are used to highlight the weaknesses and strengths of a company. *Ratio comparisons should be made through time and with competitors.*

Ratio analysis mainly analyzes the following five categories:

1. **Liquidity**: Can the required payments be made on time?
2. **Asset Management**: Are enough sales being generated given the assets in use?
3. **Debt Management**: Is the amount of debt and equity optimum to finance operations?
4. **Profitability**: Do sales revenues exceed costs?
5. **Market Value**: How are investors responding to ratios of a company (or its performance)?

Liquidity Ratios

Liquidity Ratios measure a company's ability to pay its short-term one-year debt obligations.

Assets like accounts receivable, trading securities, and inventory are relatively easy for many companies to convert into cash in the short term. Thus, all of these assets go into the liquidity calculation of a company.

A higher liquidity ratio indicates that a company is more liquid and has a better ability to pay their outstanding debts.

Following are some commonly used liquidity ratios:

Current Ratio = Current Assets ÷ Current Liabilities

(Recall, Current Assets – assets that are expected to be converted to cash within a year. Generally, everything besides investments, equipment, and fixed assets, intangible assets, etc. Current Liabilities – liabilities expected to be paid within a year.)

- The current ratio measures a company's ability to pay off its short-term liabilities using its current assets

Quick Ratio = (Total Current Assets – Inventory – Prepaid Expenses) ÷ Current Liabilities

- The quick ratio measures the ability of a company to pay their current liabilities when they come due with only quick assets
- Quick assets are current assets that can be converted to cash within 90 days or in the short-term, they include all current assets besides inventory and prepaid expenses

Liquidity Ratios Example			
Current Assets		**Current Liabilities**	
Cash	7,282	Accounts Payable	524,160
Accounts Receivable	632,160	Accruals	489,600
Inventories	1,287,360	Notes Payable	636,808
	1,926,802		1,650,568
Current Ratio		**Quick Ratio**	
Current Assets	1,926,802	Current Assets	1,926,802
/ Current Liabilities	1,650,568	- Inventories	1,287,360
= Current Ratio	1.17	- Prepaid Expenses	0
		= Quick Assets	639,442
		/ Current Liabilities	1,650,568
		= Quick Ratio	0.39

Asset Management Ratios

Asset Management Ratios measure how successfully a company is utilizing its assets to generate revenues. High ratios are desirable because they mean that the company is utilizing its assets efficiently to produce sales. The higher the asset turnover ratios, the more sales the company is generating from its assets.

Some commonly used Asset management ratios are:

Inventory Turnover = Sales ÷ Average Inventory

- The inventory turnover amount signifies the number of times inventory is sold and restocked each period
- If the number is high, the company may be in danger of stock-outs, if the number is low, the company may have obsolete inventory

- Average inventory is used instead of total inventory because a company's inventory fluctuates greatly during the year

Accounts Receivable Turnover = Credit Sales ÷ Average Accounts Receivable

- The accounts receivable turnover measures how many times a business can turn its accounts receivable into cash during a period
- This ratio shows how efficient a company is at collecting its credit sales from customers
- A higher ratio is favorable, showing that a company is collecting their receivables more frequently throughout the year

Fixed Asset Turnover = Net Sales ÷ (Fixed Assets – Accumulated Depreciation)

- The fixed asset turnover ratio measures a company's return on its investment in property, plant, and equipment
- The ratio calculates how efficiently a company is producing sales through the use of their machines and equipment
- A high ratio is favorable, indicating a large amount of sales are generated using a small amount of fixed assets

Asset Management Ratios Example			
Sales	6,034,000	2018 Accounts Receivable	351,200
2018 Inventory	715,200	2019 Accounts Receivable	632,160
2019 Inventory	1,287,360	Fixed Assets	1,202,950
		Accumulated Depreciation	263,160
Inventory Turnover		**Fixed Asset Turnover**	
Sales	6,034,000	Net Sales	6,034,000
/ Average Inventory	(1,287,360 + 715,200) / 2	/ Fixed Assets - Accumulated Depreciation	(1,202,950 - 263,160)
= Inventory Turnover	6.03	= Fixed Asset Turnover	6.42
Account Receivable Turnover			
Sales	6,034,000		
/ Average Accounts Receivable	(632,160 + 351,200) / 2		
= Account Receivable Turnover	12.27		

Debt Management Ratios

Debt Management Ratios are used to evaluate a business's long term solvency. They measure the extent of the company's use of long term debt. They are often used by banks and other lenders to evaluate a prospective borrower's suitability for a loan.

Popular debt management ratios are:

Debt to Equity Ratio = Total Liabilities ÷ Total Equity

- The debt to equity ratio compares a company's total debt to total equity
- A higher debt to equity ratio indicates that more creditor financing is used than investor financing

A higher ratio would indicate the company is more risky, while a lower ratio would indicate there are more owners of the business and fewer cash outflows. Once again, there is no optimum number for this ratio; some companies choose to be financed with loans and notes, while some sell ownership and stocks. The capital structure may depend on many factors. The best benchmark is similar companies in the industry.

Times Interest Earned Ratio = Income before Interest and Taxes ÷ Interest Expense

- The times interest earned ratio measures the proportionate amount of income that can be used to cover interest expenses in the future
- The ratio shows how many times a company could pay the interest with its before-tax income
- A higher ratio is favorable, indicating that the company will be able to pay its interest expenses to creditors

Debt Management Ratios Example			
Notes Payable	636,808	Net Income	(160,176)
Total Equity	492,592	Interest Expense	136,012
		Taxes	106,784
Debt to Equity Ratio		**Times Interest Earned Ratio**	
Total Debt	636,808	Net Income	(160,176)
/ Total Equity	492,592	+ Interest	136,012
= Inventory Turnover	1.29	+ Taxes	106,784
		EBIT	82,620
		/ Interest Expense	136,012
		= Times Interest Earned Ratio	0.61

EBITDA and Profitability Ratios

Profitability Ratios is the class of financial ratios that are used to assess a business's ability to generate earnings compared to its expenses.

Having a higher value relative to a competitor's ratio or relative to the same ratio from a previous period indicates that the company is doing better.

EBITDA (Earnings Before Interest Taxes Depreciation and Amortization) represents how the company performs based only on the revenues and expenses used to accomplish their main business objectives.

- When comparing companies, there can be many challenges due to the many differences in firms' operations. The use of EBITDA helps reduce these comparison challenges by ignoring the following expenses:
    - Interest expense - Not all companies have the same borrowing power or interest rates
    - Taxes – Not all companies pay the same tax rates, due to the use of exemptions and the uses of losses to decrease the taxes owed. The tax treatment among companies can be very different
    - Depreciation/Amortization - The way a company depreciates or amortizes their long-term assets is an accounting decision, and they can choose to have a larger expense at the beginning of the useful life that decreases as time goes on or a constant amount each period

- EBITDA is calculated by adding back the non-cash expenses interest, taxes, depreciation, and amortization to a company's net income

Popular Profitability Ratios are:

Profit Margin = Net Income ÷ Sales

- The profit margin ratio measures the amount of net income earned with each dollar of sales generated. The ratio shows what percentage of sales are left over after all expenses are paid by the business
- A higher ratio is favorable

Return on Equity = Net Income ÷ Total Equity

- The return on equity ratio measures the ability of a company to generate profits from its shareholders' investments in the company.
- The ratio shows how much profit each dollar of equity generates
- Investors want to see a high ratio, which indicates that the company is using the investors' funds effectively

Profitability Ratios Example

Net Income	(160,176)	Interest Expense	136,012
Sales	6,034,000	Taxes	106,784
Total Equity	492,592	Depreciation	116,960
EBITDA		**Profit Margin**	
Net Income	(160,176)	Net Income	(160,176)
+ Interest Expense	136,012	/ Sales	6,034,000
+ Taxes	106,784	= Profit Margin	**-3%**
+ Depreciation	116,960		
= EBITDA	**199,580**	**Return on Equity**	
		Net Income	(160,176)
		/ Total Equity	492,592
		= Return on Equity	**-33%**

Market Value Ratios

Market Value Ratios are used to evaluate the current share price of a publicly-held company's stock. These are used by investors to determine whether a company's shares are over-priced, underpriced, or priced fairly

If the rest of the company's ratios are good, then the market value ratios should reflect that, and the stock price of the company should be high.

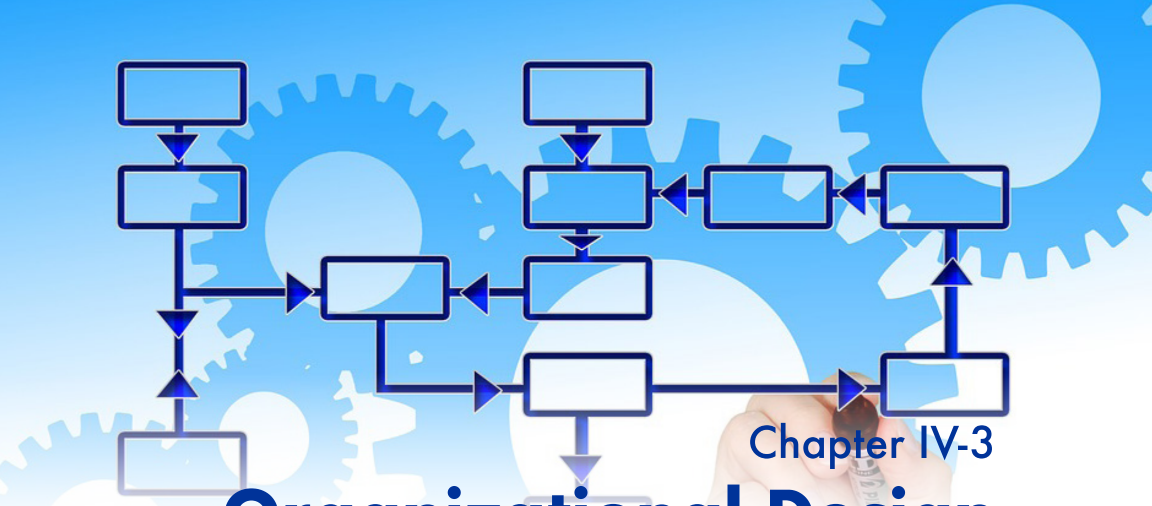
Some popular Market Value Ratios are:

Earnings Per Share = (Net Income – Preferred Dividends) / Weighted Average Common Shares

- Measures the amount of net income earned per share of stock outstanding
- Higher ratios are better because this means the company is more profitable and the company has more profits to distribute to its shareholders

Price to Earnings = Market Value Price per Share / Earnings per Share

- Indicates how much investors are willing to pay per dollar of the company's earnings
- Investors often use this ratio to evaluate what a stock's fair market value should be by predicting future earnings per share.
- A high ratio indicates positive future performance and investors are willing to pay more for this company's shares



Chapter IV-3

Organizational Design

When venture finance is in, and the organization is managed by a professional board, professionalism in organization design, work management and employees comes under the microscope. Unfortunately, most of the time and effort are spent in preventing and managing negative behaviors and outcomes. The next 6 chapters in this section are devoted to this aspect of organizations.

ORGANIZATIONAL STRUCTURE

Organizational structure formally dictates how jobs and tasks are divided and coordinated between individuals and groups within a company. This can be laid out in an organizational chart, a drawing that represents every job in the organization and the formal reporting relationships between those jobs. Such charts vary in five elements of structure:

- **Work specialization**, or the degree to which tasks in an organization are divided into separate jobs.
- **Chain of command**, which answers the question of "who reports to whom?" and signifies formal authority relationships.

- **The span of control**, which represents how many employees report to each manager.
- **Centralization**, or where decisions are formally made.
- **Formalization**, or the degree to which rules and procedures are used to standardize behaviors and decisions.

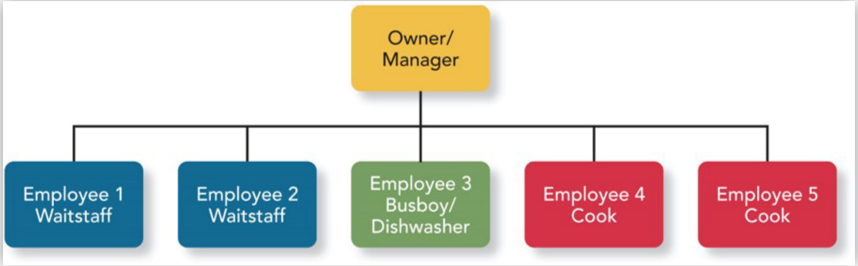
The structure has an impact on both the attitudes and behaviors of the people within the organization, so it is important that managers effectively select and utilize structure within their organizations. Changes to an organization's structure can have negative effects on the employees who work for the company, at least in the short term.

Managers should recognize that specialization can make operations more efficient but remember that excessive specialization can create dissatisfaction and reduced motivation. They also must avoid designing rigid hierarchies that overly limit employees' empowerment and autonomy. There are times when it makes sense to downsize to realize major cost savings and focus the company around core competencies. But that should only be done when necessary since downsizing can have a significant negative impact on employee morale.

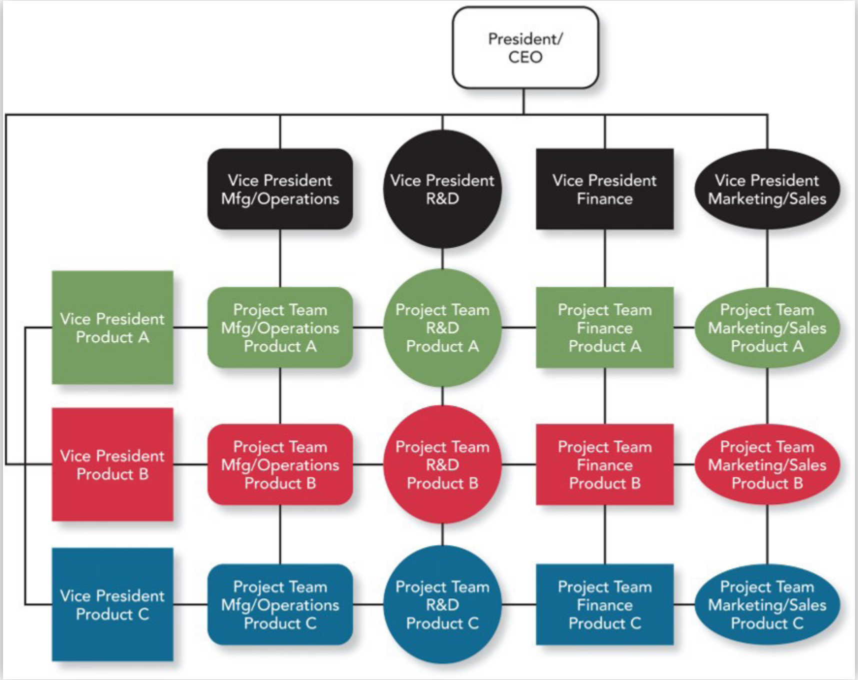
Types of Organizational Structures

When considered in combination, the five dimensions of organizational structure create at least two types of firms. **Mechanistic organizations** are efficient, rigid, predictable, and standardized organizations that thrive in stable environments. **Organic organizations** are flexible, adaptive, outward-focused organizations that thrive in dynamic environments.

The first and most basic structure is the **simple structure**. This structure has a low degree of departmentalization, wide spans of control, and centralized decision making with little formalization in job design. This structure is difficult to utilize in anything other than small organizations.



The **matrix structure** is another common organizational design. This structure creates dual lines of authority and combines functional and product departments in a way that effectively meet organizational goals. The key element of the matrix structure is that it gains the interactions between the functional and product departments by coordinating complex and interdependent activities. This helps reach the goals efficiently. The matrix structure also breaks down the unity-of-command concept as the lines of authority are blurred.



Determinants of Structure

The process of creating, selecting, or changing the structure of an organization is called **the determinants of structure**.

Company strategy should always dictate structure, not the other way around. For example, if your organization is focusing on innovation as a key value, then it may be best served by an organic structure. Whereas, if the strategy emphasizes minimizing costs, a mechanistic structure will work better.

The more dynamic the **business environment**, the more organic the structure will need to be to facilitate quick decisions and fast turnaround.

From a **Technology** standpoint, the more routine the activities, the more mechanistic the structure should be.

Company size is also a factor. The larger the organization, the more likely it will be mechanistic.

ORGANIZATIONAL CHANGE

There are many forces that stimulate change, including the nature of the workforce, technology, economic shocks, competition, social trends, and world politics. All these things can create change in the workplace. Whenever a change is present, there is resistance to change. Individuals and groups become comfortable with familiar things, and change threatens the status quo.

It is important to note that not all change is good. Speed can lead to bad decisions; sometimes, those initiating changes fail to realize the full magnitude of the effects or their true costs. Change can be good, but change agents need to carefully consider its implications.

How do we overcome resistance to change? **Top management support** should always be present. **Participation and involvement** are required across all different levels of the organization hierarchy, and all functional teams. Any changes must **align** with the needs and goals of users. Planned and advanced **communication** of upcoming changes followed by appropriate **training** before and while change is happening. And employees need to feel like they work in a

psychologically safe environment, where there are practices in place to receive their feedback.

ORGANIZATIONAL DECISION MAKING

Organizational decision making is the process of responding to a problem by searching for and selecting a solution or course of action that will create value for organizational stakeholders. Decisions can take two forms: **programmed decisions**, which are repetitive and routine, and **non-programmed decisions**, which are novel and unstructured.

Individuals make decisions, but organizational decisions are not made by a single individual. Today's environment presents high-stakes, quick decisions. Managers must understand cognitive and personal biases in their employees and learn from mistakes.

Individual Decision Making: Rational vs. Bounded Rationality

The **rational approach** is the ideal method for how managers should make decisions. It assumes the decision maker has complete information, is able to identify all the relevant topics in an unbiased manner, and chooses the option with the highest utility. Most decisions in the real world do not follow the rational model. **Bounded rationality** perspective is typically how decisions are made under severe time and resource constraints. Most people respond to a complex problem by reducing it to a level at which it can be easily understood and seek solutions that are satisfactory and sufficient.

Organizational Decision-Making Models

Management science approach uses statistics to identify relevant variables and removes the human element. It is successful for military problems and when variables can be identified and measured. The **Carnegie Model** introduces a set of more realistic assumptions about the decision-making process. **Satisficing** is the idea of limiting information searches to identify problems and alternative solutions. **Bounded rationality** is a limited capacity to process information. And

organizational coalitions are solutions chosen as a result of compromise, bargaining, and accommodation between coalitions.

The **incremental decision model** focuses on structure sequence of activities from discovery to the solution, in which large decisions are a collection of small choices. Managers select alternative courses of action that are only slightly different from those used in the past, with the idea that this lessens the chances of making a mistake. This model tries to explain how organizations improve their programmed decisions over time. Some call it the science of muddling through.

The unstructured model describes how decision making takes place in environments of high uncertainty. Because managers rethink their alternatives when they hit a roadblock, decision-making is not a linear, sequential process. This model tries to explain how organizations make non-programmed decisions.

The **garbage can model** is a view of decision making that takes the unstructured process to the extreme. Because managers create decision-making opportunities that they can solve with ready-made solutions based on their competencies and skills, decision making becomes a "garbage can" in which problems, solutions, and people all mix and contend for organizational action. The selection of an alternative depends on which person's or group's definition of the current situation holds sway.

Chapter IV-4
Conflict

INTERPERSONAL AND INTERDEPARTMENTAL CONFLICT AND RELATIONSHIPS

Conflict is a process that begins when one party perceives that another party has negatively affected, or is about to affect negatively, something that the first party cares about. It is an issue that deals primarily with perception. If no one is aware of a conflict, then no conflict exists.

Conflict can be experienced in an organization through many different avenues. It can be that the goals of the individuals are incompatible, or there is a difference of opinion over the interpretation of facts. Many conflicts also arise through disagreements about how people should behave.

Conflict may be between two people, called **Dyadic conflict**, or between two groups or teams, **Inter-group conflict**. There can also be conflict within a team as it struggles to achieve its goals. This is called **Intra-team conflict**.

Not all conflicts are bad. Conflicts can be functional or dysfunctional. **Functional** conflicts result in decision-making that supports the goals of the organization or improves the performance of both parties. Functional conflicts are also called creative abrasion.

Dysfunctional conflicts, on the other hand, hinder one or both group's performance and are detrimental to achieving organizational goals.

Types of Conflict

Conflict can be broken down into three categories. **Task conflict** relates to the content and goals of the work. **Relationship conflict** focuses on interpersonal relationships. **Process conflict** is about how the work gets done.

All these types of conflicts may include conflicts caused by values or distribution of resources. For example, let's consider the unethical nature of the task or the process by which a task is achieved in the eyes of one party. Resource-based conflict might arise if the task and process result in a redistribution of rewards in the organization. Relationship conflict is possible due to prior interactions or during the process of completing a task when individuals start taking issues personally. Relationship conflict is the most difficult to overcome.

Functional and Dysfunctional Conflicts

Relationship conflicts are almost always dysfunctional. Friction and interpersonal hostilities inherent in relationship conflicts increase personality clashes and decrease mutual understanding, which hinders the completion of organizational tasks.

Of the three types, relationship conflicts are the most psychologically exhausting to individuals.

The following table shows that low to moderate amount of conflict can be helpful for task and process types of conflict. Relational conflict should be resolved as quickly as possible as there is a danger of escalation.

Source of Conflict	Level of Conflict		
	Low	Moderate	High
Task	Functional		Dysfunctional
Relationship	Dysfunctional		
Process	Functional	Dysfunctional	

CONFLICT RESOLUTION TECHNIQUES

There are several ways in which conflicts can get resolved. Some may require intervention by an outside authority. Others may be resolved by the conflicting parties themselves. Of all of these, problem-solving is the most commonly applied technique.

Problem solving	Meeting face to face to identify the problem and resolve it through open discussion. Problem solving might involve negotiation or bargaining.
Superordinate goals	Creating a shared goal that cannot be attained without the cooperation of each of the conflicting parties. This shared goal could be created by the conflicting parties themselves or with the help of an outsider or higher authority.
Expansion of resources	Expanding the supply of a scarce resource (for example, money, opportunities, office space). Here too the parties will have to find ways to increase the resources, perhaps by appealing to higher-ups.
Avoidance	Withdrawing from the conflict. One party just doesn't continue and allows the other to "win".
Soothing	Playing down differences while emphasizing common interests between the conflicting parties. This strategy works when there are many potential dimensions on which conflict and cooperation can exist. Suppressing the conflict on hand may lead to better gains for both parties.
Authoritative command	Letting management use its formal authority to resolve the conflict and then communicate its desires to the parties involved
Altering the human variable	Using behavioral change techniques such as human relations training to alter attitudes and behaviors that cause conflict
Altering the structural variables	Changing the formal organization structure and the interaction patters of conflicting parties through job redesign, transfers, and creation of coordinating position

Problem Solving: Negotiation & Bargaining

Many times problem solving involves **negotiation** or **bargaining** (these terms are used interchangeably). Negotiation is a process in which two parties have a dialogue to resolve the conflict by reaching an acceptable solution to both parties. There are two types of situations in negotiation or bargaining. One is distributive, and the other is integrative bargaining.

Distributive bargaining occurs when there is a fixed amount of resources that have to be divided. It is also called a zero-sum situation where one party's gain is the other party's loss.

Integrative bargaining seeks to create value beyond the fixed resources situation by bringing in other dimensions or attributes. Often during negotiation, one party values some part of what is being negotiated more than the other party. The goal is to create a win-win situation for both parties involved. To be successful, trust needs to occur, and parties must:

- Be open with information and candid about their concerns
- Pay attention to the needs of the others involved
- Be willing to be flexible in working toward a solution

The goal is always to move from distributed to integrative bargaining. For example, it may seem that when one is haggling for a car, price is the only dimension. The gain for the customer is a loss for the dealer. But if the dealer throws in oil changes for a year, the dealer is moving from distributive to integrative. The cost of oil change to the dealer is much lesser than the price a customer has to pay for oil changes ordinarily. (The dealer also gets a chance to make more money by spotting other repairs that could be made when the car comes in for an oil change.)

Although we commonly think of the outcomes of negotiation in one-shot economic terms, every negotiation in organizations also affects the relationship between the negotiators and the way the negotiators feel about themselves.

Depending on how much the parties are going to interact with one another, sometimes maintaining the social relationship and behaving ethically is just as important as achieving an immediate outcome of bargaining. Good negotiators seek integrative solutions and are willing to make compromises in the process.

Individual Differences in Negotiations

There is no one personality or one style that works for all negotiation settings. Sometimes just browbeating or hoodwinking the other person works. These tactics may be OK for one-time transactions. Treating the other party with disrespect may also work if the other party cares only about one dimension, e.g., financial benefit, and stands to gain more (at least in its own eyes) by being allowed to be bullied.

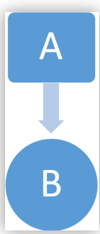
If anger, threat, humiliation are on one end of a dimension, then diplomacy is on the other end, and professionalism is in the middle. Diplomacy should be used when the negotiating parties don't necessarily only care about the tangible outcomes of the negotiation because the tangible outcomes don't serve the negotiators personally. For business dealings, a professional stance may be the best even when harsh dealing can gain favorable outcomes. This is because you can't necessarily predict the future. You might find the same party in a negotiating setting later. In such a style, the party assesses its own bottom line as well as the other party's bottom line (sometimes assessed while engaging in the negotiation). The goal is to get the other party to give in, without giving away your own cards. Professionalism doesn't mean that one has to be agreeable and an extravert. In fact, agreeableness and extraversion tend to have minor influences on negotiation outcomes. But professionalism does mean not being condescending or demeaning.

Clearly, if both negotiating parties adopt a professional approach, negotiations can proceed efficiently. But what is the proper response when the other party starts getting aggressive? Again, professionalism. Avoid matching their excitement or anger. Let the person know that you do not appreciate the style. If the deal is important enough, they will cool down. Of course, if the deal is more important to you than the unprofessional or hostile another party, you will have to decide whether you want to continue. Similarly, if the other party is overly diplomatic or inefficient, gently nudging the party to be more bottom-line oriented can be helpful.

Chapter IV-5
Power & Politics

Power refers to a capacity that A has to influence the behavior of B so that B acts in accordance with A's wishes. The very fact that A has the *potential* to reward or punish B implies that A has power over B. A does not need to *act* or *exercise* power for power to be said to exist. The most important aspect of power is that it is a function of **dependence**. The greater B's dependence on A, the greater is A's power in the relationship.

Dependence is based on alternatives that B perceives and the importance that B places on the alternative(s) that A controls. A person can have power over you only if he or she controls something you desire.



Formal Bases of Power

There are three types of **formal power**, which is power based on an individual's position in an organization.

Coercive Power depends on fear of negative results where employees fear negative consequences if they don't do what they are told. For example, A has coercive power over B if A can dismiss, suspend, or demote B, assuming that B values his or her job. Similarly, if A can assign B work activities that B finds unpleasant or treat B in a manner that B finds embarrassing, A possesses coercive power over B.

The opposite of coercive power is **reward power**. It is the ability to distribute rewards that others see as valuable, encouraging them to accomplish the goals or tasks to get the reward. In other words, people comply because doing so produces positive benefits. These rewards can be either financial—such as controlling pay rates, raises, and bonuses—or nonfinancial, including recognition, promotions, interesting work assignments, friendly colleagues, and preferred work shifts or sales territories.

Legitimate power occurs when the formal authority to control and use resources is based on the person's position in the formal hierarchy. Legitimate power is broader than the power to coerce and reward. It includes acceptance of the authority of a position by members of an organization.

Personal Bases of Power

Personal power comes from an individual's unique characteristics and includes expert power and referent power. This is often more effective than formal power.

Power based on an individual's expertise, special skill, or knowledge is called **expert power**. For example, as jobs become more specialized, we become increasingly dependent on superiors who are experts to achieve goals.

Referent power is based on identification with a person who has desirable resources or personal traits. For example, if Joe admires and identifies with articulate Arnie who is well-liked and has great inter-personal skills, then Joe will allow Arnie to exercise power over him because Joe wants to please Arnie.

Referent power develops out of admiration of another and a desire to be like that person; it is a lot like charisma. It also explains why celebrities are paid millions of dollars to endorse products in commercials.

Some people who are not in formal leadership positions nonetheless have referent power and exert influence over others because of their charismatic dynamism, likability, and emotional effects on us.

Social network power is based on the position an individual occupies in the informal social network in an organization. An informal social network is the network of relationships between individuals in an organization that has little to do with departmental and reporting structures. Individuals in any one clique help and interact with each other (even with official work) because of the friendship ties they have with one another. If someone is centrally situated in a social network, he or she can get work done for others. Such an individual can become the go-to person and, hence, powerful in an organization, if someone needed to get something done when formal organizational structures and processes are not capable of helping out. Informal social networks can be quite powerful in the organization.

Power Politics - Effectiveness

Power Tactics: Most Effective Power tactics are specific actions that individuals use to influence others. There are eight distinct power tactics:	
Rational Persuasion	Presenting logical arguments and factual evidence to demostrate a request is resonable.
Inspirational Appeals	Developing emotional commitment by appealing to a target's values, needs, hopes, and aspirations.
Consultation	Increasing the target's support by involving him or her in deciding how you will accomplish your plan.

Power Tactics: Moderately Effective	
Ingratiation	Using flattery, praise, or friendly behavior prior to making a request.
Personal Appeals	Asking for compliance based on friendship or loyalty.
Exchange	Rewarding the target with benefits or flavors in exchange for following a request.

Power Tactics: Least Effective	
Coalitions	Enlisting the aid or support of others to persuade the target to agree.
Pressure	Using warnings, repeated demands, and threats or dangling rewards.

Effectiveness of Power Bases & Power Tactics

For power bases, personal sources of power are most effective. Expert and referent power tend to be more effective when goals are related to satisfaction with supervision, performance, and commitment. Coercive power tends to negatively affect work outcomes, like employee satisfaction and commitment.

Power Tactics

Rational persuasion, inspirational appeals, and consultation tend to be the most effective **power tactics**, especially when the audience is highly interested in the outcomes of a decision process. Pressure tends to backfire and is typically the least effective. You can increase your chance of success by using more than one type of tactic at the same time or sequentially, as long as your choices are compatible. For example, using both ingratiation and legitimacy can lessen the negative reactions from appearing to "dictate" outcomes.

Factors of Political Behavior

Individual and organizational factors contribute to **political behavior**. From an **individual** standpoint, people who possess the following characteristics are more likely to engage in political behavior.

Locus of control – individuals with an internal locus of control are more prone to take a proactive stance and attempt to manipulate situations in their favor. Individuals who believe in an internal location of control as compared to individuals who believe in an external location of control deem that what happens to oneself is in their control and not with outsiders.

The Machiavellian personality – those with this trait are comfortable using politics as a means to further their self-interest. They believe that the end justifies the mean. Other characteristics under the umbrella on Machiavellian include duplicitousness, immorality, manipulating, selfish, power hungry, and overly ambitious.

From an **organizational** standpoint, politics are more likely to surface when an organization's resources are declining, since people may engage in political actions to safeguard what they have. Also, when organizational processes are unclear (e.g., performance evaluations) or strenuous (e.g., high pressure for performance). And, most importantly, when the leader engages in political behavior.

Consequences of Political Behavior

Most people have modest political skills or are unwilling to play the politics game. For that majority, outcomes in an organization will tend to be predominantly negative. There is very strong evidence indicating that perceptions of organizational politics will decrease job satisfaction, lead to anxiety or stress, reduce job performance. Ultimately, if it gets to be too much to handle, employees will quit.

For the purposes of this discussion, we will introduce a construct called **politically savvy**. A politically savvy person may not engage in politics but understands when others are. Being politically savvy allows you to develop strategies to counter other people's political behavior. Most individuals do not like politics in organizations. So there is something to gain to develop your own brand as being non-political or just the opposite of being Machiavellian. But do realize people can beat you by engaging in politics if you don't. On the other hand, if you live by politics, you can die by politics too.

Building a brand is different from impression management. A **brand** is authentic, long-term, and commonly shared perceptions of you. **Impression management**, on the other hand**,** is being good at reading situations and molding appearances and behavior to fit each situation. It is more shallow than your authentic self. Individuals that are not very good at impression management tend to present images of themselves that are consistent with their personalities, regardless of the beneficial or detrimental effects. However, being perceived positively by others, either because of impression management skills or your brand, does have benefits for people in organizations.

Understanding Power in the Organization

Having power in an organization is a good thing. Using it, improperly is not. To maximize your power, you will want to increase others' dependence on you. For example, you can increase your power in relation to your supervisors by developing knowledge or a skill they need and for which they perceive no ready substitute. You can also leverage any of the six power types talked about earlier to increase other's dependence on you. Perhaps one can become political with no real substance by being in a well-connected social network.

You will not be alone in attempting to build your power bases. Others, particularly employees and peers, will be seeking to increase your dependence on them, while you are trying to minimize it and increase their dependence on you.

Chapter IV-6

Leadership

Numerous books and articles have been written by and for both academics and practitioners about leadership. It is a complex subject, with an incredibly wide range of leadership traits, behaviors, and styles, and there is a myriad of variables which influence leadership effectiveness. However, many articles and books are either rewrites of old concepts, rewrites for different audiences or make such fine theoretical distinctions that they're minimally useful for developing leaders.

In this chapter on leadership, an effort has been made to present the important notions in leadership in a practically relevant fashion. Volumes of literature have been summarized by removing models that are a result of academic nuances or rewrites. It is written for a *thinking* man or woman.

Nevertheless, it should be noted that when leadership models are fine-tuned for different political and cultural contexts, industries, organization types and evolving trends (such as workforces consisting of females, minorities, and millennials), they do add value for their target audience.

It is beyond the scope of this module (or any volume for that matter) to incorporate the complete field of leadership. The rationale behind choosing this content is that readers should have the most important and relevant concepts and theories in their tool bag for their thoughtful use as required by the situation. In other words, not much spoon-feeding is being offered here.

A word of caution, however: these same theories can also become detrimental to a business leader if they become buzzwords/jargon instead of real leadership actions, do not fit in specific real-world scenarios, prevent leaders from developing their own leadership style by providing a pre-made framework for the leader to use, or cause leaders to over-emphasizing their personal characteristics rather than the context of the situation.

LEADERSHIP TRAITS, BEHAVIORS, STYLES, MODELS AND THEORIES

To an academic, the differences between traits, behaviors, styles, models, and theories are meaningful, but for a business leader, these differences generally aren't that significant. We will not emphasize these differences until and unless it is meaningful to do so.

Leadership Traits

Historically, the belief was that leaders have certain traits and the chances are that they were born with these traits, though some traits could be developed over time.

A simple Google Search will reveal that authors and researchers have identified hundreds of traits of leaders, e.g., charisma, intelligence, self-confidence, determination, integrity, sociability, self-awareness, emotional control, knowledge, vision, values, ethics, persuasion, etc. One problem with the way leadership traits have been promoted is that many traits that have been proposed are just synonyms or a result of one underlying personality characteristic. For example, risk-taker, innovator, creative, curious, open, and imaginative are generally a result of the same underlying trait. The other problem with recommending traits as a method of leadership development is that positive traits aren't necessarily positive in all circumstances. For example, the trait of innovation might not be best suited for an organization that is bent on preserving its culture. Even the trait of charisma could be perceived differently in different organizations and by different individuals. A charismatic leader in one setting with one individual could be considered a bully in another setting with a different individual.

Leadership Behaviors & Styles

The problematic nature of leadership traits brought about the development of the behavioral theory of leadership. The behavioral approach suggests that there are appropriate ways in which leaders should behave in given situations. The main advantage of looking at leadership through the behavioral lens is that leaders can be more easily trained to exhibit appropriate behaviors rather than developing new traits.

Once again, because there can be thousands of situations which demand leaders to act (behave), identifying the appropriate behaviors for all situations is impossible. Hence, researchers set out to classify situations and behaviors. With a reduction in the number of situations (behaviors), it was easier to prescribe behaviors (situations) for effective leadership. One such classification of behaviors is the task-oriented or people-oriented spectrum.

Task-oriented behaviors focus on accomplishing goals through organization, planning, and execution of activities. They succeed in settings with well-defined, clearly measurable and accepted tasks; in contrast, **people-oriented behaviors** focus on achieving goals through people by encouraging, listening, coaching, and mentoring others to reach the goal. (Goals may also be determined by involving key people in a participative decision-making style. This is more important when there are multiple goals with the potential for competing.) People-oriented behaviors fit well in settings which demand personal relationships to reach goals or solve problems.

Logically, some individuals may exhibit more task-oriented behaviors, while others demonstrate more people-oriented behaviors. When that becomes the case, leaders are said to be task-oriented or people-oriented. Extreme task-oriented leaders tend to care less about the needs of the people who are accomplishing the tasks. They achieve the goals at the expense of satisfaction of the people involved. Extreme people-oriented leaders can become less effective and efficient in achieving the goals because of their over-caring of the people.

When a leader starts exhibiting certain behaviors more than others, one can say that the leader has a leadership style. Thus, a leader who is more focused on getting work done than caring about how the followers' holidays went can be said to have a task-oriented style. Similarly, if a leader regularly questions the status-quo, one could say s/he has an innovative style.

Another way in which leadership has been portrayed has been its **transformational ability** to inspire followers to aim high and achieve the impossible. Transformation is achieved by a focus on four primary areas: inspirational motivation, intellectual stimulation, idealized influence, and individualized consideration.

<u>Inspirational motivation</u>, as the name suggests, motivates employees by all intrinsic and extrinsic means including the consistent, frequent promotion of the organization's mission and vision.

<u>Intellectual stimulation</u> implies continuously challenging employees to develop new creative ways to complete objectives/reach goals.

<u>Idealized influence</u> focuses on the leader's personality/image, especially their demonstration of self-sacrificing behaviors, placing employees first, and upholding high ethical standards.

<u>Individualized consideration</u> places the leader in the role of mentor to each individual team member or employee, treating each person based on their talents/individual styles and supporting each member with what they need to function most effectively.

While transformational leaders might be great in critical situations, e.g., the organization is going bankrupt, or the country is at war, during normal times or situations, several problems can arise. A leader who is amoral/unethical can manipulate the followers to promote him/herself at the expense of the organization and employees. At the extreme of this spectrum, these leaders are called narcissists. Because narcissists place themselves, their needs and desires ahead of the entire organization, their feelings of grandiosity can ultimately lead them to be emotionally isolated and volatile, highly distrustful, and paranoid. Such leaders use the coercive power of reward and punishment to manipulate people.

Transactional leadership style is based on the concept that employees are best motivated by their own self-interests, with extrinsic rewards as the chief motivators. Unlike the transformational style, which uses rewards and punishment in an extreme and intimidating manner, the transactional style believes in SMART (specific, measurable, attainable, realistic, and timely) goals. Rewards are given as goals are met. Within the transactional style, leaders can *actively* manage employees' work output or be *passive* and intervene only when mistakes are made. This style works well in organizations with simple, clearly-defined processes/problems, but is less effective in environments requiring innovation/creativity, with employees who seek intrinsic rewards such as opportunities to grow their skills.

Servant leadership approach, as the name implies, entails the leader serving employees. This leadership is most effective in environments that depend heavily on teamwork or which are heavily dependent on knowledge workers, such as the faculty of a university department or college. It is least effective in environments with repetitive tasks and little opportunity to make changes in work processes.

The focus is on subordinates, with an emphasis on collaboration, trust, ethics, and empathy. This ensures that employees will be more engaged and perform better as individuals and as a team to some extent.

Servant leadership isn't effective in all contexts. For example, leaders must be more authoritative in a crisis when rapid top-down decisions are required. In a hyper-competitive industry, goals might not be achieved because of the extensive focus on employee satisfaction. Finally, employees can feel less responsible for their own tasks by expecting the servant leader to resolve their problems.

Leadership Models & Theories

In general, leaders will confront settings, some of which will require task-orientation and some that call for people-orientation; there will also be some contexts that require transformational or transactional styles. This leads to adaptability as a highly valued leadership trait.

Adaptable leaders can change their behaviors (styles might be more difficult to change as the very definition of style implies) based on the situation and personalities of the individuals involved. To assist rising leaders in determining which styles/behaviors to use, scholars, consultants, and successful leaders have proposed many models and theories.

Competence/Commitment Model

This leadership model, based on work by Ken Blanchard and Paul Hersey, identifies two dimensions, **competence** and **commitment** of team members, to guide the leader in selecting a style. In other words, the style used depends upon the situation.

- **Low competence/low commitment** employees: leaders should manage by telling/directing, giving specific instructions on goals and how to accomplish them.
- **Low competence/high commitment** employees: a leader should assign roles/tasks but should be open to employee input.
- **High competence/low commitment** employees: a leader should lead by "encouraging the heart," supporting and motivating employees as they have the knowledge/skills to achieve goals.
- **High competence/high commitment** employees: a leader should delegate what needs to be done and stays out of the way unless a real crisis emerges.

The above model assumes that the leader herself/himself is perceived as highly competent and committed by the followers. What makes real-life complicated is that employees may have differing views of the leader's competence and commitment. Similarly, the leader's judgment of the employees' competence and commitment may be biased and varied. These complications point to our philosophy that there is no substitute for thinking.

Path-Goal Theories

While the competency/commitment model uses those two variables, one depiction of the path-goal model use task structure and subordinate preference as two variables to use to determine leadership styles. Leaders are expected to analyze both task structure and subordinate preference.

Analyzing task structure entails considering the task to be accomplished, clearing up ambiguities as much as possible, making details clear and removing roadblocks to task accomplishment.

Analyzing subordinate preference entails identifying the type(s) of leadership subordinates will respond to positively and the type(s) that will result in negative responses. This is determined by the followers' need for connection with the leader, need for structure and orderliness and self-perception about their ability.

Based on these analyses, four primary styles: directive, supportive, participative and delegative are proposed (though other renderings of this model use different words). Directive works best when tasks are ambiguous, and employees have low desire for self-direction. Supportive is best when tasks are monotonous or risky. Participative is effective when tasks are ambiguous, and employees want some independence. When tasks are difficult, and employees are highly motivated (achievement-oriented) to perform, delegative is the optimal style.

The underlining approach to this leadership model focuses on motivating subordinates to achieve the goals. According to this model, leaders should reward employees along the way. Though the approach is based on motivating employees, this model does not incorporate the employees' desire to grow and develop as an important motivator.

Contingency Theories

Based on the concept that there is no one best way to lead an organization, appropriate behaviors and styles to be used by leaders are determined by the leader's personality, the tasks (structured or unstructured) facing the group, the nature of those being led, the specific situation, the environment external to the organization, the organization culture, the leader's power or ability to reward or punish followers, the leader's relationship with its followers and so forth.

Obviously, it's hard to argue with the general approach of contingency theories. The problem is that there are too many variables for prescribing leadership styles for all the possible combination of the variables. In addition, while adaptability is a great virtue to have, changing styles might result in followers being confused about their leader. The final issue the reader should keep in mind is that the leader's perception of the variables might be quite different from reality.

The solution to this dilemma is that leaders need to keep reading and learning as much as possible about leadership. They then need to pick the appropriate styles, given the stable and dominant variables internal and external to the organizations. Then when other situations arise, the leader can pick and choose from the several tricks in the leader's tool-kit, while keeping all the caveats in mind.

Other Approaches to Models of Leadership

The finely detailed academic approach to developing leadership recommendations is cumbersome, even though it's valid. Many authors have identified a method to advance leadership theories or models based on both their understanding of the world and inductive reasoning. They incorporate, to various degrees, the leader's ability to inspire a team, identification of traits/behaviors that the most successful leaders practice in any environment, casting the concept of leadership as a social process, establishing a vision for the organization, or connecting emotionally.

Five Practices of Exemplary Leadership, J.M Kouzes, and B.Z. Posner

- Modeling the way – demonstrating behaviors they want employees to practice.
- Inspiring a shared vision – establishing a clear vision for the organization and communicating that vision clearly, so employees can see how they fit into the vision.

- Challenging the process – looking for ways the organization and employees can continuously grow and improve.
- Enabling others to act – creating an environment where all employees will feel a sense of empowerment and ownership in their daily work and act to address challenges.
- Engaging the heart – demonstrating appreciation and providing recognition for employees' performance; celebrating team member victories.

Level Five Leadership, Jim Collins

Identifies five levels of leadership that correspond to the skill level of the leader(s) being described. While people on all levels can function as leaders, people on the highest levels (four and five) are the most successful overall, with Level five leaders being exceptional in their impact on both their organizations and the individuals they lead.

- Level one – highly capable individual who contributes through their talent, skills, knowledge, and good work habits.
- Level two – a contributing team member who works well in group settings and contributes their talents to the overall group efforts.
- Level three – a competent manager who organizes people and resources to reach predetermined goals efficiently and effectively.
- Level four – effective leader who presents a clear and compelling vision, inspires others to follow and inspires higher performance standards.
- Level five – enduring greatness describes a leader whose combination of personal humility, unwavering resolve, self-confident enough to give others (or luck) credit and develop successors combine to leave a permanent legacy.

Primal Leadership, Daniel Goleman

More than thinking critically, or having well-thought-out management policies, processes, and structure, or having a winning, realistic and plausible vision, primal leadership advocates focusing on emotional dimensions, on how *the* fundamental issues of an organization are decided upon and sold. All of this must be done by making an emotional connection with the employees.

Leaders must be aware of their own emotions, the emotions of team members, and how they impact the workplace. Leaders must focus on improving the way they respond to others' emotions while controlling their own.

LEADERSHIP DEVELOPMENT

Perhaps the best way to talk about **leadership development** is to talk about the difference between a manager and a leader. One cannot develop if one doesn't know what characteristic needs to be developed. Hence, leadership development is contingent upon knowing oneself. Several **instruments** are available that help individuals diagnose themselves on their leadership abilities. Some of these are discussed below. Apart from using instruments, feedback from subordinates, colleagues, and supervisors is a great source of knowing oneself.

Below is a list of 13 characteristics that separate managers from true leaders. While not complete or carved in stone, this list can be used to develop in some key leadership dimensions. Having said that, it can be said that being a good leader requires being a good manager.

- Administration vs. innovation – focus on day-to-day operations vs. looking for creative ways to address challenges and make improvements.
- Carbon-copy vs. original – imitating what other leaders have done vs. identifying a personal leadership style that fits your unique personality/abilities (possibly through the use of leadership instruments).

- Maintenance vs. development – focus on keeping the business operations going vs. helping employees and the organization grow through continuous learning.
- System/structure vs. people – focus on operational systems/ organizational structures vs. focusing energy on employees by motivating them and providing growth opportunities.
- Control vs. inspiration – focus on being in charge vs. seeking to inspire employees by connecting them with the leader's vision for the organization.
- Acceptance vs. investigation –acceptance of organizational dynamics as the way things are vs. investigating why situations have developed and how they can be improved if necessary.
- Short-range vs. long-range perspective – focus on the immediate/short-term goals of organization vs. looking ahead to see what position the organization could be if things remain the same or if strategic changes are made.
- Interest in how and when vs. what and why – focus on resolving immediate situations vs. more extensive investigating to find out the root causes of the current situation so that they can be addressed.
- Focus on bottom-line vs. focus on horizon – focus on profits vs. a vision/goal (possibly a long way off) as something the organization should be working towards.
- Imitation vs. origination – focus on copying ideas that have worked in other places vs. developing unique solutions for the current organization.
- Acceptance of vs. challenge to status quo – focus on keeping things the way they are (less work for leader) vs. looking for ways to have the organization and its employees stretch and grow.
- Conformity vs. individuality – focus on keeping benefits and incentives the same across the organization vs. looking for ways to reach employees with what uniquely motivates them.

- Desire to do things the right way vs. the desire to do the right things – focus on how tasks/jobs are performed and whether those tasks are the right thing to do in any given situation vs. focus with the appropriate response, considering all aspects of the current situation.

INSTRUMENTS FOR LEADERSHIP STYLE ASSESSMENT

While there are almost as many leadership style assessment instruments as there are leadership styles, this section focuses on six of the most widely-known models.

Each of these models provides different insights into what different leadership styles look like. They also help leaders identify their predominant styles of leadership and provide insights into how they might adjust their styles in varying situations.

Myers-Briggs Type Indicator

Myers-Briggs is one of the oldest and best known of the instruments for assessing leadership styles. Ninety-three questions measure an individual's tendencies/preferences toward introversion/extroversion, sensing/intuition, thinking/feeling, and judging/perceiving. (Step II form, more commonly used for business coaching/leadership development, has 144 questions.)

- *Introvert/extrovert* – focus in the inner world vs. focus on the outer world around them.
- *Sensing/intuition* – focus on basic information received from the environment vs. adding layers of meaning to that information.
- *Thinking/feeling* – focusing on logic and consistency first vs. considering people and circumstances involved.
- *Judging/perceiving* – focusing on making decisions and resolving matters vs. remaining open to new information and options.

Results can be used so leaders can approach all aspects of work (time management, planning, and decision making, dealing with stress, coping with change and interacting with their employees) in the way best suited to their unique personality type.

Links: http://www.myersbriggs.org/my-mbti-personality-type/mbti-basics/(general information)

Http://www.myersbriggs.org/type-use-for-everyday-life/personality-and-careers/

DISC Profiling

DISC profiling leadership assessments focus on 4 dimensions of personality/leadership style. **Dominance** traits are direct, demanding, decisive, determined, and doer. The dominance dimension considers how well a leader deals with problems, asserts him/herself, or handles difficult situations. **Influence** style involves influencing, impressing, involving, interacting, and interesting. The influence dimension describes how the leader relates and communicates with others. **Steadiness** is steady, status quo oriented, stable. The steadiness dimension centers on the leader's patience, persistence, and thoughtfulness. **Conscientiousness** traits include calculating, conscientious, competent, careful, and contemplative. The conscientiousness dimension focuses on the leader's precision, analytical approach, and systematic performance of job functions.

Link: https://discprofile.com/what-is-disc/overview/

Clifton Strengths Assessment

Focuses on the concept that leaders need to discover their own strengths and utilize them to grow themselves. It identifies the top five strengths from a list of 34. The 34 questions fall into four categories: how individuals absorb and analyze information, how they make things happen, how they influence others, and how they build and maintain strong relationships.

Link: https://www.gallupstrengthscenter.com/Home/en-US/cliftonstrengths-How-it-Works

Https://www.gallupstrengthscenter.com/Home/en-US/cliftonstrengths-Themes-Domains

Leadership Practices Inventory

This assessment tool is based on five Practices of Leadership Theory discussed earlier (modeling the way, inspiring a shared vision, challenging the process, enabling others to act, and engaging the heart). The tool consists of 30 behavioral questions, six for each of the five practices. Leaders rate themselves, and then five to ten observers also evaluate the leaders on the same five practices. This enables leaders to measure their leadership competencies and allows them to see how others view them.

Link: http://www.leadershipchallenge.com/professionals-section-lpi-about.aspx

Voices 360

Voices 360 utilizes four factors: *thought* (how leaders think through situations), *results* (how leaders achieve results), *people* (how leaders relate to others) and *self* (how leaders regard themselves) in the assessment process. As the name suggests 360, allows managers to see themselves as others see them. There are many versions and facilitators for voices 360 feedback.

Link: https://www.kornferry.com/products/talent-development/360-for-development

Campbell Leadership Index

Helps measure personal characteristics directly related to the specific nature and demands of leadership. Perceptions of supervisors, subordinates, or peers are available so individuals can see how others view them. Ratings are available for the following traits: ambition, daring/willingness to take risks, dynamic behaviors, experience/enterprise (work ethic), farsighted/visionary perspective, originality and persuasiveness, energy, affability, dependability, and resilience.

Link: https://www.creativeorgdesign.com/tests_page.php?Id=50

Chapter IV-7
Teams

Types of Teams

Generally speaking, a **team** is created to accomplish tasks that cannot be effectively executed within an existing organization structure. The term is also used in situations where the group is dissolved once the task is completed. Permanent teams tend to be called **committees**.

Self-managed work teams involve a team of people who perform highly related or interdependent jobs and take on the responsibilities of achieving their goals and managing the processes by themselves rather than being managed by a supervisor. The effectiveness of this type of team greatly depends on the situation and the goals of the team.

Cross-functional teams gather workers from many different functional areas to come together to accomplish a task that needs to utilize multiple perspectives. These teams are good at developing new ideas or products and solving problems or coordinating complex projects. Given that their tasks are normally complex and diverse, it may take some time for the team to develop into an effective and productive team. A cross-functional team may consist of members from the marketing, R&D, finance, and manufacturing departments for a new product development task.

But some problems may not be complex enough to warrant expertise from different functions in an organization. In that case, problem-solving teams are a very popular method used in many organizations. Typically this type of team meets for a few hours each week to solve a particular problem.

Both the cross-functional team and problem-solving teams can meet physically face-to-face or virtually. **Virtual teams** are becoming increasingly popular. They use computer technology to bring people together to achieve a common goal. Typically these types of teams get right to work with little socializing, but need to overcome time and space constraints to accomplish their task. In order to be effective, virtual teams need to find ways to establish trust among the members.

In face-to-face teams, the rich personal interaction among team members eventually leads to trust. In virtual teams, trust is a little more difficult to achieve. Therefore, for tasks which require trust, virtual teams might have a little more of a rocky start. One way to build trust in virtual teams is by sharing information. So the more information, even if it is personal and peripheral, that is shared by virtual team members, the more trust is built.

Team Diversity

Much has been written about how the diversity of team members influences the quality of the outcomes. Diversity is the degree to which members of the team are similar to, or different from, one another. Diversity may be cultural, racial, or gender. The ultimate goal is a diversity of ideas.

It is assumed that individuals with different backgrounds will have different ideas, but that might not always be so. Though diversity can help in the final results, it also can increase team conflict, especially in the early stages of a team's tenure, which often lowers team morale and raise dropout rates.

Teams in which members' values or opinions differ tend to experience more conflict. The challenge is to look beyond the obvious differences and get the team to focus on the task at hand. The team should be made to realize that a solution coming from a diversified team has a better chance of getting accepted by others. Though this initial effort takes time, forming a diverse team is well worth the effort.

Effective organizational support and leadership from outside the team can help offset these problems. If members can weather their differences over time, diversity can help them find more open-minded and creative solutions.

Selection, Training and Rewarding Team Members

It is extremely important to staff a team with individuals with the right skills. The softer skills are often ignored in selecting individuals for teamwork. Technical skills are important, but not sufficient on their own. If candidates cannot fill their team roles because of a lack of soft skills, they should be trained.

Training specialists conduct exercises that allow employees to experience the satisfaction teamwork can provide. Workshops help employees improve their problem-solving, communication, negotiation, conflict management, and coaching skills. Developing an effective team can sometimes take time.

Finally, all the team members should be rewarded for achieving the team goals. The rewards may be intrinsic or extrinsic, immediate or in the longer term. Effective team participation should be taken into consideration during a promotion.

Many times superiors will form a team where each member is expected to represent its own group to help resolve inter-group conflicts. This, however, is not the best usage of a team because if a team member cooperates with others, it could equate to the team member not representing its group's interest. Superiors in such situations of inter-group conflicts are abdicating their responsibilities by passing the buck back to where the conflict arose.

It is generally a good idea that an organization's reward system encourages cooperative efforts rather than competitive ones. Promotions, pay raises, and other forms of recognition should be given to individuals who work effectively with other members of the organization by sharing information, helping resolve conflicts and teaching others the nuances of a discipline.

The Five-Stage Model

The five-stage team development model characterizes teams as moving through five distinct stages in the team process. The **forming** stage is filled with uncertainty as team members figure out their roles and the team norms. The **storming** stage occurs as the roles continue to be developed, and conflict arises between team members. The **norming** stage occurs as members develop closer relationships and a sense of cohesiveness. When the team is functioning well together and achieving their goals, they have reached the **performing** stage. **Adjourning** is the final stage. If the team is temporary, they will wrap up activities, summarize work, and adjourn.

Team Process and Effectiveness

A team's processes can have a big impact on its effectiveness.

Team process begins with a common plan and purpose. Effective teams begin by analyzing the team's mission, developing goals to achieve that mission, and creating strategies for achieving the goals. Teams that establish a clear sense of what needs to be done consistently perform better. Effective teams show reflexivity, meaning they reflect on and adjust their master plan when necessary.

Successful teams translate their common purpose into specific, measurable, and realistic performance goals. **Specific goals** energize the team, facilitate clear communication, and help teams maintain their focus on results. Team goals should be challenging.

Effective teams have confidence in themselves and believe they can succeed. Management can increase **team efficacy** by helping the team to achieve small successes through skill training. Small successes build team confidence. The greater the abilities of team members, the greater the likelihood that the team will develop confidence and the capability to deliver that confidence.

Team cohesion is also important; it means members are emotionally attached to one another and motivated to work together.

Mental models are organized mental representations of the key elements within a team's environment. If they have the wrong mental models, which is particularly likely with teams under acute stress, performance will suffer. If team members have different ideas about how to do things, they will argue rather than focus on what needs to be done.

Social loafing occurs when individuals hide inside a team. Effective teams undermine this tendency by making members individually and jointly accountable for the team's purpose, goals, and approach. Members should be clear on what they are individually and jointly responsible for.

Conflict on a team isn't necessarily bad. **Relationship conflicts** – those based on interpersonal incompatibilities, tension, and animosity toward others – are almost always dysfunctional. When teams are performing non-routine activities, disagreements about task content (or task conflicts) stimulate discussion, promote the critical assessment of problems and options, and can lead to better team decisions.

Chapter IV-8

Organizational Communication

Organizational Communication is the process by which information is exchanged and understood by two or more people, many times with the intent to influence behavior. Communication is one of the most important skills any employee, manager, or leader needs to master.

Today's complex business environment depends on effective communication. By one estimate, managers spend 80% of their day communicating: 48 minutes of every hour is spent communicating on the telephone, online, in meetings, or talking informally.

Functions and Styles of Organizational Communication

Communication serves five major functions in an organization – management, feedback, emotional sharing, persuasion, and information exchange. Each of these different purposes of communication requires unique nuances that managers must learn.

Management

Organizations have authority hierarchies and formal guidelines that employees are required to follow. For the purpose of managing, communication has to be unambiguous and concise in telling the receiver what is expected of him or her.

Feedback

Providing feedback to subordinates, colleagues, or superiors is always difficult. If the feedback is negative (or perceived as negative) to subordinates, it may cause resentment or demotivation. Negative feedback to colleagues may induce revenge, and to superiors, it may threaten your position at the organization.

In general, negative feedback should be provided as an effort to be helpful. It should be devoid of all negative emotions (e.g., anger, complaining, pessimism). Interestingly, providing positive feedback might also have negative connotations. Subordinates expectations of the organization may get unjustifiably raised, or superiors may view a glowing review as being exhibited by a sycophant, and colleagues could take the individual for granted.

Emotional Sharing

Communication within the group is a fundamental mechanism by which members show satisfaction and frustration. Communication, therefore, provides for the emotional sharing of feelings and fulfillment of social needs. A receiver needs to carefully and accurately judge if the communicator is sharing emotions and engaging in listening. Correspondingly, the communicator should be careful in choosing who to share his/her emotions with lest s/he be taken advantage of.

Persuasion

One of the key aspects of persuasive communication is to understand where the receiver stands. Do the receiver's values conflict with the message that needs to be conveyed, or will the receiver be financially harmed in agreeing with the argument? These conflicts should be analyzed before the message is crafted, and the mode of communication is decided. Value conflicts are more difficult to overcome than resource conflicts.

Information Exchange

Information exchange is a type of communication that provides information to individuals by transmitting the data needed to identify and evaluate choices to make decisions. The proper way to do this is to be factual about the information rather than interpreting the facts for the decision maker.

When the communicator engages in interpreting the facts, personal biases creep in that might result in undue influence in the decision. (Now, it could be that the goal of the communicator is to influence the decision by presenting massaged information, but that is a whole different topic.)

Channels of Communication

There are two forms of communication channels, formal and informal.

Formal channels transmit messages that are related to the professional activities of the organizational members. Formal communication can flow in three different patterns – chain, wheel, and all-channel.

The **chain** is a very formal and rigid chain of command. Employees know who the next person in the chain is, and that is where they give and get their information.

The **wheel** is a network where there is a central figure who controls all the communication. It requires a very strong leader who can communicate effectively.

The **all-channel** network is a much more fluid arrangement where all group members communicate actively with each other. This works best in a self-managed team situation.

Informal channels generally transmit personal or social messages. But they are also very important channels of communication for professional communications when and where formal channels are not clearly identified. These channels also take on an exceptional and generally disruptive role in organizations that are political.

Grapevine is a common type of network that has been shown to be an effective mode of communication. There might be many grapevines, or cliques, in organizations. Members of a clique have strong ties to other members in the clique and exchange information to remain part of the clique. Typically the grapevine is not controlled by management nor do they feed it information, but some management styles involve using cliques to spread information the manager wants to propagate. Employees see informal communication as a very believable and reliable form of communication.

Modes of Communication

Organizational communication is generally either **verbal** or **written**.

Verbal, or spoken word, is the quickest mode, but also more prone to misinterpretation. Careful verbal communication is often more difficult than crafting and sending out a written release. If not recorded, verbal communication can be more subjective than written communication. Many executives in organizations expressly choose to communicate verbally because they can go back and say, "that's not what I meant."

For a novice, the disadvantage of verbal communications can be due to the accompanying nonverbal cues. A nod, a look, or the crossing of arms can be misperceived and can greatly influence the receiver's interpretation of the message. There are different types of nonverbal communication that send distinct messages. **Body movement** is a common method. Tapping one's fingers, for example, can show that one is impatient or nervous. **Intonation**, or how one emphasizes words, can change the way the receiver perceives the message. **Facial expressions** can show emotion and express how one feels about an assignment or task. Also, the **physical distance** placed between the sender and receiver can express whether one is interested in the project or if one feels more powerful than the other person. This will vary by cultural norms.

For the experienced and masterful communicator, these nonverbal cues can be used to reinforce the verbal message and to win over the audience.

The **written** form of communication is the best when one doesn't want to go astray. It can be written and reworked until everyone is comfortable with it. Often when people put down their thoughts and ideas in written format, they are more logical and clear.

However, with the recent rise of many new channels, written communication has taken a whole new level of complexity. While emails could be considered a shorter derivative of the old art of writing letters, social media's demand for writing skills is a whole new ballgame. Purposeful writing for Facebook, Twitter, Pinterest, LinkedIn, or blogs is an art and science that is still being formed.

Improving Organizational Communication

There are several **barriers to effective communication,** both verbal and written, that can distort the message being sent.

Filtering occurs when the sender interprets the facts and presents the interpretation, or insights, as information. Such filtering may have intended or unintended consequences when the receiver gets the communication. **Selective perception** occurs with both the sender and the receiver. People selectively see or hear based on their own experiences and attitudes. **Information overload** occurs when the information received exceeds the receiver's capacity to process it all. This leads to barriers to receiving the complete message. One must also recognize how the **emotions of the receiver** may influence message interpretation. **Language** can also be a barrier itself, as words may mean different things to different people, which can influence the message significantly. Additionally, many people are nervous about oral or written modes of communication and will not be able to clearly communicate because of their **apprehension** or anxiety. Research also shows many people **lie**, and the frequency of the lies combined with the difficulty of detecting exactly when it's occurring result in communication not being perceived credibly.

There are no hard and fast rules that are always applicable to overcoming these barriers. To average readers, knowing about these drawbacks is sufficient for them to try overcoming them.

Asking Questions & Listening

Asking **questions** can benefit managers and employees in many ways. They can build trust and openness between managers and employees, build critical thinking skills, stimulate the mind, and give people a chance to make a difference. It's important that questions be asked in a non-threatening, non-argumentative manner. They should stimulate further development of the idea in the minds of both parties.

Listening is one of the most important skills managers and employees can cultivate. Listening is the skill to interpret a message's meaning by grasping the facts and understanding the background and feelings of the sender. Listening means not only not talking but also trying to understand why the person might be correct. That is in contrast to formulating thoughts on how to counter argue with the person while the person is talking. Clearly, developing counter arguments may be important for coming to the right decision. The point here is that those should not be worked on while the person is talking.

COMMUNICATION UNDER CRISIS

One of the most difficult communication situations is a **crisis** wherein the organization itself may be at fault. It is quite natural at these times to defend the organization, blame other entities, make excuses, and deflect responsibility. This is quite the opposite of what public relations professionals would actually recommend. Lawyers, however, would advise caution in taking ownership. The sweet spot is heeding the advice of attorneys, but also not blowing off the press or others seeking information.

Four primary points for managers to follow in order to communicate effectively when dealing with the crisis are:

- Stay calm, listen hard, do not get overwhelmed by the situation.
- Be visible, stay present, and provide face-to-face communication.
- Gather information, determine the facts, and deliver the news quickly, get the awful truth out.
- Communicate a vision for the future and unite people toward common goals.

CROSS-CULTURAL COMMUNICATION

Communication can be difficult. Cross-cultural factors can increase that difficulty many-fold. Managers need to understand the culture in which they are working and how their tone, body language, or perceptions differ based on culture.

Cross-cultural communication barriers include semantic differences, as words mean or imply different things in different languages and cultures; tone and mannerism differences, which can be interpreted in very different ways in different cultures or even sub-cultures with a country; differences in perception and/or world views; and differences in context-dependency, meaning in low-context cultures people tend to rely more on words, whereas in high-context cultures people will rely more on the whole situation.

Chapter IV-9

Digital Marketing

In this stage of the organization's growth, it is important to show quarter-over-quarter revenue growth if an organization seeks an attractive exit. Having discussed the basics of marketing promotions and brand management in the earlier sections of the book, in the next 6 chapters we turn to digital marketing as a critical tool to increase revenues.

Digital marketing is a vital component of any marketing campaign. It is a somewhat new, ever-evolving landscape.

General Terms

An **impression** is the presentation of a digital ad to a potential customer. The customer does not need to interact with the digital ad to be counted as an impression; the ad only needs to be presented to a potential customer. If a single user is presented the ad multiple times, each presentation of the content counts as an impression.

A **click** is when a potential customer clicks on the ad. A click represents basic engagement with the digital campaign, showing that the potential customer has enough interest to learn more about the campaign. If a user clicks on content multiple times, each click is recorded.

When someone moves the mouse cursor over an item but does not click on it, it's called **hovering**. More advanced websites and advertisements can detect when someone is hovering over an object. The website/ad can interact with the visitor when a hover is detected.

A **conversion** represents the completion of a task. The conversion can take many forms depending on the goal of the digital marketing campaign. A conversion could be signing up for an email list, making an online purchase, or downloading an informational form.

A **follower** is a general term for someone who has subscribed to your social media content. A follower can take different forms, such as a follower on Twitter, or on Instagram, someone who likes your page on Facebook, or even someone who subscribes to your email newsletters.

Keywords are a single word, a set of words, a phrase or topic that your target audience could potentially enter into a search engine. Keywords should be determined by what your website is all about and its content. Your selection of keywords will play a major role in your search engine optimization (SEO). If you are purchasing paid ads within a search engine, your keywords will also help you determine which terms to bid on.

Traffic to your website that is generated by search engines such as Google, Yahoo, or Bing. **Organic traffic** is also known as "Free" traffic because a website does not have to pay to be listed in search engines. Since this is free traffic of users who have searched for terms relevant to your website, organic is a preferred traffic source.

Paid traffic can take many forms, and generally encompasses all traffic to your website that comes from a paid ad placed on any webpage of any website. The most common forms of paid advertisements are digital ads which appear alongside content on other websites or which appear alongside organic search results.

A **banner ad** is an image or small animation file that is embedded within a website which, when clicked on, will bring the visitor to the target website.

A **pop-up ad** is an advertisement, which automatically opens, or "pops up" in a new browser window to display the advertisement. These ads aim to interrupt the user's experience and force them to look at the chosen advertisements. Generally, pop-up ads are disliked, and many browsers and programs have the ability to block them.

An advertisement that floats above the rest of the content of a website is called an **overlay**. These are different from pop-up ads because they do not trigger a new page or tab; they just appear above the content of the page being viewed. As a result, pop-up blockers cannot stop an overlay ad. These advertisements can also have various behavior based on custom interaction, such as expanding when highlighted.

A **blog** is a collection of content written by an author or a group of authors. Usually focused around the writer's personal interests, bloggers give their opinions on their chosen topics. Blogs can be a great source of content and reviews as they are viewed as a peer-review rather than an internal promotion.

The message conveyed to a user to get them to complete the desired conversion is called a **call to action**. Call to actions may ask a user to sign up for a newsletter, make a purchase, or otherwise interact with the website.

A **landing page** is the first page a user sees on arriving at a website after clicking on an ad or a link. When running a digital campaign, the advertiser usually has control over where the visitor is directed. These pages are very important as they give the visitor their first impression of the website, and should be optimized to engage new users.

The term **above the fold** originated in the print industry and refers to the content that was visible without picking up or opening the paper or magazine. In digital marketing, above the fold refers to the area of the page, which will be visible to the visitor without requiring them to scroll down to view more content.

The **desktop view** is what your website looks like from a browser on a laptop or a desktop. Desktop views have larger screen area than mobile views and most often accessed by visitors on a keyboard.

The mobile view is what your website using a smartphone, tablet, or similar hand-held device. Mobile views generally have a smaller screen size than a desktop view, and users interact with it on a touch screen rather than a keyboard.

A complication to designing a website, in contrast to a print advertisement, is that visitors view the website through different tools. **Responsive design** is a type of website design that detects what type of system the visitor is using and shows them a view of the website that is best suited for their device. With the prevalence of mobile browsing, and the vast number of operating systems, browsers, and browser versions; responsive design has become very important when designing a website.

The goal of **attribution** is to determine which digital campaign is responsible for driving a conversion so that ROI can be calculated. Generally speaking, a conversion process consists of several steps as a user is taken from awareness to action. These steps are said to be part of the conversion funnel. A common conversion funnel takes users through four steps: awareness, interest, desire, and action.

There are three primary methods of attribution: first-touch, last-touch, and multi-step. The first-touch method credits a conversion to the campaign that started the conversion process. Last-touch attributes a conversion to the last action in the conversion funnel, giving credit to the campaign that resulted in the actual conversion. Multi-step attributions give partial credit to all campaigns that participated in the conversion process.

An **ad network** is a service that connects advertisers and publishers by taking a single advertisement and allowing it to appear in multiple locations and websites without having to negotiate a separate rate with each. Ad networks facilitate placement and help manage supply and demand.

Contextual advertisement is the strategy of finding content that is relevant to your ad and attempting to place your ad alongside that content. The basic premise here is that if the visitor is interested in the other nearby content, they are more likely to be interested in your advertisement.

Engagement with a content on social media or elsewhere on the web can be understood as likes, comments, click-throughs, shares, etc. by viewers. There are a multitude of ways by which "**engagement rate**" can be calculated. Any one of these above variables can be divided by number of followers, posts, impressions, and so on as appropriate to calculate the rate and compare it to other rates over time or posts.

Influencer is a person who has the power to influence other people engaged in social media.

Social Listening is monitoring any aspect of a company or brand that helps businesses understand what's being said about its products or services on social media.

Technical Terms

The software program that visitors use to interact with your website, and the rest of the internet is called a **browser**. The four most used browsers in the US are Firefox, Safari, Chrome, and Internet Explorer.

Cookies are information stored on a website visitor's browser. Cookies track a visitor's movement around a website and can be used to store the visitor's behavior and preferences. Cookies do not transfer across browsers or devices, and users also have the ability to manually clear their cookies. Therefore, there is no guarantee that a returning visitor will still have cookies set, or that a user without cookies is a first time visitor.

A **conversion pixel** is a small piece of code or image that is to be placed on the website on which the transaction or conversion occurs. When the page with the pixel code is loaded, it will send information to the digital campaign.

Calculated Metrics

The number of people who see a digital advertisement and click on the link is measured by the **click-through rate** (CTR). CTR can be applied to almost all digital marketing mediums, from links in an email campaign to advertisements placed on a webpage. It is calculated as the number of people who clicked on the link, divided by the number of people who were presented the link. This rate can be used to assess how good a digital campaign is at getting a user to initially engage with the campaign.

(Number of Clicks / Number Impressions) * 100 = Click Through Rate

Conversion rate is defined as the number of users who completed a conversion on the website, divided by the number of users that clicked on the advertisement. Conversion rates represent how effective a company and website are at getting convincing an interested party to complete the desired action.

(Number of Conversions / Number of Clicks) = Conversion Rate

Cost per thousand (CPM) represents the cost per thousand impressions. Since an impression does not guarantee any engagement or interest in the digital campaign, a very large number of impressions is generally required to represent a successful campaign. As a result, instead of being tracked per click, or per conversion, impressions are generally tracked by the thousands (using the Roman numeral "M").

(Cost of Campaign / Number of Impressions) x 1000 = Cost Per Thousand

Cost per click represents the amount it costs the digital campaign to generate one click. This number is calculated by taking the amount of money spent on the digital campaign and dividing it by the number of clicks the campaign received. Cost per click is one metric used to determine the success of a digital campaign.

Price of Digital Campaign / Number of Clicks = Cost Per Click

Cost per acquisition represents the dollar value it takes to generate a single conversion. When this data is available, it is often one of the primary methods used to determine if a digital marketing campaign is successful in absolute terms. Any digital campaign where the CPA is less than the expected value of the customer will result in a positive return on investment. However, there are digital campaigns that have a primary goal other than generating acquisitions.

Price of Digital Campaign / Number of Acquisitions = Cost Per Acquisition

The **bounce rate** of a website represents the number of visitors who see one page of a website and immediately leave that website without opening another page. The bounce rate is a strong indicator of the quality of the landing page of a digital campaign. Generally, when visitors only see a single page of the website, they have chosen not to interact with it further and, hence, not to buy.

Percentage of visitors who visit only one page / total number of visitors = Bounce Rate

Optimization Techniques

A/B testing is a common optimization tactic used in the digital marketing industry. The process takes an existing ad (A) that you wish to optimize and creates a second ad (B) very similar to the first ad with a minor change. The two ads are then run in the same environment, allowing you to attribute any differences in the ad performance, to the minor change made when creating the "B" variant. If this is a positive change, the "B" variant becomes the new baseline ad (due to its better performance), whereas if it is a negative change, the "A" variant remains the baseline for future tests. After the conclusion of a test, a new A/B test can be designed on the baseline advertisement, and the process continues. This creates an iterative process, gradually improving the performance of an advertisement.

Data and statistics about the users of a website and how they interact with the website are called **analytics**. Analytics are used to determine information about a website, from how many people visit the website and how they interact with it, to where the visitors came from. This information is then used to target audiences, understand customer behavior, and optimize digital campaigns.

AdWords Specific Terminology

AdWords is Google's paid search tool which allows advertisers to pay for displaying ads alongside organic search results.

When placing an advertisement in AdWords, marketers **bid** against others who wish to show advertisements in the same or similar keywords. AdWords allows advertisers to bid on how much they are willing to pay per click, or per impression. In general, the marketer who bids a higher amount for the same keywords will be placed first, and in a higher position than a marketer who bids less.

Broad match is a term used in paid search advertisements, which tells the search engine that you want to show your ad on variations of your target keywords — for example, showing for both singular and plural conjugations of a word or misspellings, synonyms, related searches, and other variations. Generally, broad match keywords are designed to help you reach a broader audience.

Exact match allows your ad to show only for searches using the exact phrase supplied, or close variations of exact phrases, and no other words. Since exact match keywords are much more strict than broad match keywords, exact match keywords will tend to cost less but will have a narrow reach than broad.

Quality Score (QS) is AdWord's rating of the quality and relevancy of an advertisers' landing page, website, keywords, and ads. Since Google doesn't want to mislead its viewers by having an advertisement not match the content of the landing page and the website, it rates the relevancy and quality of the content of the advertising website as a Quality Score (0-10). The lower your Quality Score, the more you will have to bid to advertise. A higher Quality Score, representing relevant and quality content, will help to drive down the amount you must bid in order to secure ad placement.

Ad Extensions expand an ad with additional information such as call buttons, location information, links to specific parts of a website, additional text, etc. Google Ads selects which extensions that need to be shown in response to each individual search on Google. As per Google, they typically increase an ad's click-through-rate by several percentage points.

An **ad campaign** on Google AdWords is made up of a group of ads that have the same budget, campaign type and your other characteristics.

Ad Rank is the value that's used to determine where an ad will show up on a page. It is based on the quality score, bid amount and many other factors.

Facebook / Instagram Specific Terminology

A Facebook **ad** encompasses the entire concept of the ad, including both the creative and design aspects of the ad, as well as the ad's target audience.

After designing the copy and target audience for a Facebook Ad, you must set the **ad budget**. You will be able to set the total amount you wish to spend on placing the ads.

There are a number of different **actions** that a Facebook user can take around a specific ad. A Facebook user could share, comment, like, or click on an advertisement. Any of these tasks performed on a Facebook ad will count as an action, which will be reported in Facebook Ad analytics.

A **bid** is an amount you are willing to pay to place a single advertisement on a users' Facebook feed. The higher the bid, the more likely your advertisement is to be placed, but the faster you will run through your specified ad budget.

A **campaign** is a group of ads that are using the same ad budget, and are generally focused on the same subject. Campaigns are useful for testing the effects of different variables on ad performance as it makes comparing the results of similar ads useful by grouping them together.

The average number of times each Facebook user sees an ad is known as **frequency**. Ads may become less effective as the frequency increases. Constantly creating new ads with a fresh copy and other creative content can help keep users engaged.

Facebook allows **interest targeting**, where advertisers can target ads to specific users based on their likes, interests, and other factors. The collection of all of the user information allows Facebook to target users more specifically than other digital campaign mediums. For example, you can choose to only display your ad to Facebook users who have indicated specific interests in areas related to your advertisement.

Potential reach is the approximate number of people your ads or stories can be seen based on your targeting criteria The number of Facebook users who actually see your advertisements is determined by your ad budget.

Chapter IV-10

Digital Marketing Tools Assessment

There are numerous tools that exist in today's digital marketing landscape. When beginning a new digital marketing campaign, it can be somewhat intimidating to decide which tools make the most sense for your budget, goals, and timeframe. The first step is to understand at a high level how these different tools target users and what they tend to have in common. We will begin by examining three different methods of targeting customers and the tools that specialize in those areas. Users can be targeted by demographics, the terms they are searching for or content they are currently viewing, and past interactions with content.

Tools that target users based on their demographics usually require users to have created a profile. These users' profiles determine the types of targeting that are possible. Sites that allow this type of targeting include, but not limited to Facebook, Instagram, and LinkedIn. Facebook and Instagram gather demographic information as well as other information such as a user's interests, hobbies, and other personal information. LinkedIn, on the other hand, gathers additional information related to careers such as income, skills, and employment history. The differences in the information collected in these three social networks provide different targeting capabilities.

Search and **contextual marketing** rely less on knowing the user's personal information, and more upon their current search terms or browsing interests. Most search engines provide a tool to advertisers that allows them to choose where and when their paid ads are displayed along with organic search results. The most widely used tool is Google's AdWords. By keeping organic and paid results separate search engines are able to ensure the highest quality results through organic search, but still, allow advertisers the opportunity to bid on keywords. Contextual advertisements, on the other hand, are often distributed through an ad network, such as the Google Display Network (GDN). The GDN is a system that allows owners of websites to offer space on their site for advertisements by connecting advertisers to publishers.

Tools also exist that allow you to re-engage with customers who have previously interacted with your content. This process is referred to as **remarketing** and focuses on displaying advertisements to users who have previously visited your website or clicked on an ad. By targeting users who have shown previous interest, remarketing tends to have a higher return on investment, but also a narrower reach. In addition to remarketing programs, most websites allow users to sign-up for an email list granting that website permission to contact them with additional information. Creating a high-quality email marketing campaign can also help keep users engaged on an ongoing basis.

Since marketers already have recipients' attention, communication with them can be personalized. Of course, opt-out option has to be continuously provided.

Here are a number of social media sites and tools and techniques that are at the forefront for digital marketing.

Facebook

Facebook gives you the capability to reach more people than any other digital media outlet. Facebook has over 2.6 billion active monthly users in a wide range of age groups.

- Because users provide so much data about themselves, e.g., age, gender, interests, and hobbies, an advertiser is able to target advertisements to a very specific set of users.
- Additionally, if an advertiser is able to post quality content in the advertisements, the social nature of Facebook makes users share content with their network.
- Facebook also has 10 different ad formats which helps them stand out from ads in other social media platforms.

Pros

- Largest reach of social media websites
- Advanced demographic targeting
- Very low minimum ad spend
- Possibility of products and services going viral.

Cons

- Lower than industry average click-through rate and conversions
- Social sharing of content is limited since not all friends and followers receive shared content
- Due to the high number of competitors and ads in users' news feed, it can be difficult to stand out from the competition

TikTok

TikTok has about 1 billion monthly active users worldwide. The TikTok app has also been downloaded over 2 billion times. An interesting but not surprising fact is that 62% of TikTok users are between the ages of 10 and 29.

- Advertisements on this platform, need to stand out and, hence, the prevalence of challenges and contests. Many users on TikTok follow trends, so marketers will need to incorporate these trends when advertising a product or a service.

Pros

- Gives new trendy way to reach younger demographic.
- Each video starts to play automatically in a user's feed—which means the content is more likely to be seen.

Cons

- Seen as more of a means of entertainment, than persuasion.
- TikTok could follow apps like Vine which were trendy for a while then "fell off".
- Very limited demographic.
- Because TikTok organic analytics data is available only for 28 days, a spreadsheet needs to be created to track longer-term performance.

Instagram

Instagram has roughly one billion monthly active users, which gives it considerable reach. However, when compared to Facebook, the demographics of Instagram are much younger, with 73% of users being between 15 and 35 years old. Instagram facilitates higher brand engagement than other digital media, such as Facebook or Twitter. In order to take advantage of the higher engagement on Instagram, it is necessary to create higher quality creative content within advertisements. More than 60% of the top international brands are already on Instagram, so that gives a clear signal that there is room to spread influence on the platform.

Pros

- Higher brand engagement
- Advanced demographic targeting
- The ideal platform to post image and video content
- Hashtags make it easy to connect with people.
- Location tagging is available.

Cons

- Generally requires higher quality and engaging content
- Organic reach is limited
- Requires frequent posts to keep followers
- Sending people to a specific website can be difficult.
- Businesses are not allowed to use clickable links.

LinkedIn

LinkedIn has over 756 million members and has seen a large increase in users over the age of 55 during the past several years. LinkedIn is viewed as the preferred social platform for professional networking. Due to LinkedIn's somewhat unique user base of successful and upper-class business users and its use for professional networking rather than social networking, interactions on LinkedIn are different from other social media outlets. The best way to go about this would be to join, or create, a group and post engaging content and participate in industry discussions. An ad on LinkedIn can possibly reach 13% of the world's population.

Pros

- Unique targeting capabilities based on professional qualifications
- Regarded as the preferred professional social network
- Reach high-value audiences
- A lot less personal, compared to other social media platforms

Cons

- Only ¼th LinkedIn users are considered active
- Higher costs per click than comparable tools
- Relatively higher minimum spending on ad campaigns
- Profile must be "complete", in order to get the most out of the platform

AdWords – Google Search

AdWords is Google's paid search tool, which allows advertisers to pay for display ads alongside ranked organic search results. AdWords users can use the tool to bid on specific or broad sets of keywords. In order to maintain the quality and integrity of its organic search results, tools like AdWords often evaluate the ad itself and the site where it sends users. AdWords assigns a **Quality Score** to each advertisement based on the **Click Through Rate**, relevance, and **Landing Page**. Quality Scores and the amounts advertisers bid on select keywords are used to determine the order the ads appear for the keywords. While there are search engines other than Google, Google currently accounts for 63.1% of search engine traffic in the United States and more than three times the next search engine. As a result, Google AdWords is often the logical starting point when beginning to invest in paid search.

Pros

- Largest reach of paid search tools
- Achieve much faster results than unpaid search engine optimization
- Small, targeted campaigns can be run relatively inexpensively
- Ads get an average click-through rate of over 7%
- The success from this is measurable

Cons

- Charged on a per-click basis, so you are charged for users who don't convert
- Significant competition can drive up prices of popular keywords
- Limited space for ad copy headline, text, and display URL
- Many unnecessary features within it
- It takes time to learn

AdWords - Google Display Network

The Google Display Network (GDN) is an example of an ad delivery network. An ad delivery network connects advertisers to websites/publishers that want to sell space on their websites to advertisers. With a large number of advertisers and websites looking to sell space on their site to advertisers, it becomes almost impossible for businesses to connect directly with websites and reach agreements on how much to pay for advertisements.

An ad delivery network creates a cost-efficient way to connect the two. Publishers tell GDN what the content of their website is, and space they have available. This allows advertisers to place their ads not only within search engines but directly within the website that have content closely related to their advertisements. The GDN contains more than two million websites, smartphone apps, videos, and blogs, allowing advertisers to reach more than 90% of internet users worldwide.

Pros

- Allows advertisers to place ads contextually within popular websites
- Can target advertisements by general website content, rather than specific keywords
- Supports different ad types such as text, video, image, and rich media formats

Cons

- No guarantee of ads being displayed if you are outbid
- Reliance on a bidding model to place ads will likely drive up long term prices
- Can be difficult to track effectiveness, resulting in some report discrepancies

Twitter

Twitter has 400 million monthly users, with 80% of its user base primarily using mobile devices, and 77% of accounts being operated outside of the United States. Twitter's strength is its ability to reach users and communicate with them publicly in near-real time. By making these conversations public, Twitter has the ability to create conversations and buzz around a topic. Twitter also gives the users the ability to easily reply to, favorite, re-tweet, or forward an advertisement, which further helps increase engagement and helps facilitate the generation of organic traffic. Twitter is the most casual platform to engage with customers or potential customers. 77% of Twitter users feel more confident about a brand, when their tweet is replied to by them. Twitter is also the HUB of social listening. Great for brands that are looking to give their customers what they want.

Pros

- Encourages interactivity with the audience with the ability to re-tweet ads
- Narrow segmentation on keywords, interests, and specific lists
- Unlike other platforms, followers will receive all messages
- Great place for social listening
- Exact target market can be locked in on

Cons

- Lacking in analytics compared to other platforms
- Easy for users to miss advertisements due to a large number of tweets
- Less suitable for professional and business to business sales
- Takes time to gain followers
- Criticism can be direct, so marketer will need to be able to handle that

YouTube

YouTube has over 2.6 billion users, with 75% of its users between the ages of 18-54, and its fastest growing age group is 18-24. This immense user base gives YouTube a reach that is second only to Facebook. Unlike most other mediums, YouTube charges on a cost-per-view basis, which means that advertisers only pay for users who have actually viewed your content. If users watch less than 30 seconds of the video, advertisers are not charged for the advertisement. This helps marketers avoid paying for advertising to users that are not interested in their content. YouTube allows marketing on a small budget and allows marketers to change the targeting of an advertisement at any time. The main goal of YouTube marketing should be to send users to other channels or your site.

Pros

- Significant reach with 1.8 billion users worldwide
- Advertisers only pay for users who view more than five seconds of an ad
- Having YouTube videos can help complement SEO on relevant topics
- There are no out-of-pocket expenses to get started
- Video length is not capped
- Links can be placed on YouTube videos

Cons

- Most effective ads are videos, which can be costly to create
- Competitors ads may be shown in relation to your videos
- Quality videos do not necessarily result in sales
- Users are becoming very dissatisfied with number of recent ads

Foursquare

Foursquare is a digital marketing platform that focuses on local businesses. Foursquare encourages users to post when they are visiting a location. It rewards the most frequent visitor to that location by giving them the title of Mayor. Additionally, businesses often provide some type of a discount or promotion to visitors who show that they have posted to Foursquare. This helps to entice one-time visitors or visitors who do not plan to attend a location frequently enough to earn the Mayor title within Foursquare. Business can also offer additional discounts to the current Mayor, encouraging competition among the most frequent visitors.

Foursquare has 55 million monthly active users, which generate an average of 8 million location check-ins daily. However, only 6% of 18-29 year-olds in the U.S. have a Foursquare account, somewhat limiting its reach when compared to other social media platforms.

Pros

- Requires users to visit a location to take advantage of promotions
- No advertising costs beyond discounts and promotions to physical visitors
- Doubles as a local search and recommendation system
- Gives recommendations based on what you have liked or searched in the past

Cons

- Requires businesses to have a physical location
- Users broadcasting their current location can be a safety concern
- Smaller reach than other social media platforms
- Not as many reviews as other sites
- Spam is often present

AdRoll

AdRoll is a remarketing or retargeting system, which specializes in serving content to users that have already shown some level of previous engagement or interest in the content. Remarketing systems are a fundamentally different approach to advertising than other digital media campaigns. By targeting users who have already shown interest in the content, they can achieve higher conversion rates than other systems which rely upon search terms or demographics.

Pros

- Higher conversion rates and engagement than typical marketing
- Web analytics of returning customers can give additional insight
- Proper segmentation and tracking allow tailored targeting

Cons

- Requires previous interaction by the user to be targeted
- Can annoy users who continue to see advertisements regularly
- May accidentally target users who are no longer interested

Email Marketing

Email marketing campaigns are different from other digital media campaigns, in that they require users to opt-in to receiving their content. Once a user has opted in to receive emails from an advertiser, the advertiser is able to deliver content directly to the user through their email. This ensures that the user will at least see the campaign's content in their inbox. Email marketing is still one of the most effective digital marketing tools out there. However, there are no guarantees that a user will actually open an email or click on any of its content. Since a user has opted in to receive an email, however, it is likely they have some interest in the content itself and will have higher engagement rates than other mediums.

Pros

- Delivered directly to recipient's inbox
- Reduced costs compared to traditional marketing
- Ability to track engagement, such as open and click rates
- Larger reach can be made a lot quicker

Cons

- Requires participants to opt-in to receive content
- Can be difficult to get recipients to engage with content
- Quality email design can take a significant amount of time
- Emails could get marked as spam
- Creativity within the email is limited

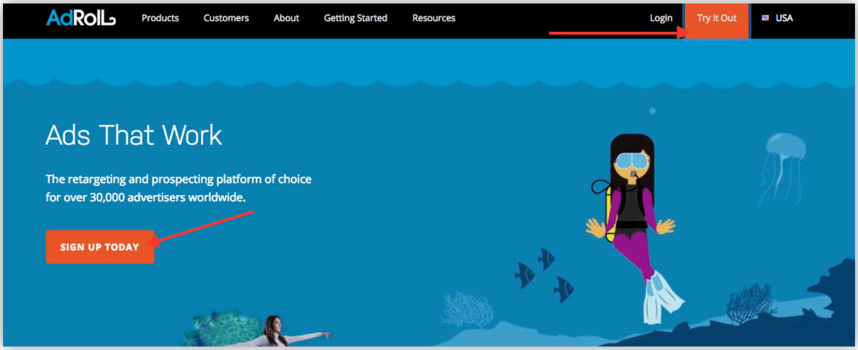
Chapter IV-11

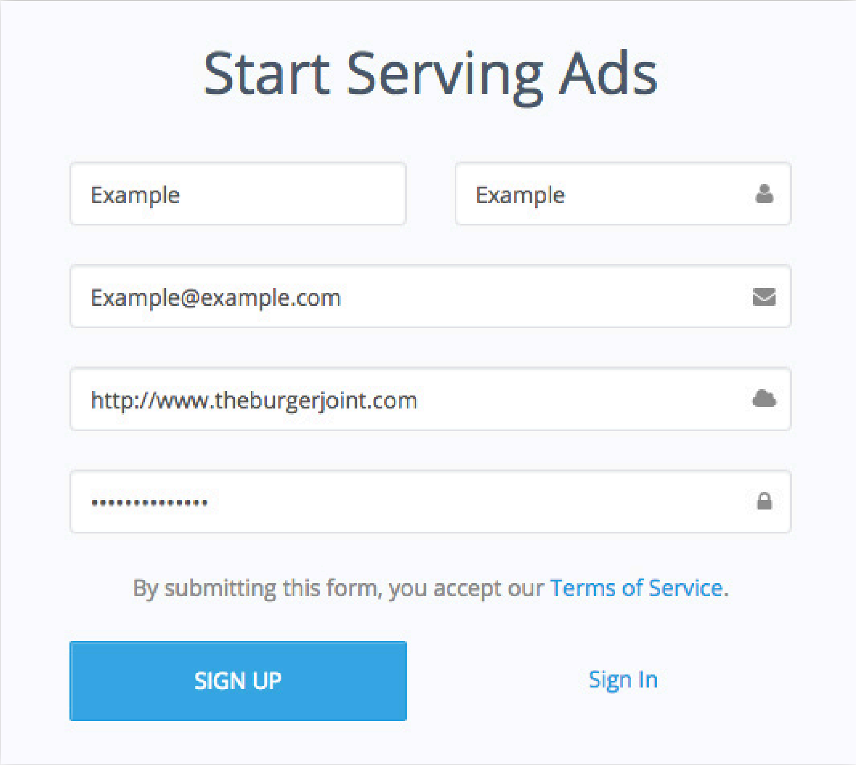
AdRoll

AdRoll is an online platform with several products designed to help companies with remarketing and retargeting campaigns. They use the largest advertiser data co-op in the market and utilize advanced targeting techniques to find and reach your audience anywhere on the web. Here we'll walk through how to get set up with AdRoll and how it can help grow your website.

AdRoll Account Creation

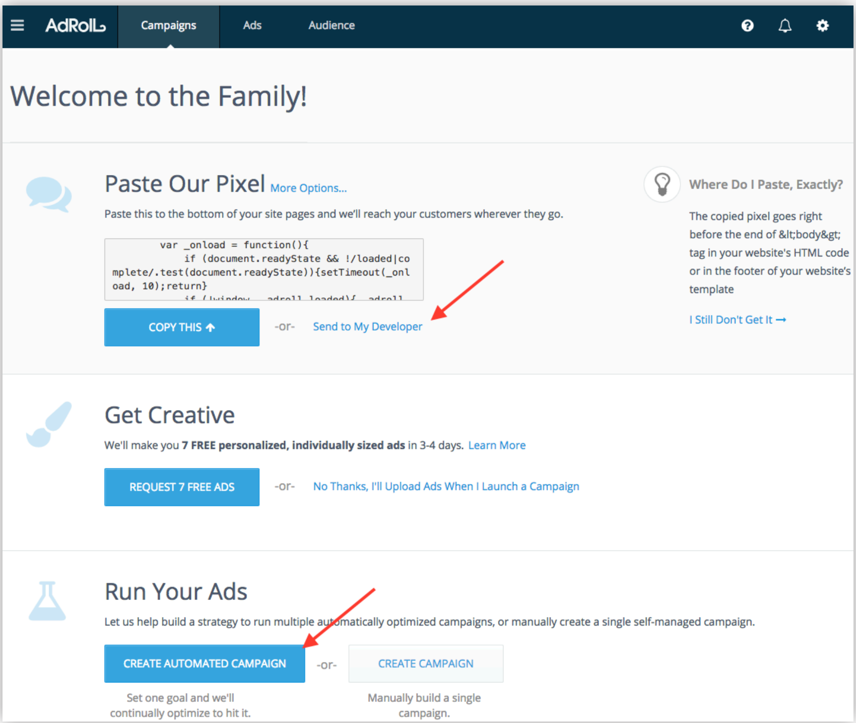
To get started with AdRoll, you will navigate to AdRoll.com and select either the "Try It Out" or the "Sign Up Today" options. This will take you to AdRoll's account creation page, where you will be prompted to provide your name, email address, the website you are advertising, and a password to configure your AdRoll account.



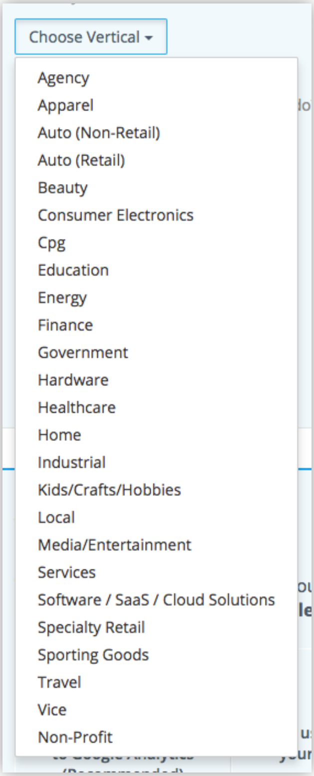


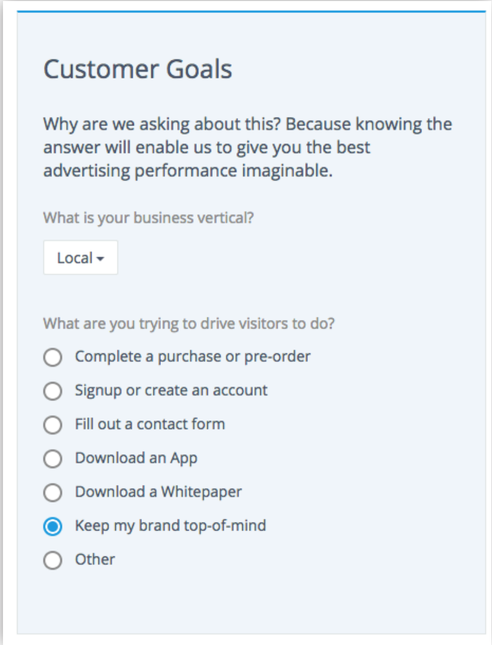
Once you have an account up and running, AdRoll will provide you with several options to create a campaign. The first option is the AdRoll pixel, which should be installed on all pages of your website. This pixel will then track all visitors to your website, allowing you to easily re-target visitors. Next, they present their "Get Creative" option, which allows you to request several personalized advertisements to be created by AdRoll. These can be helpful to marketers who are unfamiliar with creating their own content. The third option is the ability to create an automated campaign, or to manually build a campaign. To cover the basic AdRoll concepts, we will be creating an automated campaign.

Important Note: Installing the pixel correctly on your website is a very important step. This should be the first step when launching a new campaign, and you should confirm with your website developer that it is installed on all pages.



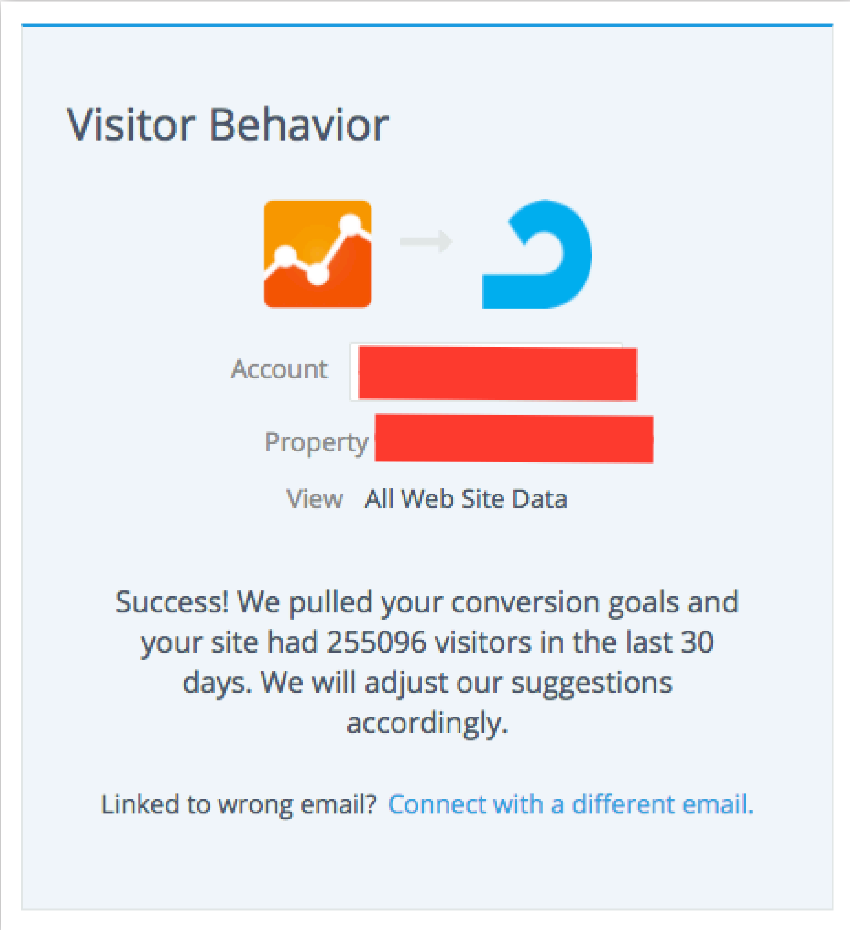
Setting up an AdRoll automated campaign is pretty straightforward. First, you will need to select your business's vertical and the primary goal of your digital marketing campaign.



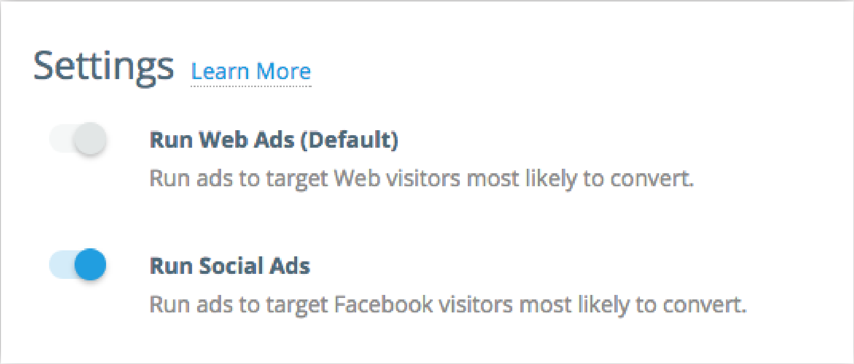


You will then be asked for additional information about your visitors. In order to get the most out of your AdWords campaign, it is best to give AdRoll read-only access to your Google Analytics account. Google Analytics is a free tool that helps you monitor your website's traffic. If your website does not currently have a Google Analytics account, it is a good idea to set one up and install it on your website.

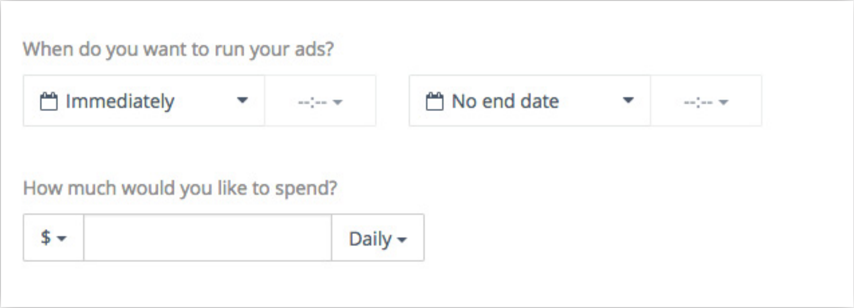
The information gathered by Google Analytics is invaluable to understand your website's traffic, where that traffic is coming from, and how users are behaving once they reach your website. After connecting your Google Analytics account, you will be redirected and prompted to provide AdRoll access to your accounts. After granting approval, you will be redirected back to AdRoll, and have the option to select which Google Analytics account and property you wish to connect to the AdRoll system.



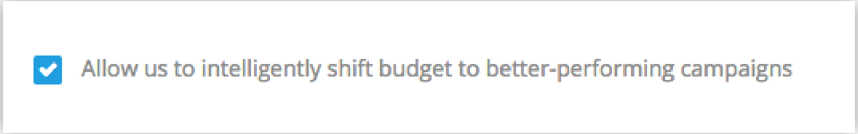
After selecting your business vertical, campaign goal, and connecting to your Google Analytics account, you will be prompted to finalize some configuration options. First, select if you want to run only web advertisements, or if you also want to run advertisements on Facebook. Web ads are mandatory, but you do not have to run social advertisements.



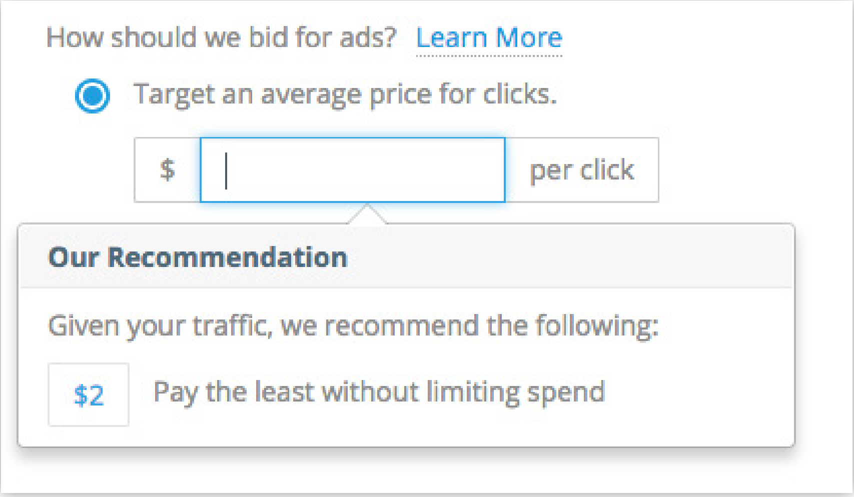
Once you have selected the markets in which your advertisements will run, you will be prompted to select the timeframe and budget for the ads.



AdRoll has the ability to shift your budgets between campaigns, but it will only do so with your approval. For newer marketers, or marketers who will not have the ability to frequently optimize campaign spending, this option can make the management of different campaigns a little easier, and less time-consuming. If you have specifically targeted campaigns and don't want to shift budgets automatically, you will want to uncheck this option.



Finally, you will want to specify an average price for a click that you wish to target, or if you would like to be charged instead for every 1000 ad views. If you connected your account to Google Analytics, AdRoll will give you a recommendation on the amount you should spend weekly, and what it believes the most effective target price per click is for your campaign.



Since AdRoll is a display-marketing platform, it requires images to be used for your ads.

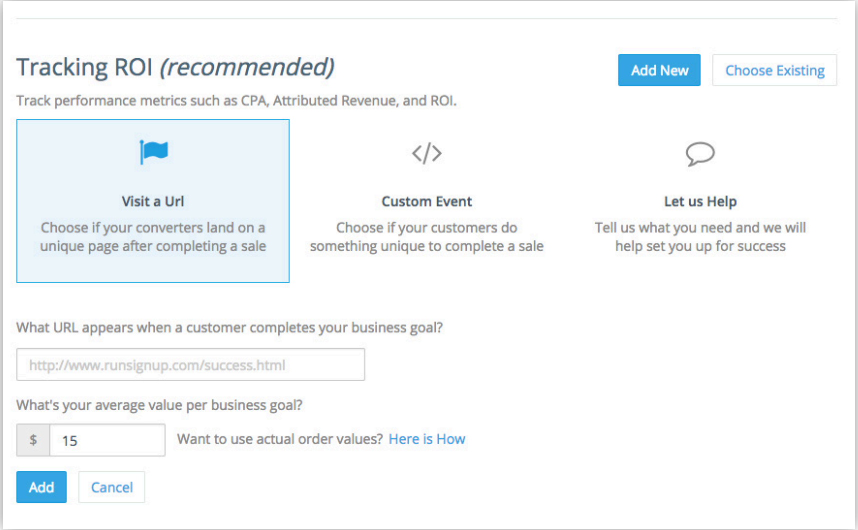
These ads can be several different sizes, which gives you some design flexibility. You can also control the types of locations in which your ad will display. You have the option to upload images art yourself or let AdRoll create the ad for you. To use AdRoll's free services, you will need to supply branding materials, a call to action, and the website you wish to send users. If you upload your own images, you will simply be prompted for an ad name and a destination URL to setup the advertisement.

If you have chosen to run social advertisements alongside your web ads, then AdRoll will request "advertiser-access" to your Facebook account. This will give AdRoll the ability to run these advertisements through your Facebook advertising account. In order to configure this access, you'll enter your business Facebook page into the prompt, and authorize. Once this is configured AdRoll will be able to create your news feed ads and pull the necessary data to report on the campaign's overall performance metrics.

Next, AdRoll will provide an optional step to track the ROI of your performance. Configuring this option is highly recommended since, without this step, AdRoll is unable to report on important marketing metrics such as CPA and ROI. There are two primary methods that can be used for setting up ROI tracking.

First, you can indicate a specific page on your website that represents a conversion. If you supply this URL to AdRoll, it will be able to track when visitors reach this page and will record them as a conversion.

The second option is to create a custom event, which requires a web developer to add additional code to a page to trigger the conversion. While this requires a slightly more complex setup, it can provide a more flexible net to gather user information. Finally, AdRoll will request you provide the average value per conversion so that it can provide accurate reports on your ROI. Advanced users can setup additional code to send actual dollar reports to AdRoll rather than relying on average conversions.

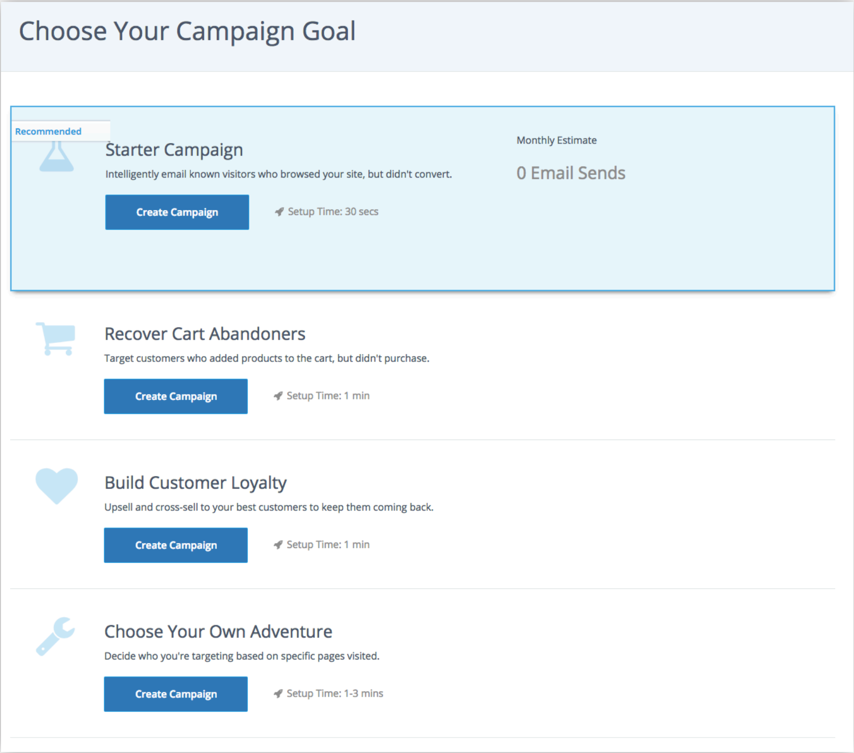


After supplying the tracking ROI information, AdRoll will prompt you to enter your payment information and launch your campaign.

Manually Created Campaigns

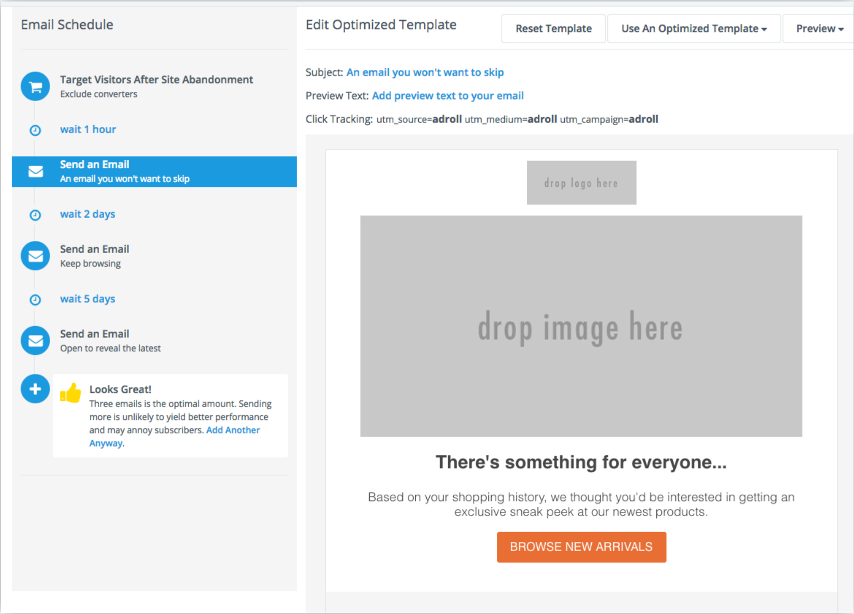
To create a manual campaign in AdRoll instead of creating an automated campaign, your first step will be to select where you wish to retarget: general websites, Facebook, and email. If you select either the general websites or Facebook campaigns, you will be taken through a similar process to the automated setup, but you will be required to configure your target audience. These audiences can be segmented based on the pages on your website they visited, how many pages they visited, or their contact email address.

If you select the option to create a campaign based on email addresses, you will need to select an additional email campaign. These options include the ability to set up a starter campaign (a campaign to target users who abandoned their cart during purchase), build customer loyalty, or select specific users based on the pages they visited.



When selecting a starter campaign, you will be able to setup three different emails to follow-up with users after interaction on your website. AdRoll recommends three emails as the optimal amount to encourage users to engage with your content, but not become annoyed by too much communication. AdRoll will begin your campaign setup with these three emails and the recommended times to send them, but additional emails can be added and the sending times adjusted.

Each of these email templates will allow you to specify a subject, preview text, logo, and image to send to your visitors. Additionally, each of the three emails can be configured separately, making it easy to convey different messages to your target email list based on how long it has been since they interacted.



In order to target users with more advanced emails, AdRoll will require additional information about your website. For example, to set up the cart abandoners target, you will need to inform AdRoll of the pages on your website that start and end the transaction process. This allows AdRoll to determine users who have started the checkout process but allows them to avoid targeting users who did, in fact, complete a purchase.

Ad Size Variety

When creating an AdRoll campaign, it is important to upload several sizes of advertisements. There is a huge number of different website layouts and, as a result, the space the websites make available to advertisers varies drastically. If you have only uploaded a single advertisement size, you are restricting your content to be displayed only on websites with that advertisement space available. It is recommended that you create at least three advertisements for the websites most popular formats (300x250, 160x600, and 728x90).

Retargeted Landing Pages

Creating special retargeting landing pages on your website to use for can be a major benefit. By sending them to a specific page with messaging targeted towards a remarketed customer, rather than to a landing page they have already seen, you increase your chances of a sale.

Frequency Cap

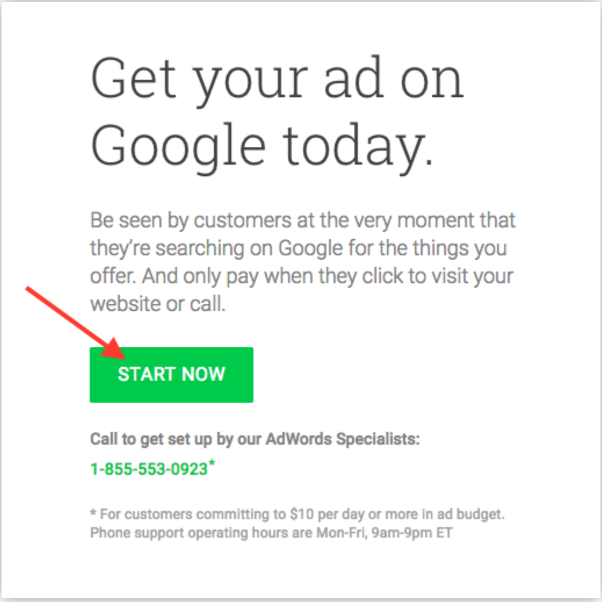
It is important to make sure that you don't over-serve your advertisements to targeted visitors. There's an important balance between annoying or desensitizing your viewers and waiting too long to re-target them that you miss the opportunity to draw them back in. By default, AdRoll manages this setting, but it can be adjusted if you wish to serve your advertisements more or less frequently to your targets.

Additional Optimization Options and Techniques

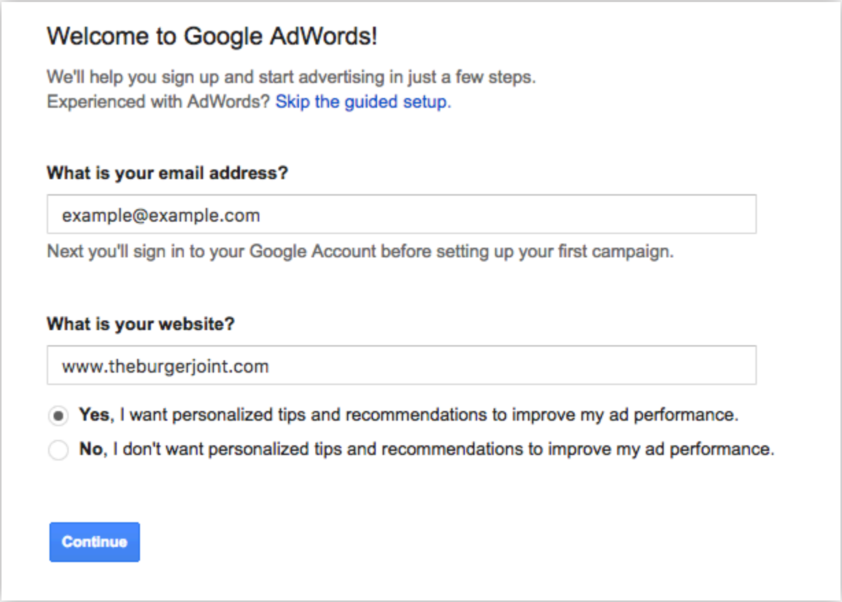
AdRoll provides additional options to optimize campaigns. These optimization options allow you to exclude specific websites, set location parameters to support geo-targeting, excluding IP addresses, and splitting your campaign by time of day. These options are particularly useful to advanced campaigns by providing the ability to prevent re-targeting under certain circumstances (such as company networks) to minimize waste as spend.

Chapter IV-12
AdWords

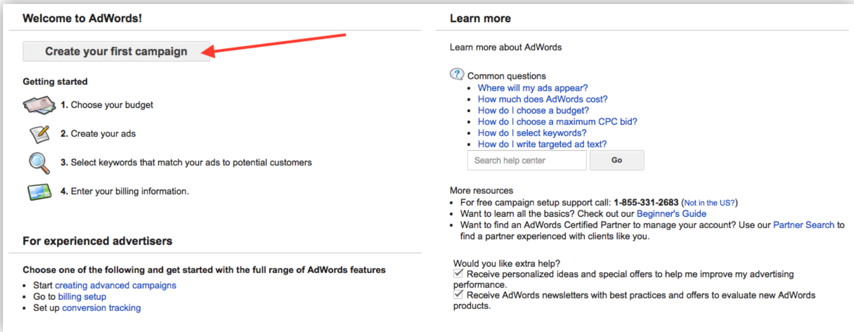
Here we will discuss the process of marketing through Google AdWords. First, navigate to AdWords.google.com. You will land on a welcome page. If you are spending more than $10 a day, you have the option of calling an AdWords specialist.



AdWords will them prompt you for some basic information, including your email address and the website you will be advertising, and ask if you want to receive personalized tips and recommendations to improve your ad performance. For inexperienced AdWords users, receiving personalized tips may help with ad optimization and targeting options.



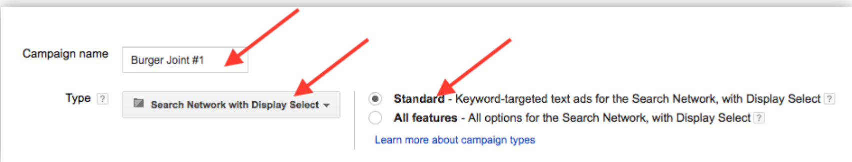
If you already have a Google account, you can simply use that email address to login and create an AdWords account linked to your current Google account. Once you have created a Google AdWords account or linked it to your current Google account, you will be taken to the AdWords dashboard with the option to create your first campaign. Also included on your AdWords Dashboard are common questions, links for experienced advertisers and other additional information. To get started, click on the "Create Your First Campaign" button.



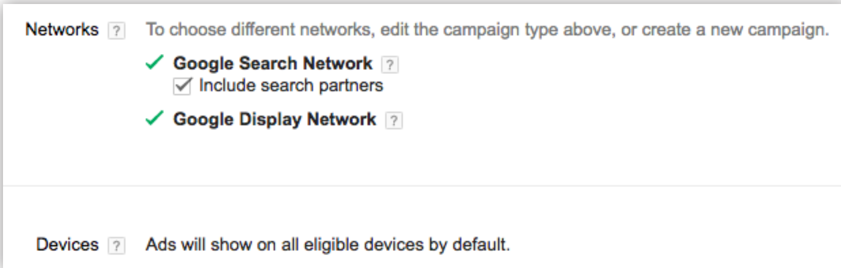
AdWords Campaign

First, decide on a name for your AdWords campaign.

In this example, our campaign will be called "BurgerHut #1." Next, decide where you want your ad to appear. You can choose to display in one or more of these networks – search, display, shopping, videos, or across the web. For users without the need to select specific targeting options, it will be easiest to select the default option of "Search Network with Display Select" and the "Standard" options.

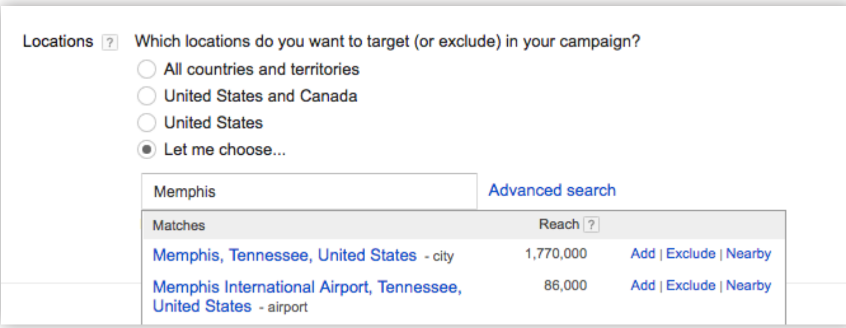


Next, Google will ask you if you want to *specify* the networks you want your ads to appear on. For users without specific targets or customizations in mind, the default options will work. You can also determine on which devices ads will be displayed. By default, Google will show the ads on all eligible devices.



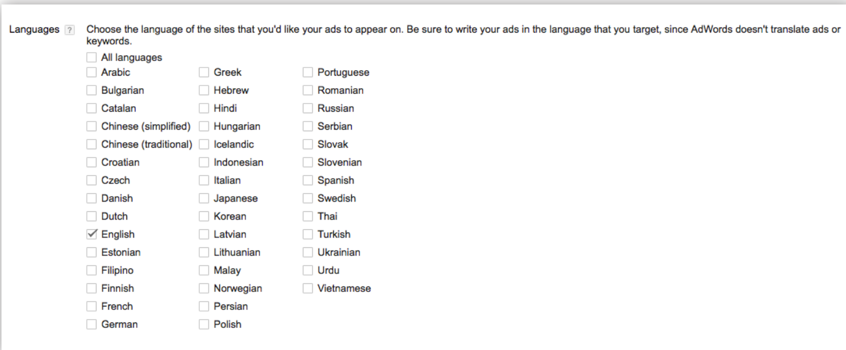
After selecting the networks and devices that the advertisement will appear on, you have the ability to target or exclude certain locations in your campaign. The default options allow you to select by all countries, the United States, or entering specific locations.

The ability to target (or exclude) specific locations helps make a campaign more efficient.

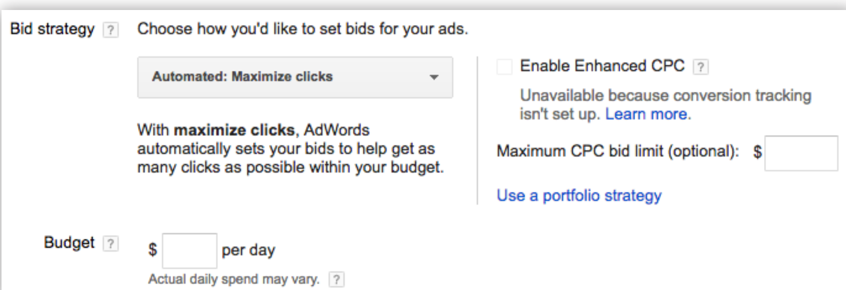


AdWords Campaign Languages and Bidding

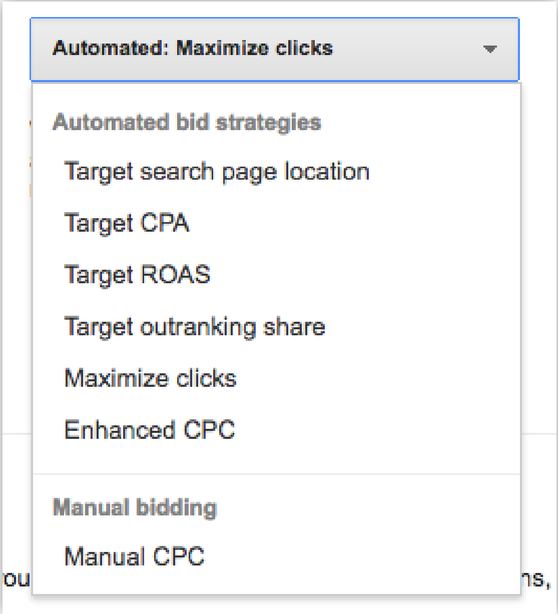
AdWords gives you the ability to select the languages for your ad. Since Google does not attempt to translate your ads into different languages, it is important to select only the languages that will be targeted in this campaign.



AdWords will ask you to setup the basic information about the campaign's budget. It will prompt you to select a bidding strategy, what your current budget per day is, and if there is a maximum amount you are willing to pay for a click. Advanced CPC is available if conversion tracking is setup. This tracking makes sense for advanced campaigns attempting to generate conversions.



There are a number of different bidding strategies. The one you select will depend on the goal of your marketing campaign. Here's a list of current options.

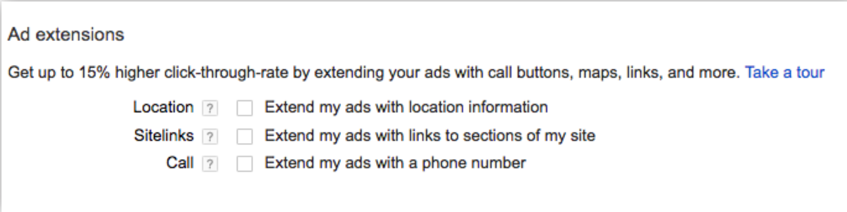


In the early stages of a digital marketing campaign, when you are trying to attract visitors and build a brand image, maximizing the number of clicks is often the preferred targeting method. Other targeting options, such as Targeting CPA or manual bidding, require more advanced conversion tracking, or larger time investment to manage the bidding process.

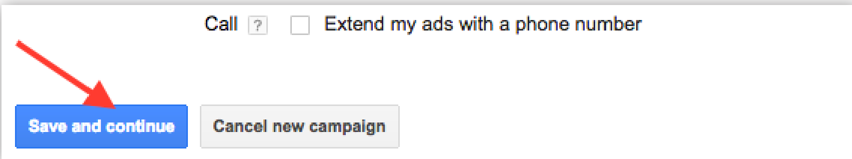
Once the bidding strategy has been selected, you can enter your daily budget. While the maximum CPC bid limit is optional, it is advisable to enter an amount here to prevent AdWords from using too much of your daily budget on the most expensive clicks.

AdWords Ad Extensions & Ad Groups

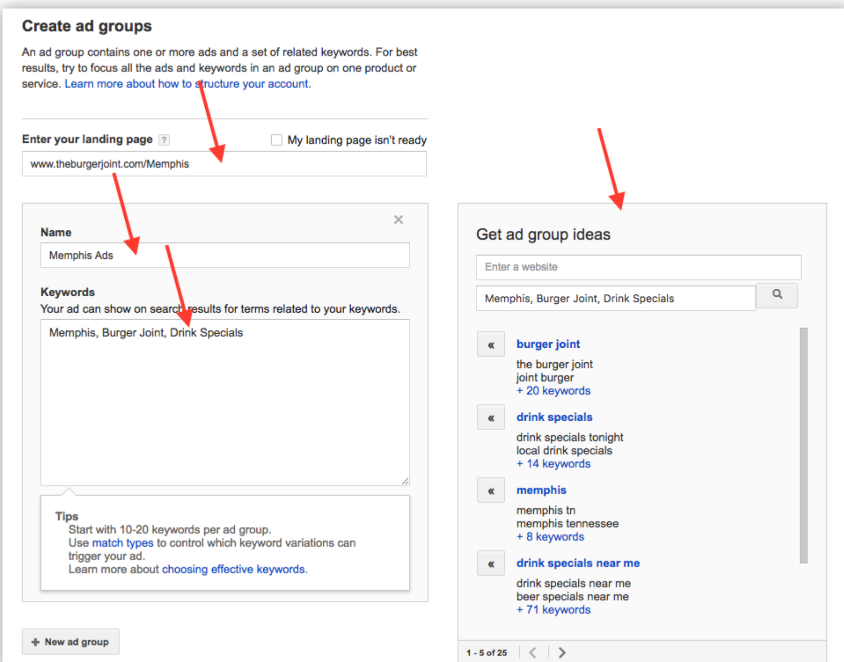
Ad extensions give you the capability to attach additional information (your address, a website link, or a phone number) to increase your ad's attractiveness and conversion rates.



Once you have entered all of this information, you can select the "save and continue" button at the bottom of the page to move onto the next step.

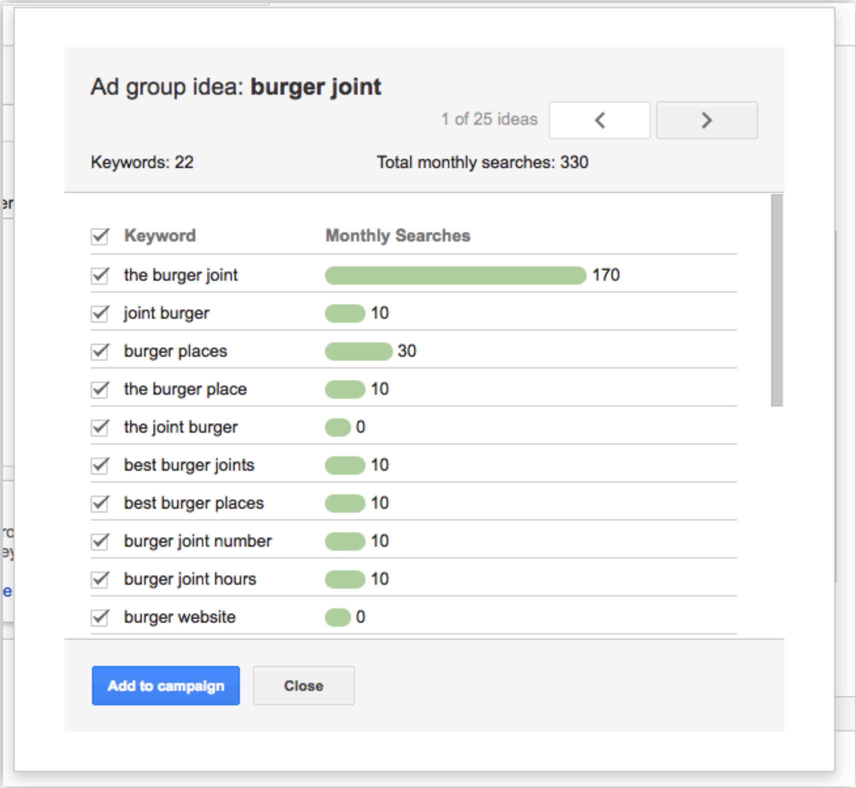


Once you've created your campaign, you will be prompted to create new ad groups. Each ad group will require a name, landing page, and keywords you wish to target.

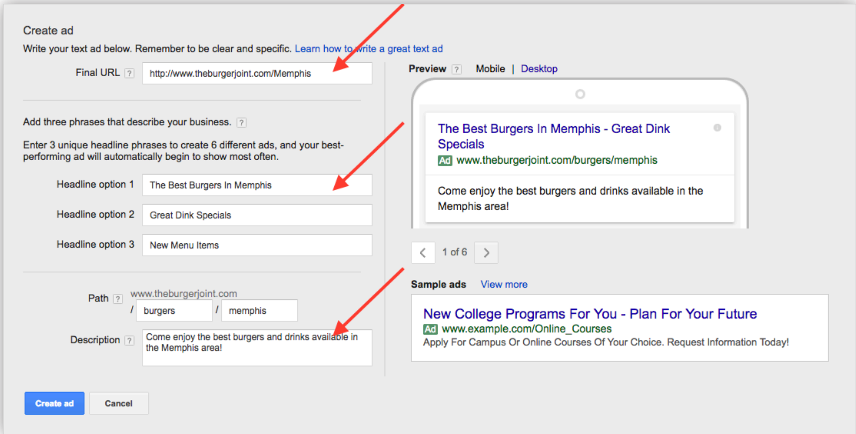


AdWords Keywords & Advertisement Text

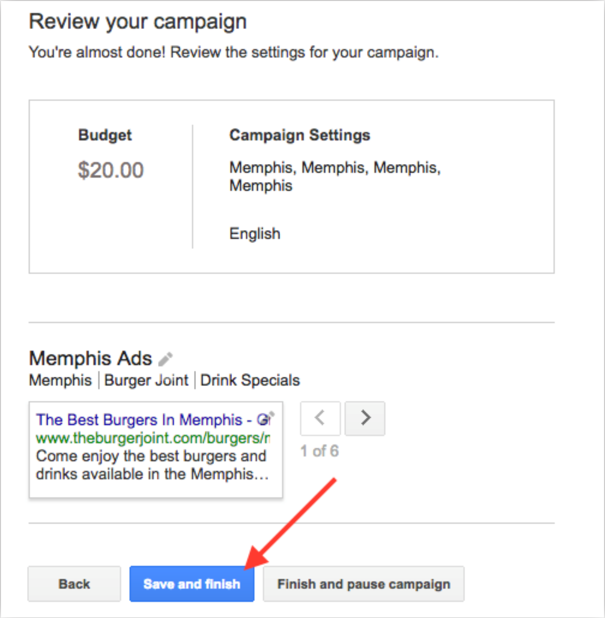
AdWords will use the keywords you have supplied in the text box to generate different ad group ideas. This is a great resource to help you identify keywords to reach additional users. You can also create more than one ad group within a campaign, which allows you to customize your message to different audiences.



Once you have created your ad groups, AdWords will them prompt you to design the text of the advertisement. They will ask you for a final URL, up to three headline options and a small description to appear under the ad.

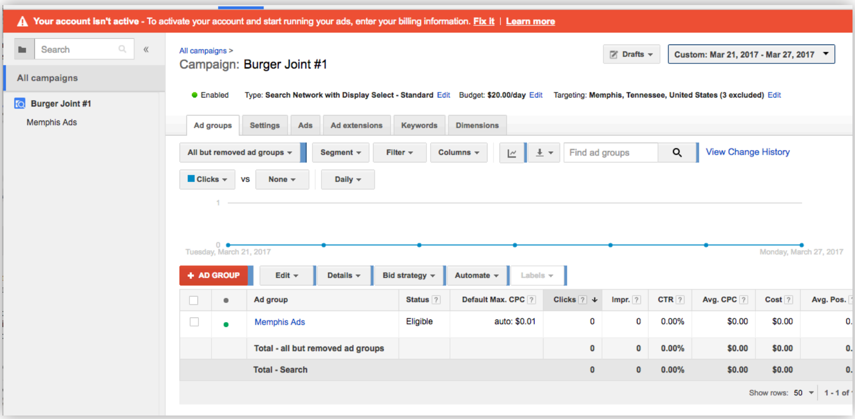


After you have entered the information into the ad creation tool, you can use the tools on the right-hand side of the screen to preview how your advertisements will appear in different placements and on different devices. Once you have reviewed the different ways in which your advertisement can display, you can click on the "Create Ad" button to create the advertisement and save it to your ad group and campaign. The final step is a review.



AdWords Dashboard

Once your advertisement is ready to go, AdWords will bring you to its reporting dashboard where you will find the information relevant to your campaign – everything from budgeting and targeting to the results including a number of impressions, clicks and click-through rates. The key to running a successful AdWords campaign, in the long run, is monitoring this dashboard to determine which of your ad groups and specific ads are performing best.



At this point, you will get an error message if you have not entered billing information. Click the "Fix It" link and AdWords will take you through the process. Once billing is squared away, the campaign should be activated, and your advertisements will start to appear in results for your targeted keywords (provided your campaign is configured to bid high enough).

There are a large number of additional settings and customization options. Most of these options are advanced settings, which are designed for experienced advertisers, or advertisers who are investing a significant amount of time in their AdWords campaigns. There are, however, two additional topics that are very important as they directly control what search responses your advertisement will appear in, and how much you have to bid in order to be ranked among the results for the specified keywords. These topics are the keyword match types and the advertisement's Quality Score.

Keyword Match Types

There are many types of keyword match types that change how AdWords matches your keywords to searches, including broad match, exact match, and phrase match. Keywords can be used as an exclude option too, allowing you to set industry-specific terms you do not want to bid on.

Broad match reaches the widest audience. When using broad match, an ad is eligible to appear in results whenever a user's search query includes any word in your keyword list in any order. While broad match allows you to reach the highest number of searchers, matching on any search term in the user's query carries the highest risk of displaying your advertisements to uninterested parties.

Phrase match reaches users who use the exact phrase you have selected as a keyword and allows for other keywords.

Exact match reaches only users who use the exact search terms you have specified. This ensures that users are searching for your exact keywords, and there is no leading or trailing content in the search. This is the most restrictive of match types, but it ensures you only bid on the exact searches.

Quality Score

Quality Score is Adword's rating of the quality and relevancy of your keywords, your ads, and your landing pages. It is a major factor in determining your CPC and is used to prevent users from creating advertisements, keywords, or landing pages that do not match the content of their advertisement.

Monitoring your Quality Score, and improving it by creating a targeted landing page, narrowing your keywords, and having a quality user experience, will not only help to increase the number of clicks you receive and conversion rates but will allow you to bid less and achieve the same results.

Each keyword within an ad group will have its own Quality Score on a scale of 1-10.

A quality score of 5 is considered the average with higher scores typically receiving a discount on bids, and lower quality scores paying the penalty or premium to show for the same results. Your keywords' Quality Scores are, therefore, key metrics to monitor as it can drastically change how much you must pay to bid on the same sets of keywords.

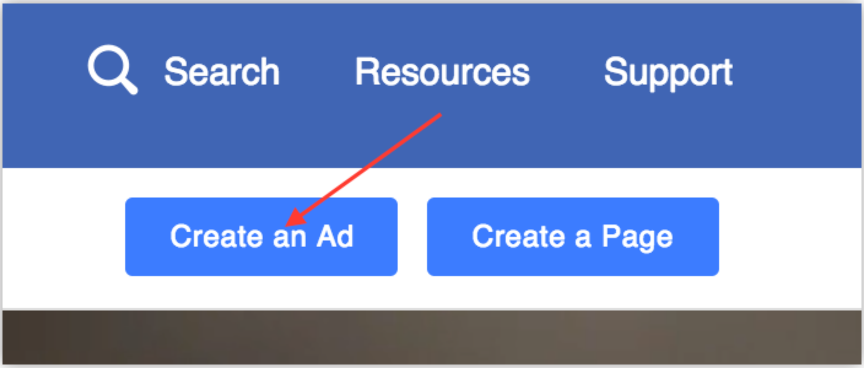
Chapter IV-13

Facebook Advertising

Facebook is the most popular social media site in the world, and it can be a powerful advertising tool for your business. In this chapter, we'll discuss how to set up and use Facebook as part of your marketing plan.

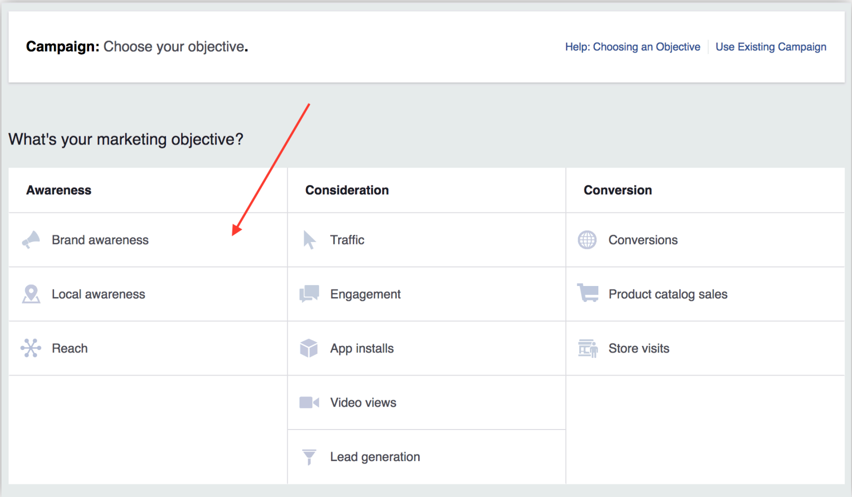
If you do not already have one, you must first set up a Facebook account. Then, login and proceed to the Facebook Ads Manager by clicking on the "Create An Ad" button on the top right-hand side of the page to get started.

https://www.facebook.com/business/

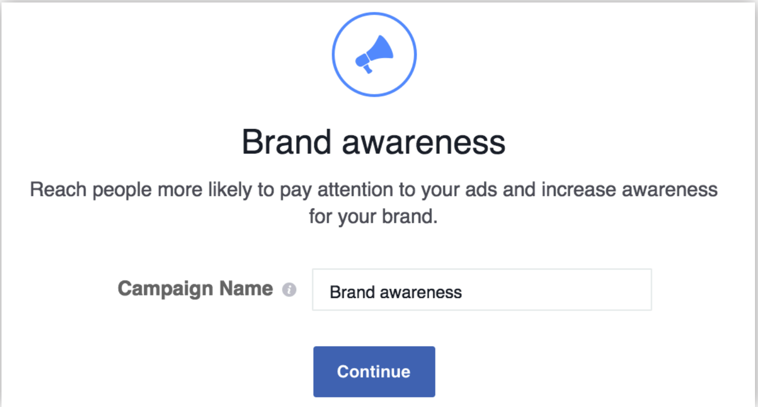


This will load the Facebook Ad Manger interface with a prompt to create a new advertising campaign. Facebook will provide you with several pre-defined objectives of this marketing campaign, ranging from raising brand awareness to creating engagement and generating conversions. The following example will walk you through creating a campaign designed to generate brand awareness for local millennials.

Creating a Campaign

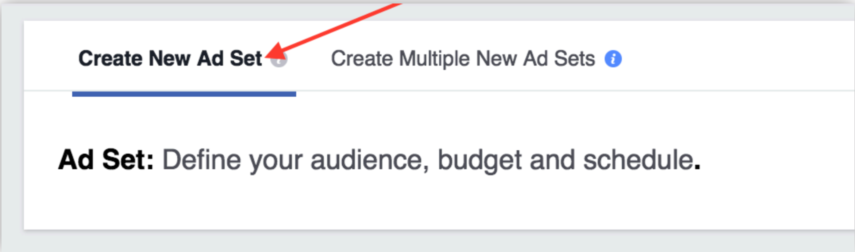


After selecting the goal of your campaign, you will be prompted to give it a name.



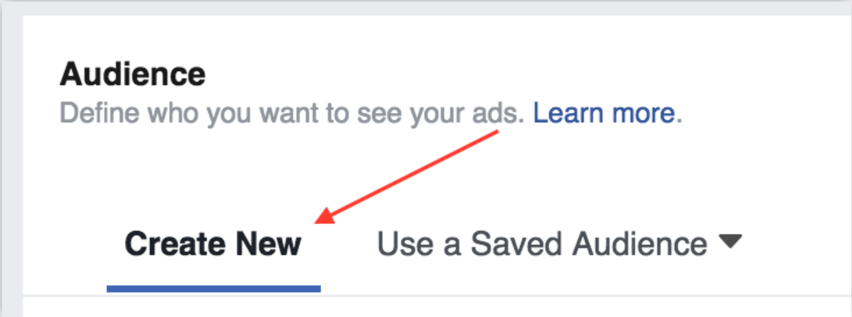
Ad-Set

With the objective and name entered, you will be prompted to create an **ad set** that defines your audience, budget, and schedule. You will also be asked if you want to create a single ad set or multiple ad sets within a campaign.

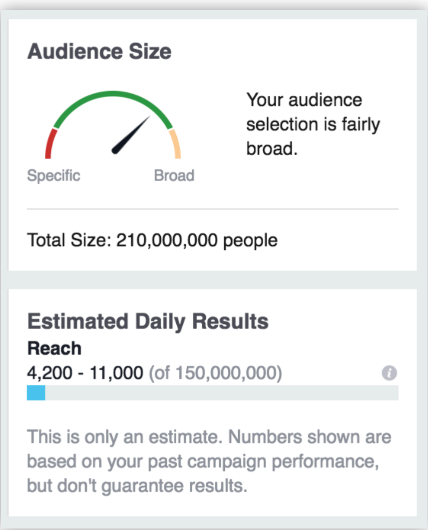


Target Audience

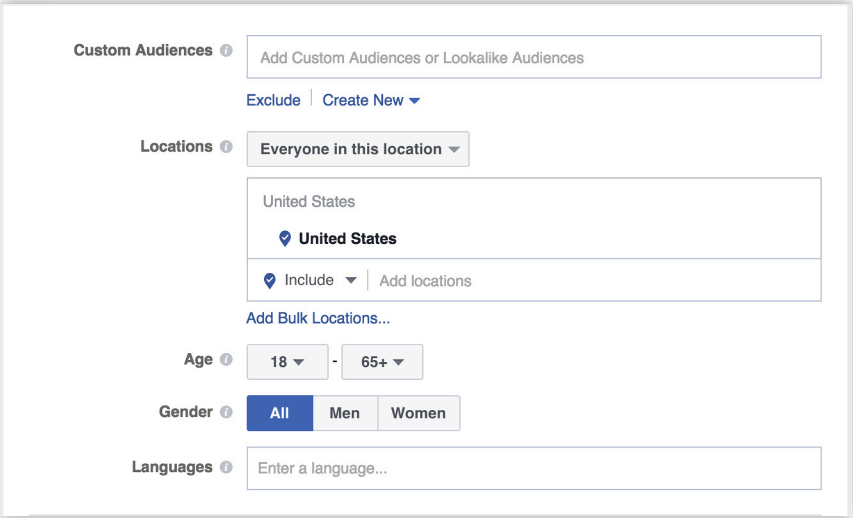
Assuming that you have chosen one ad set, you will be prompted to determine the audience to target. You can either create a new target audience or select a previously defined audience from a drop down.



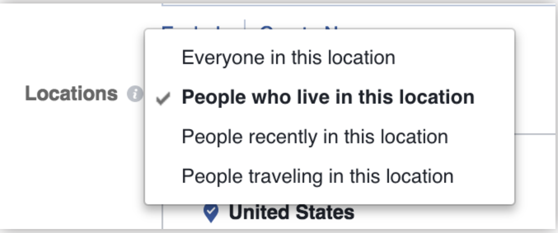
While defining your audience, keep an eye on the **audience size tool**, the estimated daily **reach** shown on the right-hand side of the page. This tool will help you make sure that you don't create too narrow or too broad of an advertisement for your campaign's goals.



In defining a new audience, you have to decide if you are going to use any **custom audiences** (i.e., a list of specific users). Facebook gives you the ability to target (or exclude) a custom audience specifically.

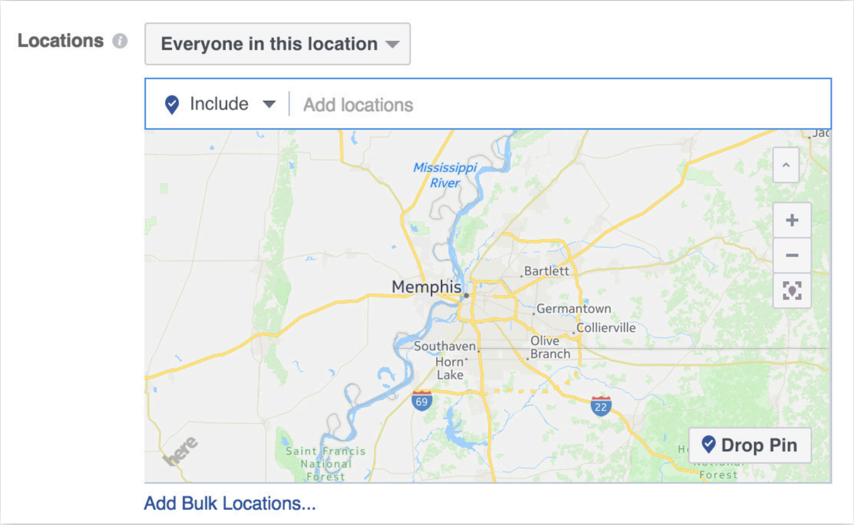


Next, you will provide the basic demographic information of the users you want to target. When you click on the drop-down next to locations, Facebook will ask how you want to use the location to be used in your targeting.

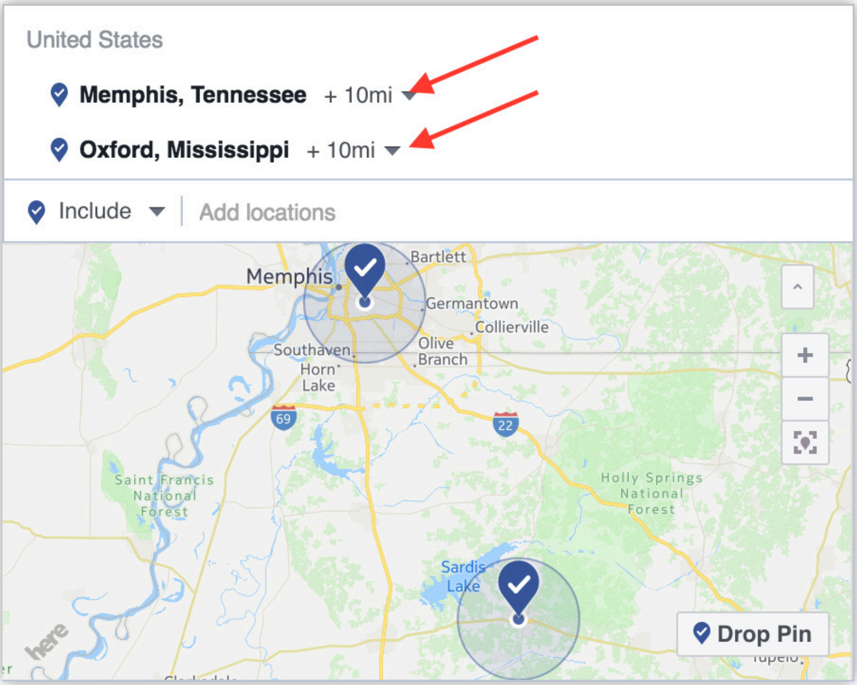


For this initial ad campaign, you are attempting to build brand awareness for local millennials. So, you will select the option to target people who live in this location.

Other campaigns or ad sets can be created in the future to specifically target people who may be traveling through the area. Once you have defined how you will use the location in your advertisement, you will define the location itself.

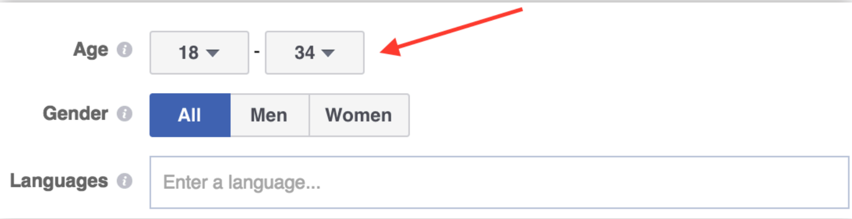


You can add multiple locations to the map. You can also define if you want to include a certain radius around your target cities.



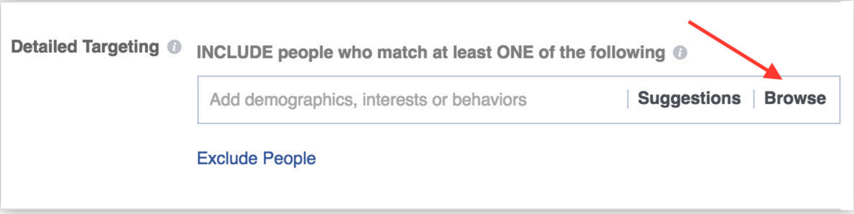
Once your location is defined, you will define the target age and gender of your audience. Since you are targeting millennials, you will adjust the target age range to include 18 – 34.

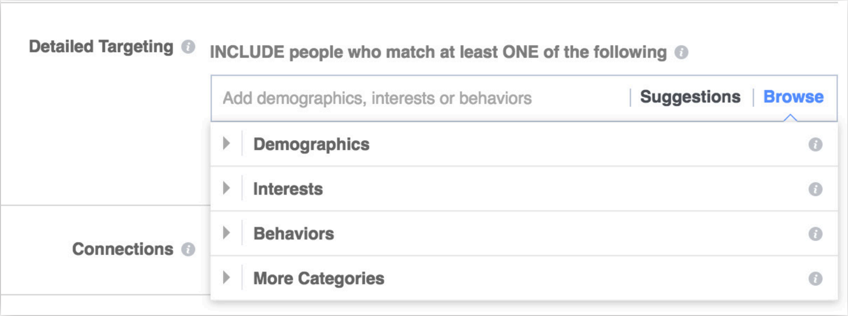
Because the gender and languages that the potential customer speaks are not of particular importance to this advertisement; you will target all genders and not specify a target language. (If you want to create advertisements for different target audiences, you will create an additional ad set with those targets. You can tailor your advertisements and control how much you want to spend on different target markets.)



After basic demographic information has been defined, you can target potential customers based on their demographics, interests, and behaviors. Just like with custom audiences, you can use the detailed targeting options to include people who match certain targeting options, or you can exclude them. In this case, since you are trying to generate brand awareness, you will be including specific targets and will not need to exclude people from the ads.

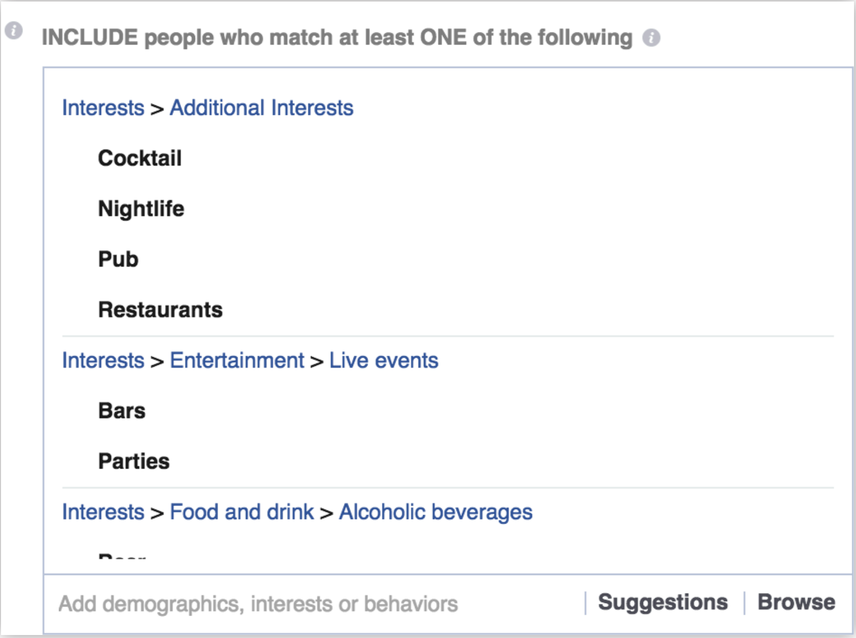
- Sometimes, you know exactly whom you want to target and can easily supply an interest or behavior. Other times your target might not be so clear. In this case, you can use the "browse" option, which will prompt Facebook to give you suggestions.



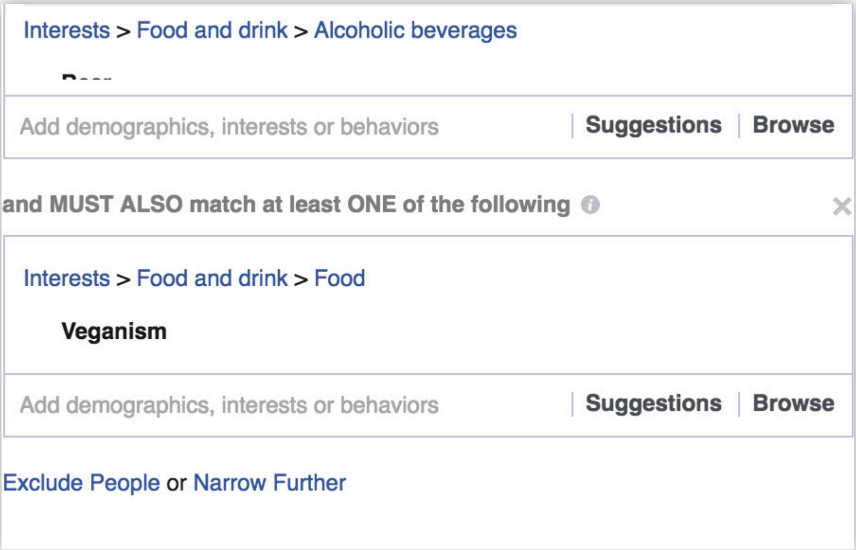


These advanced targeting options are part of the true power of Facebook ads. While Facebook has more users than any other system and gives you the ability to reach more users than other platforms, without detailed targeting, you will waste advertising dollars.

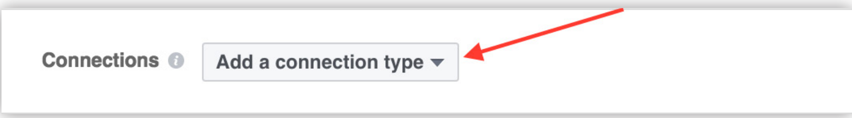
In this example, you will select a few interests you expect your potential customers to have. Once you have selected a few interests, you can use the "Suggest" button for Facebook to suggest other interests that are related to your already selected interests.

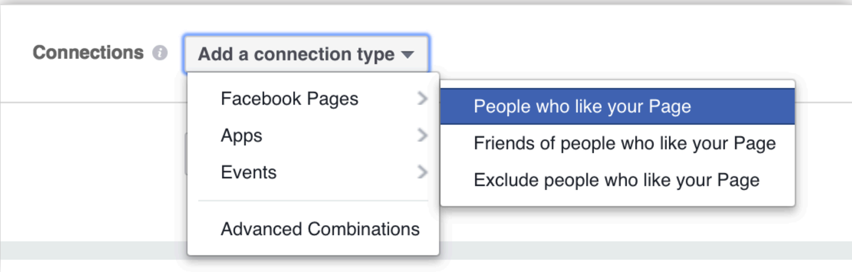


If you feel that your target audience is too large, you can narrow your audience by adding additional interests that targets should have or excluding people who have certain interests. For example, if a restaurant was to have a strictly vegan menu, they might want to only advertise to Facebook users who have indicated that as an interest. Adding additional conditions can help to significantly narrow the number of Facebook users your advertisement will be served to.



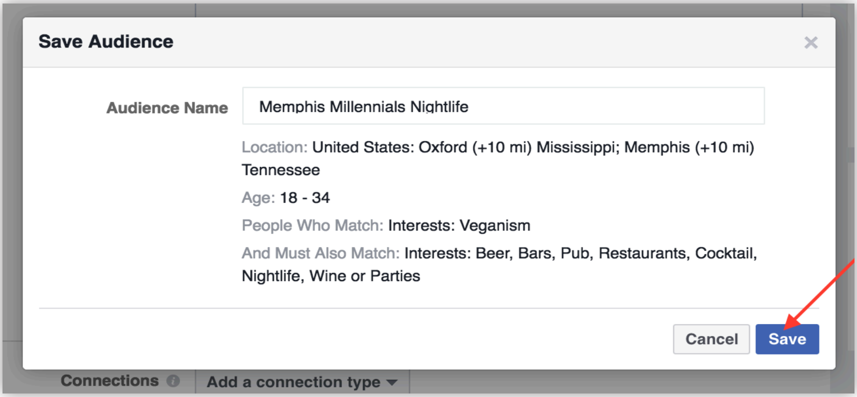
The last step in defining your target audience for your ad is to determine if you want to add a connection type. Connection types allow you to target users who have previously taken action or had some interaction with your Facebook pages.



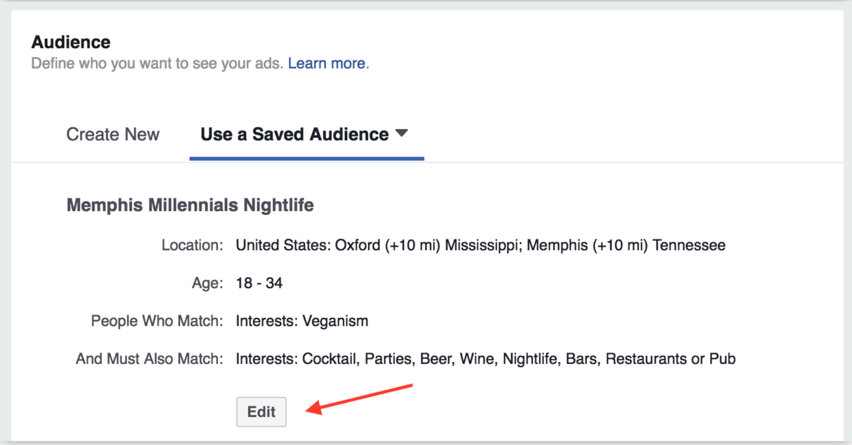


Be careful when adding connection types to your audiences. Since connection types require a user to have had previous interaction through Facebook, these options tend to narrow your audience much more dramatically than specifying customer interests. Targeting users with a previous connection to your content is normally a very targeted campaign or promotion. In this example, you are attempting to build brand awareness, so you do not want to specify any previous interactions.

Once you have finished defining your audience, Facebook will allow you to save it so that you can easily reuse it. After clicking on the save button, Facebook will create a popup with a summary of the information you have defined, and it will allow you to create a descriptive name to allow you to easily identify this audience for future use.

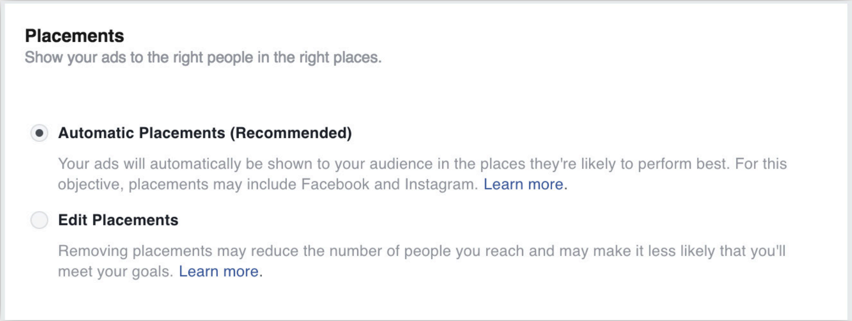


If you wish to edit this audience after having defined it, you can click on the "Edit" button listed under the audience summary. Facebook will then create a popup with the settings you had previously selected, allowing you to edit this audience and easily make adjustments.

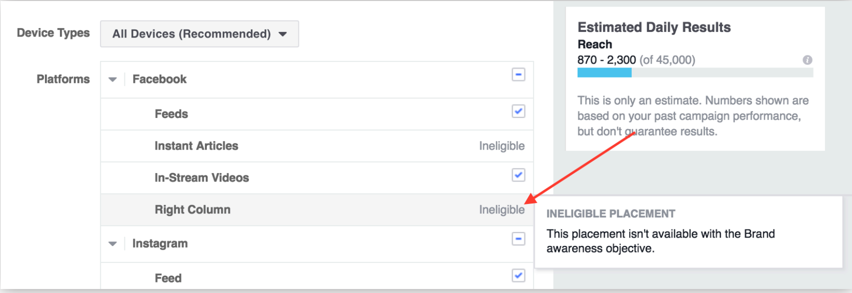


Placement

Now that you have determined your target audience, the next step is to determine the type of **ad placement**. Facebook will begin by giving you two options. You can choose to have it placed automatically or you can choose to have the ability to edit or specify your placements.



Editing your ad placements allows you to control what type of devices and feeds you want your advertisements to appear in. This can vary from targeting ads specifically to desktop or mobile users to specifying if you want the advertisement to appear in users feeds or in the right-hand column. Based on the campaign goal you selected in the first step, some locations may not be available for your advertisements. For example, brand awareness campaigns cannot be placed in the right-hand column of Facebook feeds.



Generally, unless there is a very specific use-case in which you want to target or exclude users of a certain type, it is best to leave this setting on automatic placement. When running automatic placement, Facebook examines the cost of running your advertisement and optimizes the placement of your advertisements across all of its feeds. This allows your advertisements to be placed with the lowest overall cost per result.

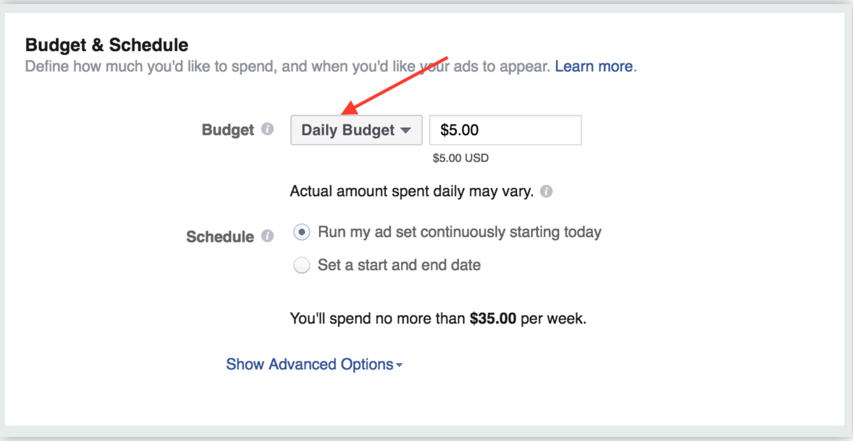
Situations, where you might want to edit ad placement, would be limited to instances where you have created an advertisement that is best viewed on a specific device or feed.

For example, if your advertisement directs users to a page that is not mobile-optimized, you might want to only target desktop devices to avoid giving users on mobile devices a poor first impression.

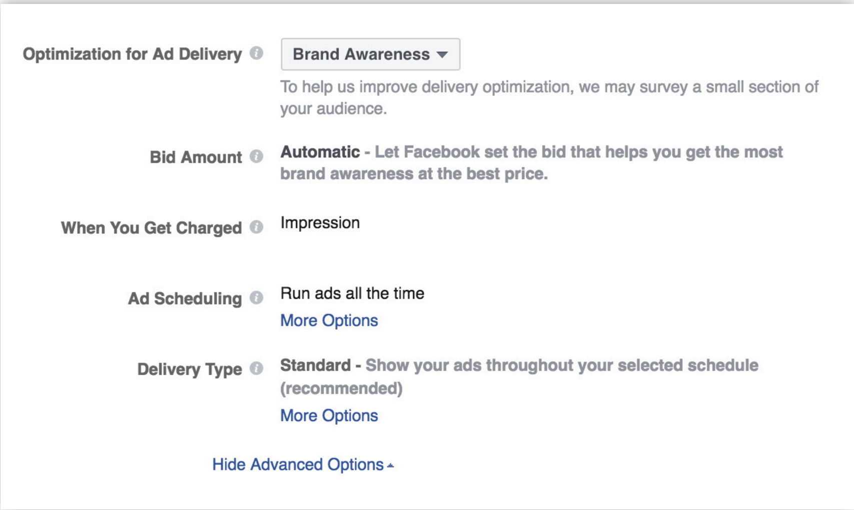
Budget and Schedule

After you have created your target audience and defined where your advertisements will be placed, your final step in creating your ad set is to determine its budget and schedule.

By default, Facebook will load a simple budget and scheduling options that allow you to set either a daily or total lifetime spending budget. Facebook will also give you the option to start running the advertisements right away, or if you'd like to set a specific start and end date.

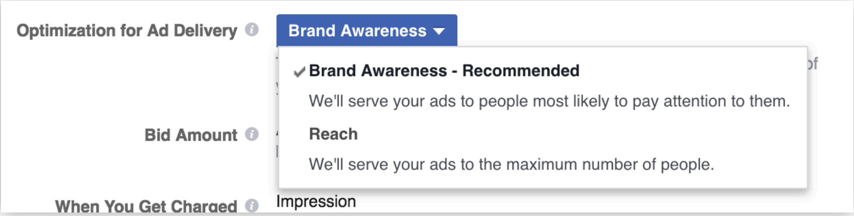


You can select the "Show Advanced Options" link, to reveal additional budget and scheduling options. These options allow you to tell Facebook how it should optimize your ads, how you would like to determine how much to bid if you would like to schedule your ads to run at a specific time of day, and how quickly you want to spend your specified budget.



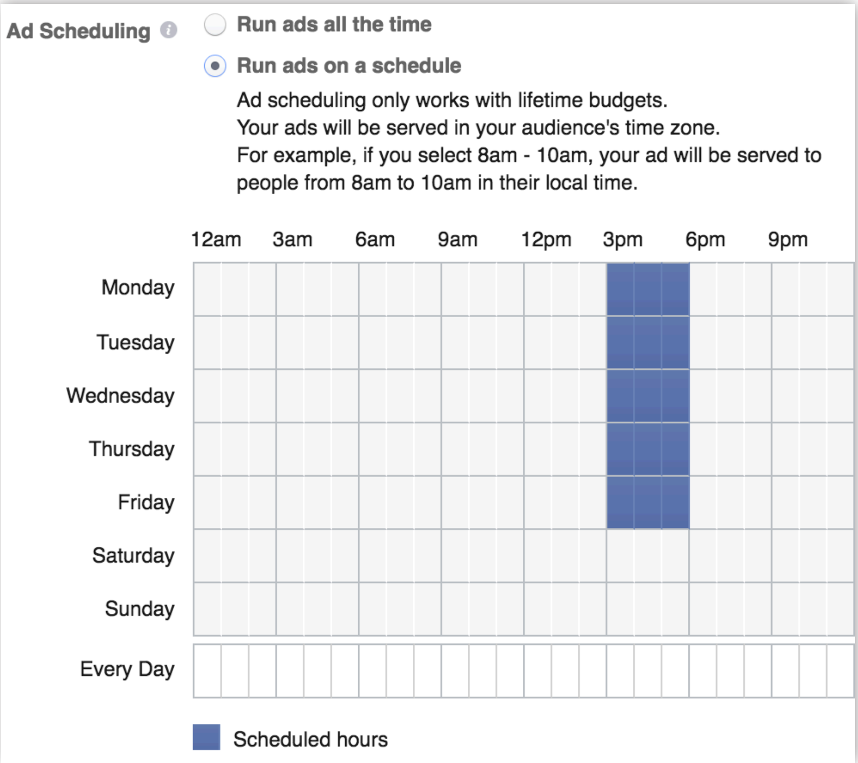
The types of optimization you can select will depend on the goal of your campaign.

In this example of a brand awareness campaign, you can only select brand awareness or reach – telling Facebook to either attempt to serve your content to those most interested or attempt to reach the maximum number of people it can.

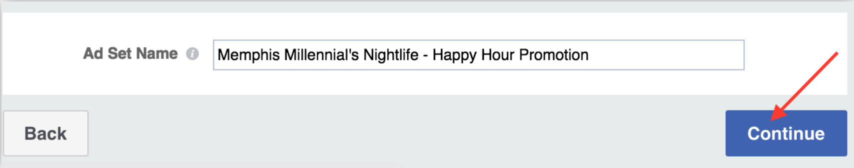


If you would like to specify a specific time of day to run your advertisements, you can select the "Ad Scheduling" option to select specific days of the week and times of the day to run your ads. In order to select the ad scheduling option; however, your budget type must be set to a lifetime budget rather than a daily budget. A lifetime budget allows

Facebook to correctly serve your content during the specified times (a daily budget is too restrictive). Setting an advertisement schedule allows you to create advertisements knowing when you expect users to view them. For example, you could create an advertisement to run only on weekdays promoting your restaurants' happy hour for a few hours each day when customers might be making their plans for the evening.

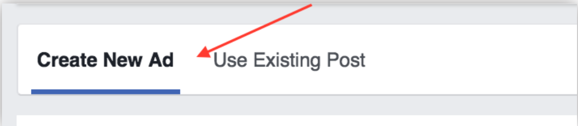


Once you have defined your ad set's budget and schedule, you can give your ad set a descriptive name and save it. At this point, your campaign and ad set will be created, and you will be ready to move on to creating your actual advertisements.

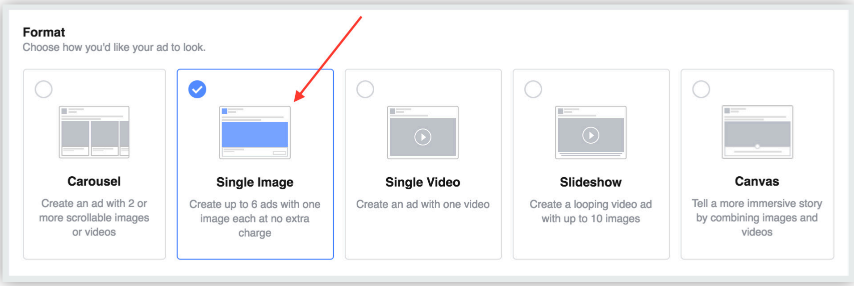


Ad Creation

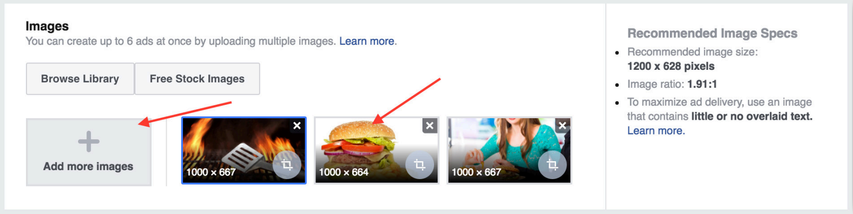
Now that you have defined the goal of your advertising campaign and determined how much you are going to spend on it and when it is going to run, you need to determine the actual content of the advertisement. The first option you will have is to create a new advertisement or use an existing post. This option allows you to easily reuse advertisements within different ad sets. In this example, you will select the "Create New Ad" option.



The first step in creating a new ad is to select the type of media that will be used in this advertisement. Facebook provides a number of different content types, including a carousel, single image, single video, slideshow, and canvas. The type of ad type you select will largely depend upon what type of media content you have available. For this example, you will create a single image advertisement.

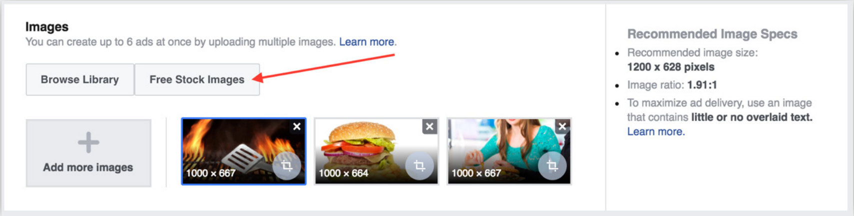


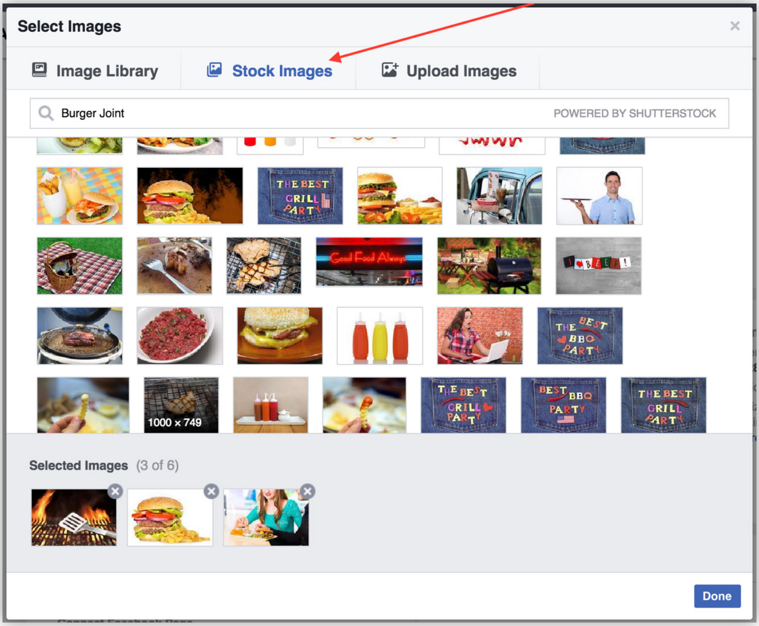
Next, you will be to select the specific content that will be used in the advertisement. Facebook will provide you with the ability to upload an image and will also provide you with the image library that has stored any previously uploaded images. Images that are already included in the advertisement will be shown to the right of the "Add more images" button. Facebook allows you to select up to 6 images that it will automatically rotate through when showing your advertisement.



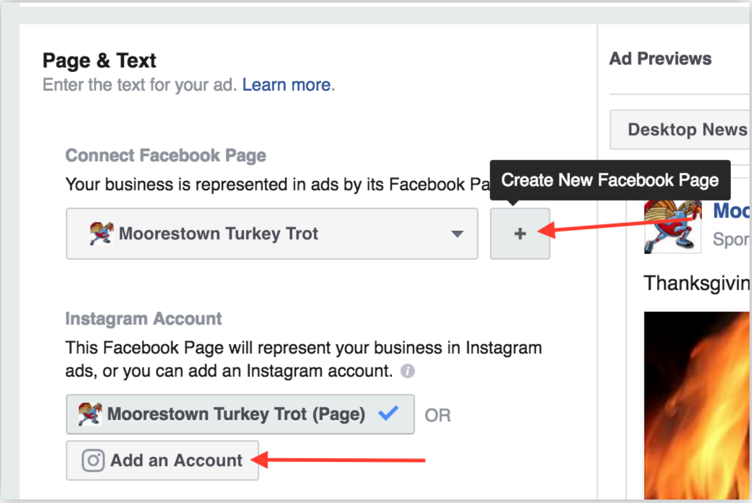
For best results, Facebook recommends uploading images that are 1200 x 628 pixels, with an image ratio of 1.91:1, that contains little or no overlaid text.

In addition to giving you the ability to upload or reuse an existing image, Facebook gives you access to free stock images. These are images provided by Shutterstock that you can search to find content. This can be a great resource if you are missing content for your advertisement. But when possible, using your own content that matches your message will provide better results than stock images.

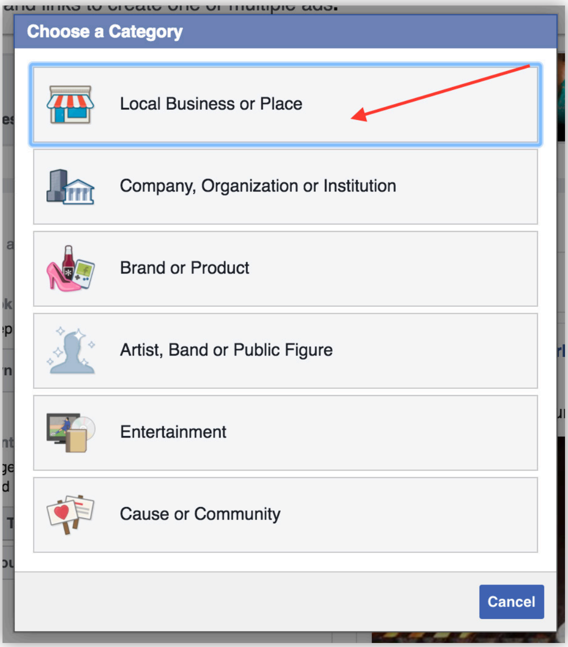




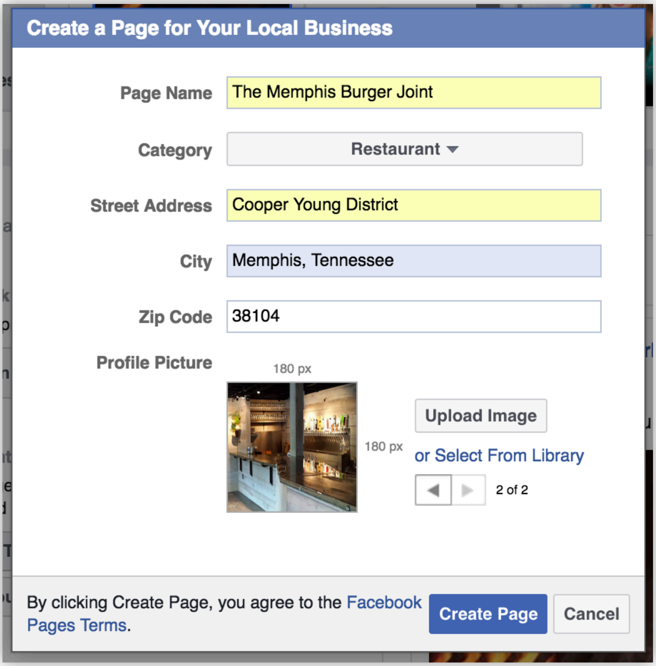
After you have selected the images that will be used in the advertisement, Facebook will prompt you to link your advertisement to a Facebook page or an Instagram account. Select your existing page or account from the pull-down menu, or, if you don't have one, you can create a new page and account.

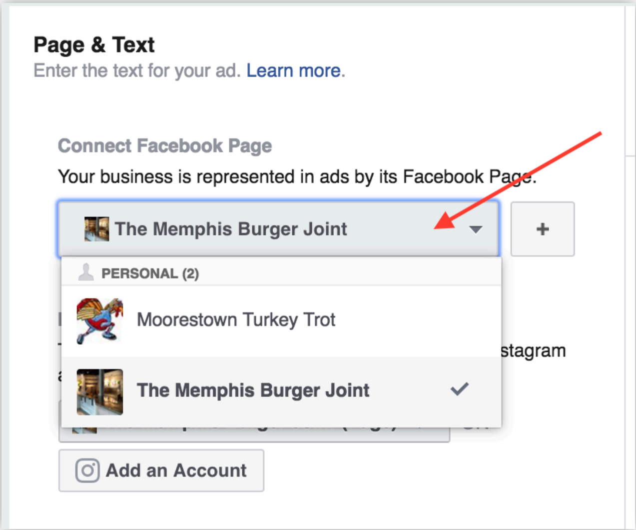


If you select to create a new Facebook page, Facebook will present you with a popup to decide what type of entity this page will represent. These options include a local business or place, a company organization or institution, a brand or product, entertainment, or cause or community. In this example, you are attempting to increase brand visibility for a restaurant so that you will select the local business or place option.



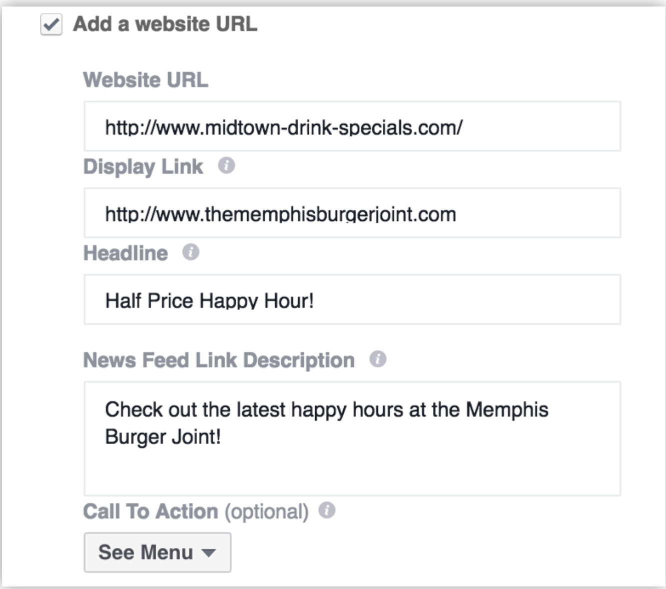
You will be prompted for the basic information about the business as well as a logo to be used as the page's profile picture or thumbnail. Click "Create Page" and select it from the page drop-down menu to set it as the page for your advertisement.



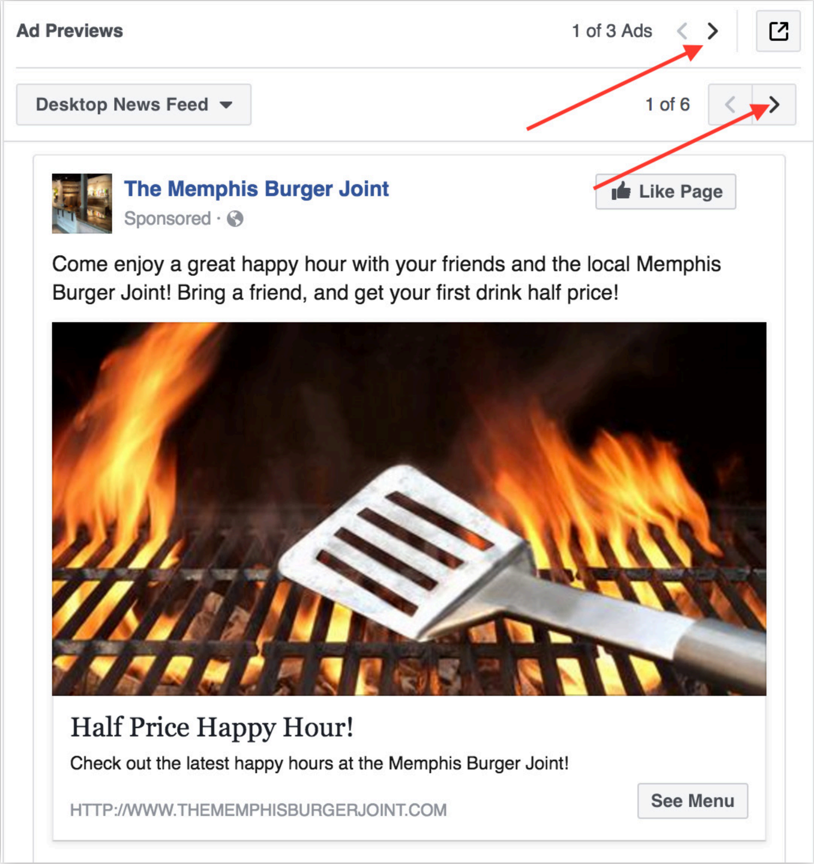


After selecting a Facebook page and Instagram account to link to your Facebook Advertisement, you can enter the main text of the ad.

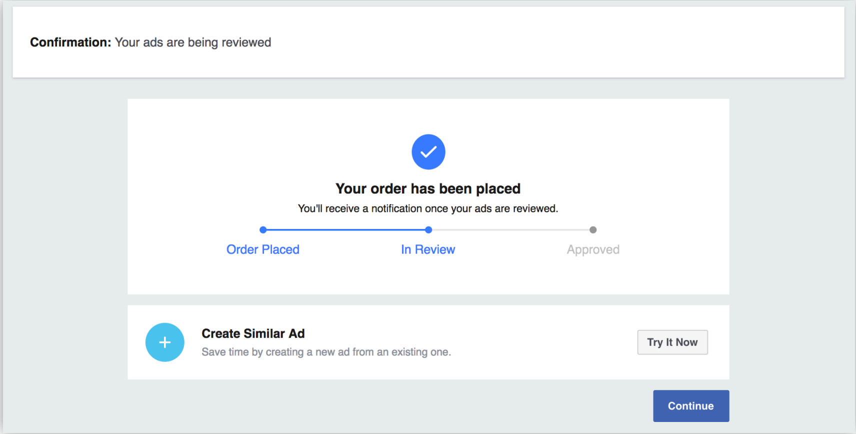
If you have a website for your business, you can also enter the website URL below the main text area. This will add an additional headline and news feed description to your advertisement. You will also be able to customize the display link, headline, and news feed link description to match your advertisement. Finally, you will be able to determine a "Call To Action" that you can tailor to match the content of your advertisement.



Facebook will compile all of this information to create a preview of your Facebook ad. You can also preview all the images you have selected for the advertisement to see how they each look.



Once you have reviewed your advertisement, and are happy with the content, your final option is to setup the advanced options for the ad, which are used to track its effectiveness. These optional parameters are used to track conversions and will depend on the technical implementation of your website to track effectively. Since the goal of this campaign is to increase brand awareness, the basic reports from Facebook, including the number of impressions and clicks, which will give enough information to determine the effectiveness of your ads. When you are ready to place your ad, you can select the "Place Order" button at the bottom of the page, which will begin the Facebook ad review process.



After your advertisement has been reviewed and approved by Facebook, it will begin to be served to your target audience. At that point, you can make use of Facebook's reporting dashboard to see the effectiveness of your different campaigns, ad sets, and ads. Review your ads regularly. By determining which are effective, and canceling those that are ineffective, you can actively optimize your Facebook ad spend.

Chapter IV-14

Digital Analytics

One of its pioneers, Avinash Kaushik, described digital analytics this way.

> "Digital analytics is the analysis of qualitative and quantitative data from your business and the competition to drive a continual improvement of the **online** experience that your customers and potential customers have which translates to your desired outcomes (both online and offline)."
> With the right skills, processes, and technologies, you can uncover the vital information about how you engage with your customers, effectiveness of your engagements and give you the data on which to take action to improve the outcome – business results."

Digital analytics is not only about the statistical analysis of data, but the process of taking that data and translating it into actionable insights that improve the experience of your customers. It is an on-going process that should be run continuously alongside digital marketing activities. The process of digital analytics can be broken into four general stages: measurement, analysis, reporting, and testing. We will examine how these four stages can be applied to two distinct areas of understanding visitor behavior: website interaction and conversion tracking.

Website interaction involves monitoring how visitors typically behave once they reach a website. Visitor interactions with the website can be measured by a number of statistics including average pageviews per visit, time on the website, and bounce rate (the percentage of visitors who view only one page of your website and immediately exit). By analyzing these statistics, you can determine which pages on are a site's strongest performers, as well as the pages that cause visitors exit.

Conversion tracking is the process of understanding what types of digital marketing (paid ads on the internet) are the most successful for your business. It's important to know which campaigns are actually driving visitors to take the desired action (e.g., subscribing to a newsletter, converting to customers). Conversion tracking can also allow you to determine which ads within a specific campaign are driving the most conversions.

The combination of this information allows you to spend your marketing dollars where they will drive the most conversions, and understand the specific aspects of your ads that are generating success.

Measuring with Website Interaction

By far, the most popular tool to measure website interaction is Google Analytics. Google Analytics is a free service that can easily be installed on a website by placing a small piece of JavaScript code across the website. When a visitor reaches a page within your website, this code collects information about the visitor, and sends it to Google Analytics.

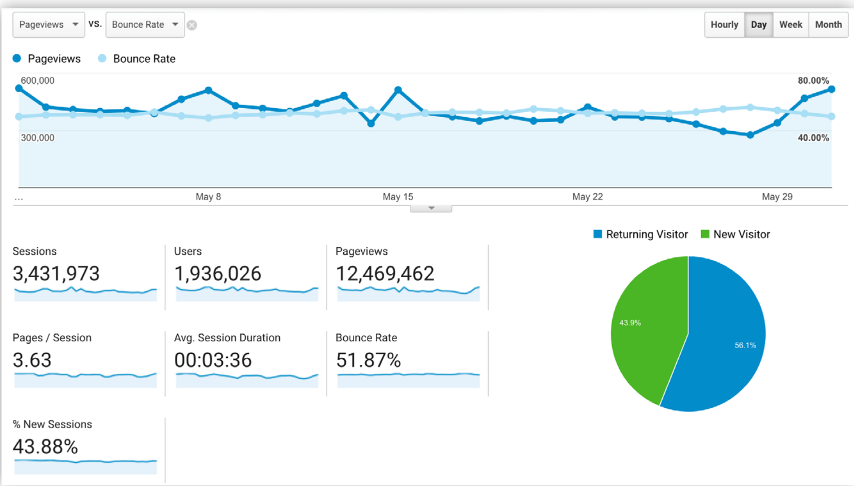
Google Analytics then provides a reporting dashboard, which allows you to segment visitors and view their information in a vast number of ways. Some examples of these segmentation and reporting options provided by Google Analytics include demographics, location and type of device the viewer is using.

In addition to being able to segment visitors and track basic website interactions, Google Analytics can be configured to track what is referred to as a **goal funnel**. Typically, most conversion processes contain more than one step. For example, the process of making a purchase on an e-commerce website involves adding an item to your cart, reviewing your purchase and entering your payment information, then be shown a confirmation page containing the information about your purchase. A goal funnel tracks visitors through all the steps to determine at what point visitors are abandoning the conversion process.

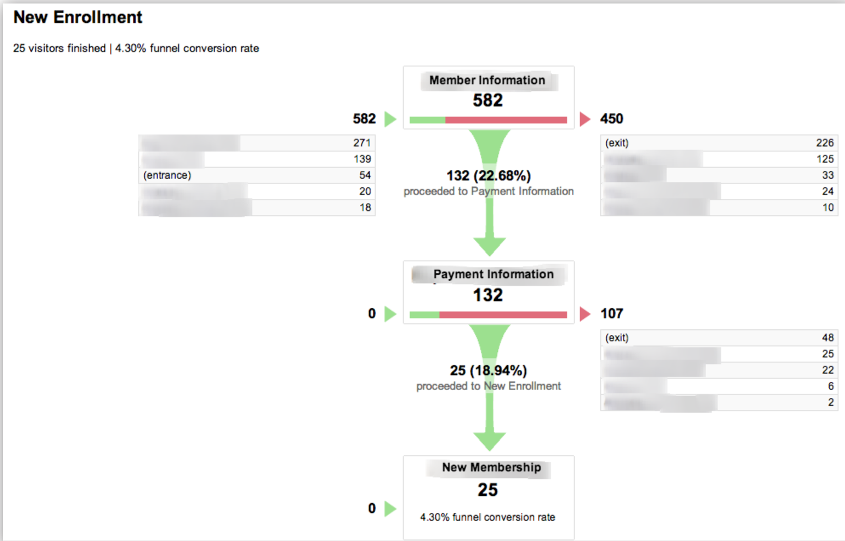
Google Analytics can also provide advanced integration with e-commerce reporting. Instead of tracking conversions by the number of pageviews of a confirmation page, a website can inform Google Analytics of the exact dollar value of a purchase, and what items are included in it. This provides an analyst with significantly more information about a transaction. For example, one digital marketing source may convert a high volume of inexpensive transactions, while a different digital marketing source may drive fewer conversions at a much higher dollar amount. E-commerce reporting allows a marketer to see this information and gives them the information necessary to correctly analyze the value of a digital marketing medium.

GOOGLE ANALYTICS SCREENSHOTS

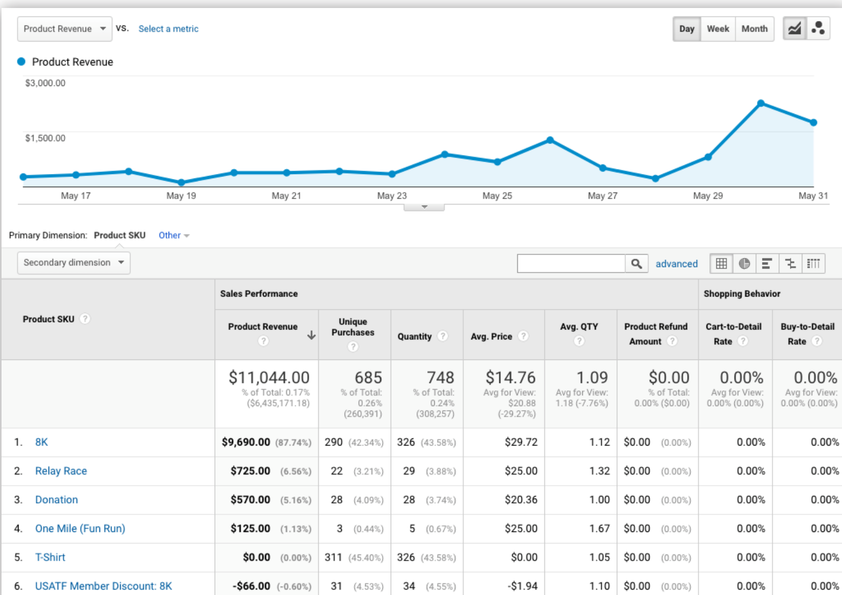
Overall Dashboard



Goal Funnel Visualization

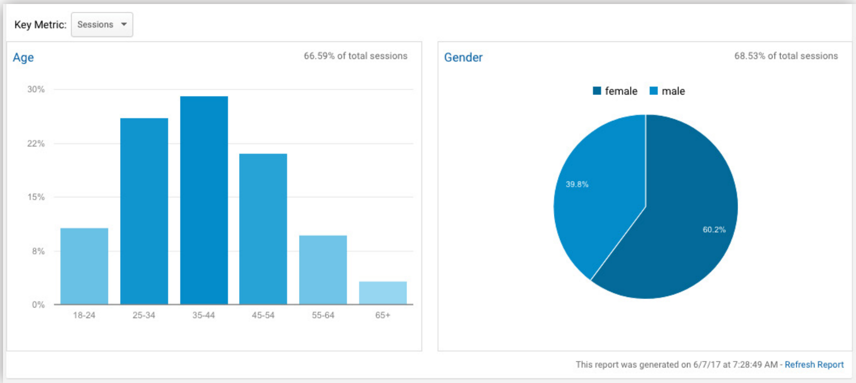


E-commerce Reports

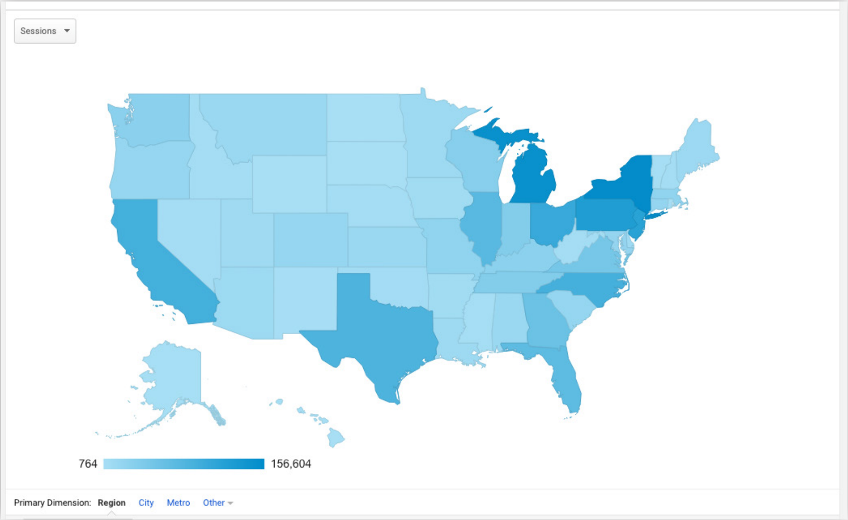


Product SKU	Product Revenue	Unique Purchases	Quantity	Avg. Price	Avg. QTY	Product Refund Amount	Cart-to-Detail Rate	Buy-to-Detail Rate
	Sales Performance						Shopping Behavior	
	$11,044.00 % of Total: 0.17% ($6,435,171.18)	685 % of Total: 0.26% (260,391)	748 % of Total: 0.24% (308,257)	$14.76 Avg for View: $20.88 (-29.27%)	1.09 Avg for View: 1.18 (-7.76%)	$0.00 % of Total: 0.00% ($0.00)	0.00% Avg for View: 0.00% (0.00%)	0.00% Avg for View: 0.00% (0.00%)
1. 8K	$9,690.00 (87.74%)	290 (42.34%)	326 (43.58%)	$29.72	1.12	$0.00 (0.00%)	0.00%	0.00%
2. Relay Race	$725.00 (6.56%)	22 (3.21%)	29 (3.88%)	$25.00	1.32	$0.00 (0.00%)	0.00%	0.00%
3. Donation	$570.00 (5.16%)	28 (4.09%)	28 (3.74%)	$20.36	1.00	$0.00 (0.00%)	0.00%	0.00%
4. One Mile (Fun Run)	$125.00 (1.13%)	3 (0.44%)	5 (0.67%)	$25.00	1.67	$0.00 (0.00%)	0.00%	0.00%
5. T-Shirt	$0.00 (0.00%)	311 (45.40%)	326 (43.58%)	$0.00	1.05	$0.00 (0.00%)	0.00%	0.00%
6. USATF Member Discount: 8K	-$66.00 (-0.60%)	31 (4.53%)	34 (4.55%)	-$1.94	1.10	$0.00 (0.00%)	0.00%	0.00%

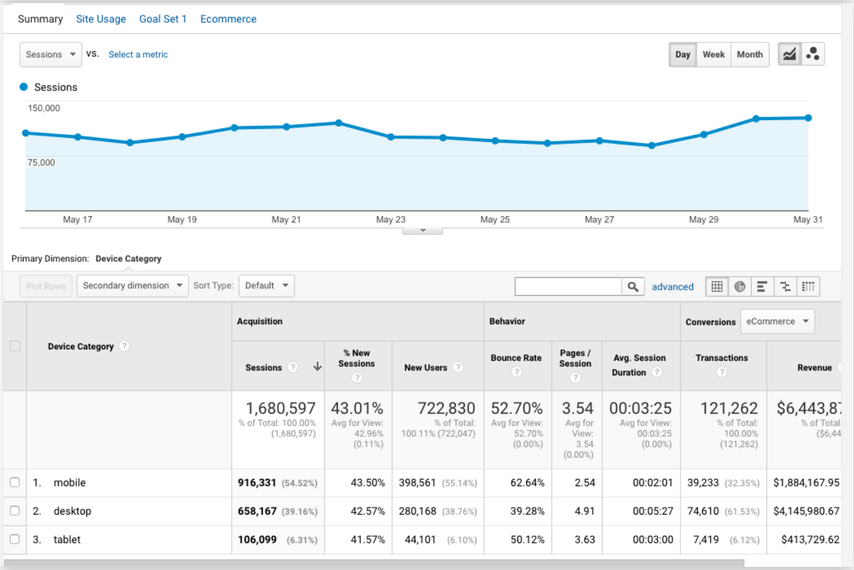
Demographics Overview



United States Location Overview



Device Usage Overview



Limitations of Website Interaction

It is important to understand the limitations of the data collected by Google Analytics and similar web tracking programs. Google Analytics collects website traffic in an aggregate format and not on individual users. This means that while Google Analytics gives great information about how visitors in general interact with your website as a whole, it does not allow you to drill down into a specific visitor and track their individual interactions.

There are also some technical limitations on how systems like Google Analytics can collect information. Google Analytics collects information about visitors by executing a small piece of JavaScript code when a visitor reaches a page. Visitors who have disabled their JavaScript will not have their information collected. While the number of users who have disabled JavaScript is small and has decreased from roughly 5% to 2% over the past decade or so, it still represents a segment of visitors Google Analytics is unable to track correctly.

Google Analytics also relies on a second technical tool called **cookies**. Cookies are information that a website can store on your browser so that it can track your information.

This is what allows websites to keep users logged into a website on subsequent visits, and allows Google Analytics to determine if you are a new or returning visitor. Like JavaScript, however, cookies also have their limitations. Visitors can disable their cookies (approximately 5%), and they can also manually clear them from their browsers. Additionally, since cookies are stored on individual devices and browsers, it's impossible to identify visitors as return visitors if they visit your website multiple times on different devices.

Finally, there are newer programs referred to as **ad blockers** designed to stop visitors from having to view unwanted advertisements, and some of these ad blockers also block Google Analytics. There are similar new programs being developed and released designed to specifically stop web tracking programs such as Google Analytics.

As a result of these technical and user limitations, a study by the website www.quantable.com shows that in 2016, approximately 10% of website visitors cannot be tracked by Google Analytics. This fact, along with the inability to sometime associate new vs. returning visitors, can make the data being collected feel somewhat unreliable. To overcome this unreliability, it is recommended that rather than monitoring exact numbers provided by Google Analytics, one should monitor trends and changes in user activity and behavior.

Analyzing with Website Interaction

Before beginning the analysis part of website interaction, it is important to review your website's overall goal. If you are an e-commerce website, your primary goal is likely to be to increase sales. If your website is geared towards displaying advertisements and generating revenue from the ads, your primary goal is likely to revolve around increasing the total number of page views. If you're a brick and mortar store or restaurant, you might be most interested in getting users to fill out an online form for additional information or to make a reservation. Understanding your primary business goals is the first step to a productive analysis.

Several business factors can have a major impact on the way your visitors interact with your website and the performance of your primary business goals. It is vital to understand these aspects of your business, as they will have a drastic effect on how you monitor your digital analytics.

For example, if your business has extreme seasonal tendencies doing a month-to-month analysis within a single year is unlikely to yield actionable results. Instead, it is more likely to be useful to compare the performance of one month to your performance of the same month of the previous year. The same can hold true for businesses that have large variability depending on what day of the week it is.

Understanding any seasonal or weekly variations in your business will give you the correct frame of reference in which to perform your analysis.

It is also important to analyze the online environment of your marketplace against your chosen metrics. This is important because almost all of the information gathered about website interaction needs to be placed in a correct context to have real meaning.

Knowing that your website is generating a specific number of page views for a keyword doesn't inform you of how well you are performing compared to the rest of the industry. Knowing that you are getting *more* visitors for a particular keyword than a competitor gives significant insights.

This type of comparative information is important for almost all website metrics, even conversion rates. In one market, converting 2% of visitors may be considered a very poor conversion rate, while in a different market it may be an outstanding conversion rate. While it is difficult to get these exact numbers about a competitor, it is possible to approximate or benchmark this information by analyzing keyword rankings, or collaborating with other industry professionals.

Website Interaction Reporting

Once you have decided on the primary goals of your business, you will want to translate those goals into **key performance indicators** (KPIs) or website metrics; you can track to understand your website's performance. These KPIs will then represent the most important part of your reports, and should then be used to determine the overall success of your digital marketing. The exact values of these metrics alone make it difficult to conclude, and therefore, reporting should always include competitive or historical benchmarking along with any seasonal or overall business considerations. This will give the reports the context needed to allow a meaningful analysis to be performed.

The following are some example key website metrics, along with brief descriptions of why they are important, and the best way to use them.

- **Conversion Rate:** Conversion rate is one of the most important metrics and is frequently a website's KPI. Conversion rate ties directly to your website's primary goal and is a measure of how effective you are at converting visitors.
- **Average Order Value**: Average order value is extremely useful for e-commerce websites, as it informs your average value of a conversion. E-commerce websites that analyze the conversion rate alone can miss the bigger picture.
- **Visitors**: The number of visitors your website generates is a good overall indication of your website's growth, and makes a great KPI. While the number of visitors alone doesn't perfectly equate to website success, it is an important indicator.
- **Top Pages:** Top pages identify the pages on your website that are generating the most views. This is a great indicator of what is the most effective content on the site.
- **Page Views per Visit**: Page views per visit is a good indication of how engaged visitors are with your website's content and can make a good KPI as it measures active engagement with the website rather than passive engagement.
- **Bounce Rate:** While bounce rate might not correlate to bottom-line numbers, it is an incredibly helpful tool when optimizing landing pages, as pages with a higher than desired bounce rate are primary candidates for revisions.

- **Traffic Sources**: Traffic sources refer to how your visitors reached your website. Like bounce rate, traffic sources don't tie directly to bottom-line numbers, but they help identify important information about your visitors.

Measuring with Conversion Tracking

Conversion Tracking works in a very similar fashion to website interaction from a technical perspective but collects significantly less information. There are two main types. The first involves tracking conversions that come from sources which you have paid, such as Facebook or Instagram. The second involves tracking conversions that come from non-paid sources such as Email Marketing campaigns or organic search results.

With paid digital marketing campaigns, the platform, e.g., Facebook, on which the ads are placed is responsible for tracking the conversions. This tracking is done by placing a cookie on the "ad-clickers" browser. If the ad-clicker converts, the platform knows they had previously clicked on the advertisement on their platform.

Conversion Tracking for organic sources, however, works differently. Since these visitors are coming from organic sources, there is no Digital Marketing platform that can provide a tracking code to report the number of conversions that come from these sources. Instead, a tool such as Google Analytics must be used to track the number of pageviews on a given page that represents a conversion. Then, since the tool has tracked the visitor during their entire visit on the website, including where they came from originally, it can record the conversion's source.

It is possible to tag links used in digital campaigns, with specific information, which allows Google Analytics to track visitors who arrive through those links. This can be very helpful to analysts who want to answer questions such as how many pageviews and conversions were generated through a recent email blast. In order to tag these links, analysts and marketers should use simple tool Google's Campaign URL Builder to easily generate the links that should be used in the campaign:

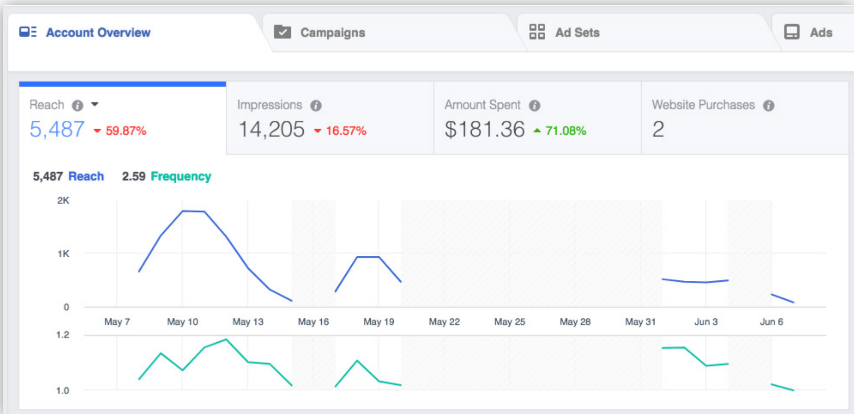
https://ga-dev-tools.appspot.com/campaign-url-builder/

This allows the analyst to use Google Analytics to segment visitor traffic by the links they have tagged, thereby providing powerful insights. Below is an example of conversion tracking measurements as provided by Facebook.

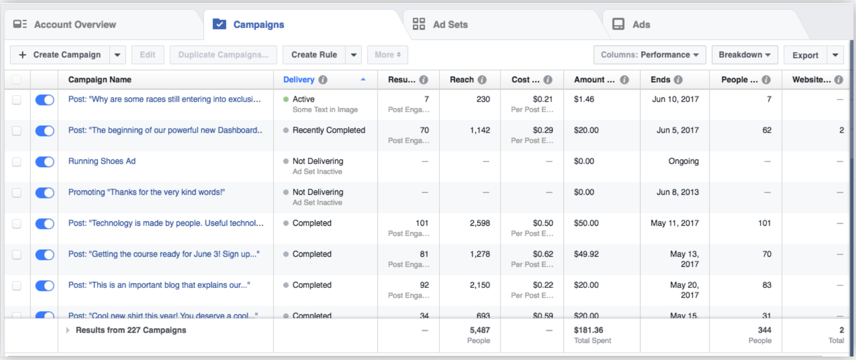
FACEBOOK DASHBOARD SCREENSHOTS

(Example of Conversion Tracking Measurement)

Account Overview

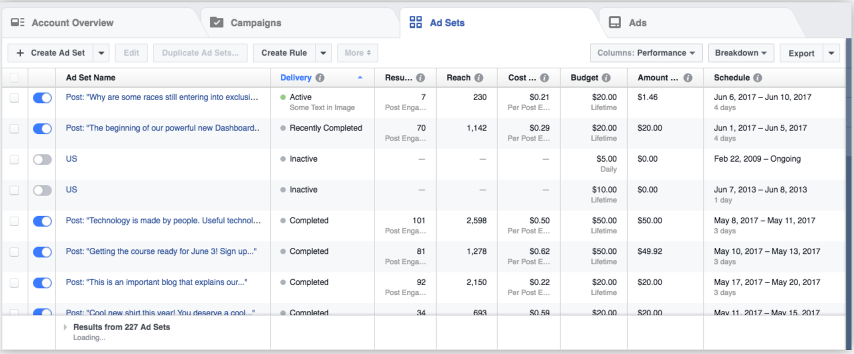


Campaign Analysis



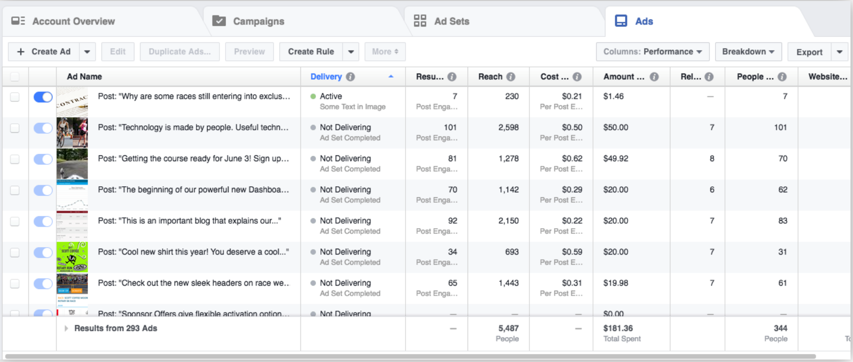
Campaign Name	Delivery	Resu...	Reach	Cost ...	Amount ...	Ends	People ...	Website...
Post: "Why are some races still entering into exclusi...	Active Some Text in Image	7 Post Enga...	230	$0.21 Per Post E...	$1.46	Jun 10, 2017	7	—
Post: "The beginning of our powerful new Dashboard..	Recently Completed	70 Post Enga...	1,142	$0.29 Per Post E...	$20.00	Jun 5, 2017	62	2
Running Shoes Ad	Not Delivering Ad Set Inactive	—	—	—	$0.00	Ongoing	—	—
Promoting "Thanks for the very kind words!"	Not Delivering Ad Set Inactive	—	—	—	$0.00	Jun 8, 2013	—	—
Post: "Technology is made by people. Useful technol...	Completed	101 Post Enga...	2,598	$0.50 Per Post E...	$50.00	May 11, 2017	101	—
Post: "Getting the course ready for June 3! Sign up..."	Completed	81 Post Enga...	1,278	$0.62 Per Post E...	$49.92	May 13, 2017	70	—
Post: "This is an important blog that explains our..."	Completed	92 Post Enga...	2,150	$0.22 Per Post E...	$20.00	May 20, 2017	83	—
Post: "Cool new shirt this year! You deserve a cool..."	Completed	34	693	$0.59	$20.00	May 15,	31	—
Results from 227 Campaigns		—	5,487 People	—	$181.36 Total Spent		344 People	2 Total

Ad Sets Analysis



Ad Set Name	Delivery	Resu...	Reach	Cost ...	Budget	Amount ...	Schedule
Post: "Why are some races still entering into exclusi...	Active Some Text in Image	7 Post Enga...	230	$0.21 Per Post E...	$20.00 Lifetime	$1.46	Jun 6, 2017 – Jun 10, 2017 4 days
Post: "The beginning of our powerful new Dashboard..	Recently Completed	70 Post Enga...	1,142	$0.29 Per Post E...	$20.00 Lifetime	$20.00	Jun 1, 2017 – Jun 5, 2017 4 days
US	Inactive	—	—	—	$5.00 Daily	$0.00	Feb 22, 2009 – Ongoing
US	Inactive	—	—	—	$10.00 Lifetime	$0.00	Jun 7, 2013 – Jun 8, 2013 1 day
Post: "Technology is made by people. Useful technol...	Completed	101 Post Enga...	2,598	$0.50 Per Post E...	$50.00 Lifetime	$50.00	May 8, 2017 – May 11, 2017 3 days
Post: "Getting the course ready for June 3! Sign up..."	Completed	81 Post Enga...	1,278	$0.62 Per Post E...	$50.00 Lifetime	$49.92	May 10, 2017 – May 13, 2017 3 days
Post: "This is an important blog that explains our..."	Completed	92 Post Enga...	2,150	$0.22 Per Post E...	$20.00 Lifetime	$20.00	May 17, 2017 – May 20, 2017 3 days
Post: "Cool new shirt this year! You deserve a cool..."	Completed	34	693	$0.59	$20.00	$20.00	May 11, 2017 – May 15, 2017
Results from 227 Ad Sets Loading...							

Ad Analysis



Ad Name	Delivery	Resu...	Reach	Cost ...	Amount ...	Rel...	People ...	Website...
Post: "Why are some races still entering into exclus...	Active Some Text in Image	7 Post Enga...	230	$0.21 Per Post E...	$1.46	—	7	
Post: "Technology is made by people. Useful techn...	Not Delivering Ad Set Completed	101 Post Enga...	2,598	$0.50 Per Post E...	$50.00	7	101	
Post: "Getting the course ready for June 3! Sign up...	Not Delivering Ad Set Completed	81 Post Enga...	1,278	$0.62 Per Post E...	$49.92	8	70	
Post: "The beginning of our powerful new Dashboa...	Not Delivering Ad Set Completed	70 Post Enga...	1,142	$0.29 Per Post E...	$20.00	6	62	
Post: "This is an important blog that explains our..."	Not Delivering Ad Set Completed	92 Post Enga...	2,150	$0.22 Per Post E...	$20.00	7	83	
Post: "Cool new shirt this year! You deserve a cool..."	Not Delivering Ad Set Completed	34 Post Enga...	693	$0.59 Per Post E...	$20.00	7	31	
Post: "Check out the new sleek headers on race we..	Not Delivering Ad Set Completed	65 Post Enga...	1,443	$0.31 Per Post E...	$19.98	7	61	
Post: "Sponsor Offers give flexible activation option...	Not Delivering	—	—	—	$0.00	—	—	
Results from 293 Ads		—	5,487 People	—	$181.36 Total Spent		344 People	

Conversion Tracking: Analysis

Unlike website analytics, the KPI for conversion tracking is fairly obvious and do not vary significantly from one situation to another. Conversion tracking analysis typically includes an analysis of the amount of money spent on an advertisement compared to the value generated for the company. As a result, the analysis of conversion tracking relies more heavily on understanding the business process of a website and understanding the true value of a website's customer.

For example, in order to correctly analyze a digital marketing campaign and determine if it is effective, a website owner must know the true value of a conversion and the lifetime value of converting a new customer. With this information, the analyst will have the frame of reference needed to understand if a digital marketing campaign is effective or not.

When analyzing website interactions, the primary goal is to understand how visitors view and interact with your website. In conversion tracking, however, the goal is to attempt to determine exactly which of your traffic sources is most cost-effective so that you can focus your marketing resources into the most effective campaigns. Therefore, instead of viewing activity on your website as a whole, conversion tracking analysis must be performed on each digital marketing campaign separately. Many of the concepts (seasonality, industry-level changes) of website interaction analysis also apply to conversion tracking analysis.

Reporting with Conversion Tracking

Unlike the reporting of website interaction, reporting of conversion tracking is focused extensively on understanding your return on investment (ROI) for a specific digital marketing medium. Many of these mediums, such as Facebook, have explicit costs for running advertisements on their platforms. In these cases, conversion tracking can be tied directly to an ROI to inform you if your investment in these digital marketing mediums is profitable, or if you are losing money. There are other digital marketing mediums, such as organic search or email marketing that may not have an explicit cost per visitor, but can be tied to a larger overall cost or time spent on the campaign.

The following are some of the most important metrics when determining if a digital campaign is a positive investment.

- **Number of Clicks:** This metric reports to a website owner the total number of clicks generated by a digital marketing medium. While it is not necessarily the most important digital marketing metric, it is still very important as it represents the overall reach of the advertising campaign. Even if the rest of the campaign's metrics are strong, if the overall reach of the campaign is minimal, it may not be worthwhile.

- **Cost per Click (CPC)**: The amount of money paid to a digital medium per click. This is the most basic metric provided in conversion tracking reporting, and it informs the website owner how much they are paying per visitor sent to their website.
- **Cost per Acquisition (CPA):** Cost per acquisition informs the website owner how much they are paying per visitor who completes a conversion on their website. This metric is superior to CPC because it factors in that visitors are completing the desired goal, rather than just visiting the website.
- **Return on Investment (ROI)**: Return on investment is the most advanced and is the true core metric to conversion tracking. If the ROI of a campaign is not explicitly provided by the digital marketing medium, it is best to calculate this metric internally. ROI factors in not only the number of conversions but also their overall value. It also informs you exactly how much revenue a campaign is generating. As a marketer or analyst, you should be wary of any digital marketing campaign for which you cannot calculate the ROI.

Website Interaction & Conversion Tracking: Testing

Websites are frequently improved. Many times, managers are not totally confident about some improvements and want to test the changes scientifically. This ensures that the improvements do help the performance on KPIs.

There are two main types of tests that can be used to determine if the changes are an improvement, and these are **split tests** and **time comparison tests**.

A split test is when a website creates a new version of its content and runs it alongside its current content. The website directs a certain percentage of its visitors to the new content, and the rest of the visitors to the website's old content. After collecting sufficient data, statistical tests can be run to see if one set of contents is significantly better than the other set.

A time comparison test, by contrast, is a test in which all visitors are displayed the new content. The results of the new content are then compared to the results of the previous content to see which of them performed better on the website's KPIs.

Unlike split tests, time comparison tests are vulnerable to time-sensitive business changes. For example, if a press release came out during a time comparison test, it would be impossible to determine if the improved metrics were because of the changed content or the press release. The advantage of a time comparison test, however, is that because the traffic is not being split, it is possible to complete the tests faster.

In conclusion, if a website has enough traffic to gather data quickly, usually split tests are preferred, but if there is not enough traffic, a time comparison test should be used instead.

Both split and time comparison can be used for testing improvements made for website interaction and conversion. The concept behind an **A/B test** is to make a small change to existing content but leave the rest of the content and all other variables otherwise unchanged. By then comparing the KPI performances for both the A (original) and B (new) versions of the test, you can determine which of the two versions had better performance. Since there is only a small change, and all other variables the same, the differences in the performance between the two tests can then be attributed to the difference in content.

To implement an A/B test, you will first need to select a digital marketing medium on which to implement the test. An A/B test must be run within a specific digital marketing medium, such as Facebook so that all variables beyond the content being tested can be controlled. Then all other parameters of the advertisement, from targeting the amount you are willing to pay per click should remain constant so that any changes in performance can be attributed directly to the content changes.

The concept of an A/B test is not limited to only changes in the content of an advertisement. An A/B test can be applied to most parts of an advertisement, as long as it is the only change occurring. For example, rather than create a new advertisement with adjusted content and testing the success of the content changes, you could run the same advertisement with different target audiences. As long as the only thing changed is the advertisement's target audience, you can credit any changes in the effectiveness of the ad to the changes in the targeted audience. Using this approach allows you to test a large number of different parameters and continuously optimize your advertisements.

The overall budget though does not necessarily need to be the same between the two tests. For example, if you are running an existing advertisement on Facebook, you could create a new advertisement with the exact same targeting parameters, but allocate a smaller portion of the budget to the test advertisement. The budget for the new ad should be large enough though to generate meaningful data.

While the primary goal of an A/B test is to discover content or advertisement changes that increase effectiveness, it is still important to examine a "failed" A/B test where the original content outperforms the new content being tested. Often just as much insight can be gained by determining what caused an advertisement to fail, as can be gained by simply implementing the successful changes.

In sum, the implementation of continuous A/B testing on multiple aspects of advertisements is one of the best ways to improve overall advertisement performance.

Multi-Channel Source Attribution

Often visitors who convert on a given website have had more than one interaction with that website and its advertisements. For example, a visitor may see an ad in their news feed while they are on Facebook but not click on it. Then they might see a banner advertisement on a different website, such as ESPN, and click it but not convert. Finally, that user does a Google search several days later, returns to the website and successfully completes a conversion. The difficulty is then attempting to determine which of those sources is responsible for driving that conversion.

There are three primary ways to determine which sources are credited for the conversion: **first click attribution**, **last click attribution**, and **multi-channel attribution**.

First and last click attribution are both fairly straightforward concepts. First, click attribution simply means that the first advertisement that causes the visitor to click is given credit for the conversion because it created enough interest with the user to begin the conversion process. On the other hand, Last click attribution gives credit for the conversion for the last click on the process, because it was responsible for the final step that drove the conversion.

The concept of multi-channel attribution, however, attempts to distribute the attribution for conversion across all sources in a given visitor's conversion path. In the previous example, if the multi-channel attribution model with equal weighting was used, the banner advertisement on ESPN and the Google search would each receive 50% of the credit for the conversion. While on the surface, this may seem straightforward, it quickly becomes very complicated and difficult to implement. Several questions arise. How do you distribute the weight of each click? Is each click worth the same value, or are certain clicks more important than others? How does this model adjust when a single user clicks through upwards of six or seven different sources before converting? What about an ad that is seen without being clicked on?

These types of questions combined with the limitations discussed in measuring conversions make the implementation of multi-channel attribution a very complicated process. As a result, it is usually only implemented when the value of a conversion is extremely high, or on a website with an extremely high volume of transactions.

ADDITIONAL DIGITAL ANALYTICS TOOLS

In addition to the main digital analytics tools and methods that have been discussed here, there are some others. These additional tools often have narrow uses and are applicable only when specific information is desired.

The following are a few examples of these supplemental analytics tools, and how they can be used to gain additional insights about visitor interactions.

Heatmaps are tools that create a visual overlay for digital analysts to view where visitors are clicking within a website. These tools generally highlight areas with more clicks red and areas with fewer clicks green, similar to how radar shows the strength of weather patterns. By understanding the areas of a webpage that are drawing the most clicks, analysts and website designers can attempt to make the more highly clicked areas more prominent, or they can attempt to make the less often clicked areas more relevant.

Follow-up surveys are tools that ask visitors (usually a small subset of visitors) if they would be willing to answer a short survey. While these surveys run into typical problems encountered by traditional surveys, they can still provide valuable insight about how a visitor felt about their interaction with the website, which can, in turn, be used to enhance the overall visitor experience. The most popular of the follow-up survey questions is to ask a visitor if they could accomplish their goal with their visit.

While not strictly a tool for Digital Analytics, **live chat** gives an interesting way for website owners to interact with their visitors. These tools allow the owner of a website to interact directly with a website visitor while they are on the website. Many of these live chat tools also have the ability to create an automated program or a **bot** that can ask these visitors specific questions, and in some instances even answer common FAQ type questions. The ability to ask questions through an automated system can allow website owners to segment their visitors in ways that would be impossible through other digital analytics means.

Chapter IV-15

Working with Attorneys

Only when an organization, or an individual for that matter, has deep pockets does it get vulnerable to lawsuits. Appropriately then, the next 7 chapters in this section are devoted to topics in business law.

The American legal system is divided into two separate court systems: **federal** and **state**. The federal government makes, enforces, and interprets federal laws, and each of the 50 states makes, enforce, and interpret their own laws.

Courts interpret laws, but laws come in different forms. The United States (the federal government along with every state except Louisiana) follows a system of the **common law**. In a common law system, the legislature writes laws called statutes. While the statutes cover a lot, they do not always clearly explain every legal situation that arises.

For example, the Second Amendment to the Constitution says: "A well-regulated Militia, being necessary to the security of a free State, the right of the people to keep and bear Arms, shall not be infringed." As you likely know, there is much ambiguity regarding what exactly the Second Amendment protects. Does it mean people have a right to bear arms when they are associated with a militia? Can people carry firearms anywhere they want? What is an "arm"? Does that protect military-grade, automatic rifles? When questions like these arise, courts interpret the statutes by making rulings and writing opinions. The opinions make up what is called common law or case law. Like statutes, opinions are law, but they are also distinct from statutes. Later courts can overrule opinions by interpreting the language a different way. This does not mean that a judge can come in and decide to overrule *Brown v. Board of Education* and reinstate segregation just because she does not agree with that case. Judges are bound by the **case and controversy** requirement, meaning that a real case must come to the court in order for a judge to rule on it. Cases are also subject to **appeal** meaning the litigants may appeal the case to a higher court to try to get a different judgment and opinion. This is why Supreme Court nominees are so significant.

Common law is distinct from **civil law** which Louisiana and many European countries have, in which statutes are significantly longer and more detailed. Essentially, civil law systems have a statute for each possible situation, and if a legal situation does not fit within a statute, the judge chooses which statute to apply rather than interpreting the statute itself.

It is helpful to know how the American legal system works because a lawyer will likely be able to look at your legal issue and tell you whether it should be relatively easy to solve (meaning it will cost less money) or whether it is a difficult and unsettled issue (meaning it will cost a lot).

THE ATTORNEY-CLIENT PRIVILEGE

Attorney-client privilege is another aspect of the law that is helpful to be familiar with before hiring an attorney, particularly if you are involved in litigation.

What is ACP?

The attorney-client privilege ("ACP") is a group of laws that generically protects information a client tells an attorney in confidence. These laws may slightly vary from state to state. ACP protects such communications from falling into the wrong hands by allowing the attorney or the client to refuse to divulge information regarding the subject of a confidential conversation.

ACP exists for the benefit of the client, rather than the attorney. If all the elements shown below are met, a *client* can use ACP to protect confidential conversations. The way this works is that if someone, e.g., the adverse party, tries to obtain protected information, a client responds that ACP protects the information. When a client says information is protected by ACP (and the elements are indeed met), the person attempting to get that information cannot compel its production. Moreover, the *attorney* is not allowed to reveal this information to anyone.

A formal definition of ACP, therefore, is, "*ACP protects communications made in confidence to an attorney to obtain legal advice*." Let's break that definition down into parts. "ACP protects" means that neither court nor the adverse party can force an attorney or client to tell them about the confidential conversations. "Communications" refers to the conversations between an attorney and client. "Made in confidence" is important; the conversation *must* be private. It cannot take place in public, and people other than the client and his attorney cannot hear the conversation. For example, ACP does not protect a conversation in Starbucks. "To an attorney" means the client must be communicating with his attorney in his professional capacity (i.e., the client tells his attorney these things *because he is an attorney*). "For the purpose of obtaining legal advice" refers to intent. For example, ACP does not protect conversations about politics or the weather.

When ACP Does Not Apply

ACP does not automatically protect all conversations between an attorney and his client. To fall under ACP protection from disclosure, the conversation must meet every single element of the definition above. If one of the elements is missing, ACP does not protect the conversation. For example, disclosing the confidential communication to a third party by either the attorney or the client nullifies ACP because it doesn't uphold the element of "made in confidence".

In addition, ACP will not protect these conversations: 1) conversations that show the client is going to harm him/herself, 2) conversations that show the client is going to harm the public by committing a crime or fraud, and 3) personal chit-chat not related to the case.

What is the Purpose of ACP?

The goal of ACP is to encourage clients to disclose all information and communicate freely and openly with their attorneys. All information includes the fact that the client actually committed the crime s/he is being accused of. An attorney can make a better case and advocate more efficiently for his client when the client fully informs him of all information related to the case.

When does ACP start?

ACP protects communications made after a client hires an attorney. ACP also protects communications made in anticipation of hiring the attorney. For example, ACP protects confidential conversations a client has with an attorney when deciding whether to hire that attorney.

Remember Whom the Attorney Represents

Whom the attorney represents has important implications for the ACP. In the corporate setting, an attorney is either an employee of the corporation (an "in-house" attorney) or an attorney in a law firm (referred to as "outside" counsel). Regardless of whether the attorney is in-house or outside counsel when an attorney represents a corporation, the attorney's client is the legal entity itself and not any individual director, officer, or employee. Even though an attorney has to have the corporation's best interests in mind rather than its members, ACP typically applies to the attorney's communications with the corporation's directors, officers, and employees because the corporation itself cannot talk.

Not all conversations with directors, officers, and employees are protected. Whose and which conversations are protected can be determined by using one of the two approaches explained below.

Two Approaches to Determine Whose and Which Communications in the Corporation ACP Protects

There are two approaches used to determine who and what communication within a corporation ACP protects.

In the **Control Group Approach**, ACP only protects confidential communications between a corporation's upper-level management and its attorneys. This approach does not protect communications of lower-level employees. Only a few states use this approach because lower-level employees are typically the ones who have the information the attorney needs to give the company sound advice.

With the **Upjohn Test**, ACP protects confidential communications between an employee and the corporation's attorney if the communication is made for the purpose of obtaining legal advice or providing facts to the attorney (i.e., it was not a cordial conversation between friends), and the communication involves matters within the scope of the employee's corporate duties.

Communicating with an Opposing Party

The ethics rules regulating attorneys prohibit an attorney from speaking with a person (e.g., the opposing party) if that person is represented by an attorney in the matter. This is a separate rule from ACP. Regardless of confidential information, an attorney is not allowed to speak to an opposing party represented by an attorney.

How does this work when the opposing party is a corporation? It depends on whether the employee of the opposing corporation can bind or otherwise affect the company. An attorney is not allowed to talk to any employee of the opposing corporation who can be held liable for the acts of the organization. This will typically be higher-level employees and managers. However, this rule only applies to attorneys, rather than clients. Opposing parties in a lawsuit can communicate with each other.

The Work Product Doctrine

The **Work Product Doctrine** (WPD) is a separate privilege, but it is similar to ACP. Whereas ACP protects confidential *conversations*, WPD protects *documents and other tangible things* that were prepared in anticipation of litigation. It does not protect documents and other tangible things that were prepared during and for the normal course of business. A key difference between ACP and WPD is that ACP *fully protects* the conversation, no matter how badly the other side needs that information. WPD, however, cannot protect tangible things, like documents, made in anticipation of litigation if the other side shows: (1) a substantial need, and (2) no other way to get that information without undue hardship.

Another difference is that documents must be prepared *in anticipation of litigation*. This means that the client is aware of a potential lawsuit *before* the documents are made. For example, to prepare for an upcoming case, an attorney goes to a crime scene and takes pictures of the garage. Because this is a tangible thing rather than a conversation, and because the attorney took the pictures in anticipation of the case, this is WPD instead of ACP.

However, if a tornado comes and destroys the garage before the other side had time to go and take pictures, the other side can force the attorney to produce those pictures because they had (1) substantial need, and (2) no other way to get pictures of the crime scene without undue hardship.

WPD can protect documents made by a non-attorney working for an attorney if the documents were made with an upcoming case in mind (in anticipation of litigation). However, be careful what you put into writing because communications and documents, especially between employees, can often be obtained by the other side in litigation. WPD is not as strong a protection as ACP.

Chapter IV-16
Contract Law

A contract is a set of promises that the law enforces. Not all promises are legally binding. The term contract refers to promises that are legally binding. A contract can be between two or more parties. The promise is often for the exchange of goods or services. An offeror makes an offer. An offeree accepts an offer.

Contract law is separated into contracts for services and contracts for goods. Contracts for goods (i.e, cars, appliances, hamburgers) are regulated by the Uniform Commercial Code ("UCC") and tend to be more informal than contracts for services. Contracts for services are mainly governed by common law or judge-made law.

For the law to enforce a promise (for either goods or services), the promise needs to have some form of consideration from both parties. Without consideration, courts will not enforce a promise as a contract. For example, Jane promises to sell her laptop to John for $350 in exchange for John's promise to pay $350. Because both the laptop and the $350 have legal value, this constitutes a contract. The laptop is the consideration offered by Jane, and $350 is the consideration offered by John.

On the other hand, if Jane promises to give her laptop to John, but John does not promise to give Jane anything in return, this is not a contract that courts will enforce. Because John is offering no consideration, this is a gift rather than a contract.

CONTRACT FORMATION (FOR EITHER GOODS OR SERVICES)

Contracts can be in writing or spoken (i.e., "oral"). Some contracts have to be in writing. For example, contracts for real estate, contracts that cannot be performed within one year, and contracts for goods over $500 *must* be in writing.

A contract consists of: an offer, acceptance of that offer, and some sort of compensation from both parties known as consideration.

Offer

An offer is a communication that gives the offeree the power to close the deal simply by saying yes. The offeror must intend to enter into a contract by making the communication. The terms of the offer must be definite enough so that the resulting contract is capable of being enforced. This usually means an offer needs to identify: the offeree, the good or service the contract concerns, and the price.

The offeror can terminate an offer by telling the offeree that s/he is retracting the offer. The offeror can only terminate the offer like this before the offeree accepts. If the offeror terminates the offer before it is accepted, this means the offeree no longer has the power to close the deal simply by saying yes.

For example, Jane tells John, "I will sell you my computer for $350." Jane can terminate this offer any time before John says yes (accepts). All Jane has to do is let John know that she no longer wants to sell him her computer at that price. However, once John agrees to buy Jane's computer for $350, Jane can no longer terminate her offer.

However, there are some circumstances in which the offeror *cannot* revoke the offer. Typically, these are called **option contracts** and occur when an offeree gives **separate consideration** for an offeror not to revoke an offer.

For example, Jane offers to sell her car to John for $12,000 and promises to keep the offer open for 30 days if John pays Jane $100 to keep the offer open.

There is also a very specific rule for the sale of certain goods where the offeror cannot revoke the offer regardless of separate consideration. If a merchant (a person who regularly deals in goods of the kind) offers in a signed writing to sell goods and the writing specifically says the offer will be held open, then the offer is not revocable.

For example, Jane is a computer merchant. She writes a letter to John offering to sell a computer to him for $400. The letter says, "the offer will be held open for 7 business days," and Jane signs the letter. Here, Jane cannot revoke the offer for 7 business days, regardless of the fact that John did not provide separate consideration. Note that this is a very narrow rule and does not apply to services or to the sale of goods by someone who is not a merchant.

Acceptance

Acceptance is showing that you agree to the terms of the offer. Acceptance is a voluntary act by the offeree where s/he exercises power given by the offer (i.e., closing the deal by saying yes). Acceptance creates the contract. The parties made a bargain, so now they are legally obligated to perform.

In limited circumstances where the parties have a regular business relationship, an offer can be accepted by merely performing the requested act. For example, a hotel sends an offer to a pillow store stating that it would like 200 pillows at an understood price, and the pillow store accepts the offer when it sends the pillows to the hotel.

Consideration

Consideration, as discussed above, is required by both parties (e.g., buyer pays money, and the seller provides goods or services).

TERMS & WARRANTIES OF CONTRACTS

Terms of the Contract and Interpretation (for either goods or services)

Once you have determined that a contract exists, you then have to determine the terms of the contract. All contracts have an implied requirement that the parties execute the contract in good faith. This means that parties cannot use bad faith to get out of a bargain. They must behave fairly. For example, Jane enters into a contract with John that says John agrees to paint Jane's house for $450 before Friday. It rains continuously from the time Jane and John enter the contract until Friday, so John is unable to paint the house. It is acceptable that John did not paint the house because he acted in good faith. Whereas, if it was never going to rain, but John used the possibility of rain for not having completed the task, then he has not acted in good faith and is liable for breaching the contract.

Courts will construe contracts as a **whole** whenever possible, meaning that courts will look to the general intent of the contract over specific clauses that appear inconsistent. Courts will also look to the ordinary meaning of words unless the parties clearly intend to use a technical meaning.

There are three rules that apply when construing ambiguous terms. Any ambiguities in the terms are construed against the party that drafted the contract. A term may be defined by looking at how it is used in a particular business or trade. This is often called "usage of trade." And a term may be given meaning by the parties' previous interactions with each other. This is often called the **course of performance** for interactions within a single contract or **course of dealing** for interactions from other contracts.

To avoid the introduction of additional terms, a contract should state that the contract embodies all agreements and cannot be modified except by another signed agreement (i.e., "no oral modification").

The following additional rules apply for goods only. The UCC governs contracts for the sale of goods. A contract for goods may be vague because the UCC provides default terms. For example, the

UCC provides a "gap filler" for price. If the price is left out, the UCC says the price is a "reasonable price at the time for delivery." However, a contract for the sale of goods *must* state the quantity of the goods purchased.

Warranties in Contracts (for goods only)

Contracts for the sale of goods involve three basic warranties. The warranties do not apply to contracts for services. If there is a defect in service, the buyer can sue the seller for breach of contract generally, rather than a breach of a warranty.

Warranty of Merchantability

The warranty of merchantability applies when merchants sell goods to others. A merchant is someone who regularly deals in the kind of good. So this would *not* include Jane from the previous examples selling her computer to John unless Jane was a computer merchant.

The warranty of merchantability warrants that the good is fit for the ordinary purpose for which it was designed. For example, when you buy a blender from Wal-Mart, there is a warranty that the blender will, in fact, blend your food. However, if you buy the blender from your next-door neighbor, the blender will not have the warranty of merchantability because a merchant did not sell it to you.

Merchants can disclaim the warranty of merchantability. If a merchant mentions the word "merchantability" in a disclaimer and if the disclaimer is conspicuous within the written sales contract, then a merchant can disclaim this warranty. The result is that the merchant is no longer liable if the product does not function as it is supposed to.

For example, your contract with a pen merchant to purchase 100 pens. If your contract to buy the pens says, "seller does not ensure the pens are merchantable," in size 5 font on the back of the sixth page, the merchant will still be liable if your pens do not actually write. The merchant will be liable because he did not effectively disclaim the warranty of merchantability since the terms were not conspicuous.

On the other hand, if the contract says, "seller does not ensure the pens are merchantable," in size 12 font on the front page under a title that says "Disclaimer of Warranties," then the merchant will *not* be liable if your pens do not write.

Warranty of Fitness for a Particular Purpose

The warranty of fitness for a particular purpose applies when: (1) any seller (merchant or regular person) should know the buyer is going to use the good for a particular purpose, and (2) the buyer relies on the seller's expertise to buy a good for that purpose. The warranty guarantees that the good is fit for the particular purpose the buyer communicates to the seller.

For example, you walk into an office supply store to purchase a paper shredder. You tell the sales associate that you need a paper shredder that will shred 20 pages at a time. The sales associate shows you a paper shredder and tells you it will shred 20 pages at a time. After purchasing that paper shredder, you try to shred 20 pages and the shredder breaks. It can only shred a maximum of 15 pages at a time. This is a breach of the warranty of fitness for a particular purpose.

Sellers can disclaim the warranty for a particular purpose. The disclaimer must be in writing, and it must be conspicuous.

Express Warranties

An express warranty arises when the seller (merchant or regular person) has stated that the good has a particular quality. For example, a used car salesman tells you a car has 12,000 miles. If you purchase the car and find out it actually has 21,000 miles, the seller will be liable.

Express warranties do not include words of exaggeration such as "the best" or statements such as "you will like this." Once made, express warranties are difficult to disclaim.

MODIFICATIONS & BREACHES OF CONTRACTS

Modification of the Contract

A contract for services, or another contract not governed by the UCC, cannot be modified without providing *new* consideration for the modification. Recall that consideration is something valuable the parties give in exchange for an agreement.

For example, you enter into a contract with a painter. He agrees to paint your house within the next three weeks, and you agree to pay him $400. You decide you want your house painted within the next week. To modify the contract, you agree to pay him $400 plus an extra $50 if he paints your house within the next week. The modification is valid because you offered new consideration.

But a contract for goods under the UCC may be modified without new consideration as long as the modification is made in good faith. For example, you enter into a contract with a pen merchant in January. The pen merchant agrees to send you 100 pens per month, and you agree to pay $15 per month. In June, you realize you have hundreds of unused pens, so you tell the pen merchant you only need pen deliveries every other month instead of every month. This is a modification made in good faith.

Modifications may be made orally. However, if the modification causes the contract to be worth more than $500 or for services that cannot be performed within one year, the modification must be in writing. Recall from above that contracts over $500 or contracts that cannot be performed within one year must be in writing to be enforceable.

Performance of the Contract

Normally, a party to the contract has a duty to perform the contract when performance is due. For example, you contract to have a quantity of turtles delivered on July 1. Certain circumstances may permit a party not to perform. For instance, if the nature of the contract has recently been held to be illegal (e.g., the sale of turtles has recently been outlawed); if the contractual duty becomes impossible to perform (e.g., a virus has wiped out all of the turtles before the sale); or if performance has become impracticable, meaning extremely or unreasonably difficult or expensive to perform (e.g., the price of pet turtles has skyrocketed). Note that an "act of God" (e.g., a tornado or a fire) may make a contract impracticable or impossible to perform and the contract can be rescinded.

Effect of a Breach of Contract

The following rules apply to a breach for a contract for services or another contract *not* governed by the UCC. A minor breach of the contract does not relieve either party of the duty to perform. Examples of minor breaches include insignificant delays or adjustments in the materials that are not critical. When there is a minor breach, the parties must continue to perform the contract, and separate remedies are made for the minor breach. This remedy typically includes a small adjustment in price. However, a material breach will relieve the non-breaching party of its duty to perform. The non-breaching party can sue immediately and seek damages. Damages are monetary awards.

If a party has given unequivocal notice that it intends not to perform, such notice is deemed a material breach. This is known as anticipatory repudiation. The point is that when one party refuses to perform, the other party need not go through the useless act of performing their own part before they can seek damages.

The following rules apply to a breach for a contract for goods. The UCC follows the **perfect tender rule**. For a contract for goods, if the seller's performance does not conform to the contract in any way, the buyer may reject the entire delivery, accept the entire delivery, or accept the goods that conform with the contract and reject the rest.

Chapter IV-17

Agency & Intentional Torts

Agency is the legal relationship between a principal and the person, or **agent**, authorized to act on his behalf.

A **tort** is a wrongful act that causes another person to suffer physical or financial harm. The law provides a monetary (or another type) remedy for a tort. A breach of contract is not a tort though it is also a civil wrong that provides a basis for a lawsuit. Negligence is an unintentional tort. Products liability is also a tort regardless of intentionality. A tort is a civil wrong, as opposed to a criminal wrong. When a person commits a crime prohibited by criminal statutes, the state can prosecute that person criminally. A victim can also sue the person civilly for the same act.

RELATIONSHIP BETWEEN TORTS AND AGENCY

A principal is responsible for his/her agent's torts. For example, consider a business owner (the principal) who authorizes his employee (the agent) to implement a customer appreciation event. The agent can enter into contracts to prepare the customer appreciation event, and the principal will be liable for those contracts. Moreover, if the agent commits any torts (i.e., the agent negligently or intentionally swipes a customer's credit card twice, causing the customer's account to overdraft), the principal is liable for any resulting damages. This means that the agent-principal relationship creates principal liability in both contracts and torts.

Intentional Torts

The intentional torts are:

Battery – an intentional act to inflict harm or offensive bodily contact (e.g., punching someone).

Assault – an intentional act to cause imminent apprehension of harmful or offensive bodily contact (e.g., threatening to beat someone up).

Intentional infliction of emotional distress – intentionally or recklessly causing severe emotional distress (e.g., a supervisor calling an employee very vulgar names daily). Courts require a high standard of extremely outrageous conduct for an IIED case. Mere words are typically not enough unless they are repeated to an extreme degree. People must have some degree of "thick skin" in this area because courts do not want an abundance of IIED suits.

Trespass to chattels – intentionally interfering with chattels owned by another (e.g., stealing). Chattels are a property that is not real estate (furniture, cars, jewelry).

Trespass to land – intentionally entering land lawfully owned by another (e.g., disregarding a no trespassing sign).

False imprisonment – an intentional act to confine someone unlawfully (e.g., locking someone in a room).

Conversion – intentionally exercising control over the chattels of another (e.g., theft or embezzlement). The difference between trespass to chattels and conversion is one of degree. Trespass to chattels typically regards items that are stolen for a period of time then given back, and the defendant has to pay something less than the full value of the item. Conversion regards items that are stolen for good, and the defendant has to pay the full value of the item.

For someone to be liable for an intentional tort, she or he must have *intended* to cause harm, rather than be negligent, where the defendant is liable even when s/he did not intend to cause harm. For example, if John pulled a chair out from beneath Jane, causing her to fall, it would be an intentional act. However, if John was not watching where he was going and tripped, causing Jane to fall, it is not an intentional act.

There are defenses to intentional torts. This means that even if someone committed an intentional tort if s/he committed it for one of these reasons, they will not be liable to the injured person. The defenses are:

Consent – the plaintiff consented to the defendant's act (e.g., Jane told John he could borrow her car for a week, so Jane cannot sue John for trespass to chattels when he does indeed borrow it).

Self-defense or defense of others – you must use reasonable force proportionate to the force used against you. This means you cannot use force meant to cause deadly harm unless you reasonably believe such force will be used against you.

Defense of property and recovery of property – you can use reasonable force to recover stolen property only when in fresh pursuit of the taker.

Merchant's privilege – a merchant, can detain someone for inspection if she or he reasonably believes the person has stolen something.

The principal, in addition to any contractual obligations, owes the agent a reasonable payment for his/her services and must provide the means for the agent to accomplish the task. The agent owes the principal fiduciary duties of loyalty, obedience, and reasonable care, in addition to any contractual obligations between the parties. This means that the agent cannot make contracts with firm customers to benefit himself. For example, a hostess cannot take tips for seating people quickly.

Agency Relationships

The principal can be liable for an agent's contract if the agent has one of the following types of authority.

Actual authority – where the principal expressly states the agent can enter into a contract for her.

Apparent authority – where the agent's authority to bind the principal is derived from the fact that the principal allows the agent to enter into contracts on behalf of the principal, even though the express authority hasn't been granted. For example, a bar owner that allows a bartender to place orders for the bar represents to the liquor distributor that the bartender is the owner's agent and may enter into contracts on his behalf.

Inherent authority – where the principal is bound to the agent's acts because the acts, although without actual or apparent authority, are those that normally or customarily flow from the agent's position.

Consider the following example. Budweiser takes over a local microbrewery. The microbrewery's name is still on the sign, and the same manager who has always made purchases continues to make purchases from a vendor not on Budweiser's approved list. The manager does not have actual authority because the vendor is not on the approved list. The manager does not have apparent authority because Budweiser is not holding out that the manager can buy from that vendor. The manager has inherent authority. Owners can prevent managers from acting with inherent authority by informing vendors of the new management. The best practice is to send a letter to all relevant vendors informing them of the change in management and the approved list of vendors.

The principal may be bound by an agent's acts where no authority exists if the principal ratifies or approves the agent's acts.

Agency Relationship in Torts: Respondeat Superior

The principal can also be liable for torts the agent commits while on the job. The legal term is "respondeat superior."

An employer is responsible for an employee's actions taken within the scope of employment. Let's look at an example. A FedEx driver hits a car driving next to him. The driver's employer is liable for the damages caused by the wreck because driving is within the scope of the driver's employment. Typically, employers have "deeper pockets" (i.e., more money), so injured parties will sue the employer rather than the employee. Because employers can be liable for employees' actions, employers should be careful when hiring new employees.

A principal (employer) is *not* responsible when the agent (employee) commits an intentional tort, listed above. The law considers intentional torts to be outside of the scope of an agency relationship. However, if a principal directly commands an agent to commit an intentional tort, then the principal will be liable (e.g., the employer tells his employee to embezzle money).

Here, there are two rules because there are two types of employees a principal might hire: employees and independent contractors. The law distinguishes between employees and independent contractors. The employer is only responsible for the acts of an employee, not an independent contractor.

The line between employee and independent contractor is blurry. The more the employer controls the employee's job performance, the more likely she or he is to be categorized as an employee.

Chapter IV-18

Defamation, Interference and Fraud Law

DEFAMATION

Defamation is an act by an individual or an organization that damages another individual's or organization's reputation by making *false* statements. (In extremely rare cases, a truthful statement might also constitute a defamation act, but that is beyond the scope of this discussion.) There are four main topics within defamation:

- Whether it is negligent, reckless, or intentional
- Written defamation (libel) or oral defamation (slander)
- Presumed damages or actual damages
- Who is being defamed: (a) ordinary person or organization, (b) public figures, or (c) ordinary or public figures but with matters of public concern

Negligent, Reckless, or Intentional

As previously discussed, **negligence** is the failure to exercise the degree of care that a reasonably prudent person would exercise in similar circumstances. For example, someone making a defamatory statement will likely be liable if a reasonable person would have investigated before communicating the statement. A defendant is **reckless** if s/he had serious doubts about the truthfulness of the statement but communicated it nonetheless. A defendant acts with **intent** if s/he means to cause harm by publishing the statement.

Libel vs. Slander

Libel is a defamatory statement put down in *writing*. Libel also includes statements in a form equivalent to writing such as TV or radio. The important part is that libel is preserved in some permanent form. Slander is a *spoken* defamatory statement. Slander is less permanent because it is not recorded or otherwise preserved.

Actual vs. Presumed Damages

Actual Damages is a concept where the plaintiff must provide evidence to prove that the defamatory statement hurt his or her reputation in some pecuniary manner. Slander cases *usually* require actual damages, i.e., proof of financial loss. Actual damages include things like loss of a job or job opportunity, loss of an inheritance or loss of a business relationship.

Presumed damages is a concept where the plaintiff does not have to prove by providing evidence that the statement caused pecuniary harm. It is assumed by the law that the statement has caused financial damage. The exact amount of damages that can be recovered is a separate issue. Statements that are written (libel) usually fall into the presumed damages category. In addition, spoken statements in one of the following categories also are included in presumed damages:

- Business or profession (the plaintiff's ability to do his/her job)
- Loathsome disease (typically, a venereal disease)
- Crime involving moral turpitude (e.g., perjury, assault, stealing)
- Unchastity (generally of a woman)

Who is Being Defamed

Both individuals and organizations can sue for defamation. However, the criteria for making a case depends on whether the party suing for defamation is: (1) an ordinary person/organization, (2) a public figure, or (3) an ordinary or public figure but with matters of public concern. Verbal abuse, obscenities, name-calling, or other hyperbole, are not by themselves sufficient to make a case of defamation. To prevail in a lawsuit, the plaintiff must always prove the following elements of defamation and others that may be applicable. These necessary elements comprise what is called **prima facie defamation**:

A defendant (either an individual or an organization) may be liable to the plaintiff (either an individual or an organization) for defamation when the defendant makes (broadcasts, circulates, publicizes or even communicates one-on-one) a *false and defamatory statement made negligently, recklessly, or intentionally about the plaintiff to another person(s), and the plaintiff's reputation is harmed*. (Remember that the plaintiff is the one who is defamed, and the defendant is the one making the defamatory statement.)

To succeed in a defamation case, one must prove the following elements:

- *Defamatory language*, which is a language that can damage one's reputation
- The defamatory language *concerns the plaintiff*, meaning that the typical listener or reader will know the statement is about the plaintiff
- The defendant *conveys* the defamatory language to a third party
- *Damage* to the plaintiff's reputation

Here is an example. Jane owns a restaurant located in a large shopping center with many other restaurants. Jane *suspects* that John, one of the chefs, lied about having a culinary degree. Jane plans to look into this but never gets around to it. Subsequently, John is late to work four days in a row. Jane fires John for being late to work. In a meeting with all the restaurant owners in the shopping center, Jane mentions that she recently had to fire John because he did not have a culinary degree. After this, none of the restaurant owners in the center will hire John because they believe he does not have a culinary degree. John, in fact, does have a culinary degree. John has a defamation case against Jane.

Defamation of Public Figures

Public figures are typically defamed for official conduct. For unofficial conduct, the public figure can possibly sue as a prima facie case, but that is outside the scope of this discussion. For official conduct, in addition to proving the prima facie elements listed above, a public figure can only recover if the statement was made with **malice.** This means that the defendant knew the statement was false (intentional) or had serious doubts as to the truthfulness but broadcasted the statement nonetheless (reckless). Note that *negligent* negative statements do not constitute defamation of a public figure.

A plaintiff is a public figure if s/he is famous either as a celebrity, politician, etc. or as a central figure in a public controversy (e.g., Dr. Martin Luther King, Jr.). The reason public figures have to prove malice, whereas private individuals do not is that private individuals are more likely to be injured by defamatory statements and have fewer opportunities for effective rebuttal.

Defamation Regarding Matters of Public Concern

When defamation involves a matter of public concern, in addition to the elements of prima facie defamation, the defendant must have a **fault,** and the plaintiff must prove **actual damages**.

In a *prima facie defamation* case, a defendant can be liable for *unknowingly* publishing an erroneous statement if that statement damages the plaintiff's reputation. For example, even if Jane genuinely thought John did not have a culinary degree, she may still be liable for defamation for telling the other restaurant owners that John did not have one. However, for *defamation regarding matters of public concern*, the plaintiff must show that the defendant *knowingly* published an erroneous statement. For example, Jane knew John had a culinary degree but told the other owners he did not have one because she did not want any nearby restaurants to hire John.

For defamation regarding matters of public concern, the plaintiff must also prove actual damages, meaning the damage to plaintiff's reputation caused *monetary damage*. This is compared to presumed damages, where the plaintiff does not have to show monetary harm because the law presumes monetary damage resulted from the statement.

When defending a defamation case, the attorney for the defendant will try to show that the plaintiff did not prove all of the above elements. For example, an attorney for the defendant will probably argue that a reasonable listener would not realize the language *concerned the plaintiff*. In addition to rebutting the defamation elements, an attorney representing a defendant can make the following arguments, if applicable, to prove that the defendant *should not be liable* for the defamatory statement.

Defenses to Defamation

There are three standard defenses for defamation: (1) the defendant *consented* to the defamation, (2) the statement was *true*, (3) the statement is protected by a *privilege* and is, therefore, protected from being used in a lawsuit. Such privileges include judicial proceedings, legislative proceedings, executive proceedings, and conversations between spouses.

For example, the executive privilege shields all confidential communications between the President and his close advisers. Because the public has an interest in allowing the President and his advisers to speak freely among each other regarding confidential issues, no confidential statements made between the President and his advisers can be used in a lawsuit for any purpose. The statements cannot be introduced into evidence; witnesses cannot testify as to the statements; and parties may not inquire into the statements. It should be noted, however, that plaintiffs might be able to sue based on invasion of the right to privacy for truthful statements that harm the plaintiff's reputation.

Defamation often arises in the business context when organizations or individuals make false statements regarding an organization's ability to conduct business, its means of conducting business, or other false statements harming the organization's reputation.

INTERFERENCE WITH BUSINESS RELATIONS

Business markets involve competition, but sometimes, competition goes too far. **Interference with business relations** is a cause of action alleging that a competitor unlawfully interfered with a business relationship.

A defendant may be liable for interfering with the business of another if the plaintiff (the injured party) had a contract or a business/economic expectation with someone else; the defendant knew of the contract or expectation; and the defendant *intentionally interfered* with that contract or expectation, resulting in the plaintiff breaching the contract or losing the economic expectation. This means that the defendant intentionally caused harm to the plaintiff's business.

This lawsuit is designed to stop companies from using unfair business practices to cause economic harm to competitors. To succeed in an interference case, the plaintiff must prove that the defendant *intentionally* acted unfairly. For example, a restaurant owner negotiates a contract with a potential purchaser who wishes to turn the burger restaurant into a sub shop. The landlord of the building informs the potential purchaser that no sub shops are allowed in the shopping center, causing the purchaser to back out of the contract and causing the restaurant owner to lose the sale. However, there is neither a provision in the lease nor any previous rule against sub shops. The restaurant owner likely has a suit against the landlord for interference.

However, the defendant may not be liable where such interference is an attempt to obtain a business advantage, and the defendant does so using commercially acceptable means. For example, if there is another sub shop already in the shopping center who has an agreement with the landlord to be the sole sub shop in the center, the landlord can legally interfere with the potential sale.

FRAUD/MISREPRESENTATION

Fraud is another unfair business practice that the law forbids.

Fraud is an *intentional* misrepresentation. Unintentional misrepresentation is likely just negligence. A plaintiff in a misrepresentation case must prove the following elements to recover damages:

- The defendant *knowingly* made a misrepresentation
- The defendant *intended* for the plaintiff to rely on that misrepresentation
- The plaintiff reasonably *relied* on that misrepresentation
- The plaintiff suffered *damages* as a result of relying on the misrepresentation

For example, Jane sells a car to John. Jane tells John that the car has 15,000 miles on it and turns back the odometer from 30,000 miles to 15,000 miles. John purchases the car at a much higher price than he would have paid had he known the true mileage of the car.

Fraud comes up most often when parties are buying and selling houses, cars, goods, etc. and the seller misrepresents the condition of the good.

Chapter IV-19
Negligence

Negligence is the failure to exercise a degree of care that a reasonably prudent person would exercise in similar circumstances. The law requires a basic duty of care for all activity. When you partake in an activity, you are supposed to act as a reasonably prudent person. This means you will be careful not to create situations where others can be injured. If you are not careful (i.e., you do not act as a reasonably prudent person in similar circumstances) and someone is injured, that person has a cause of action against you. This is often called the duty of reasonable care.

Negligence is best understood using the terms plaintiff (the person who is physically or financially injured) and the defendant (the person whose conduct injured the plaintiff). The defendant may be liable to the plaintiff where the defendant owes a duty to the plaintiff (typically, the duty of reasonable care discussed above) and the defendant breaches that duty, causing injury to the plaintiff.

The basic elements of negligence are a legal **duty of care** is owed, **breach** of that duty, **causation**, and **injury** (damages).

Duty

In general, the duty that is owed is the degree of care that a reasonably prudent person would exercise in similar circumstances. That duty is owed to all foreseeable plaintiffs (i.e., those who may be physically or financially injured).

Standard of Care: Whether the Duty is Met

The basic standard of care is that of a reasonably prudent person. There are different standards of care for certain individuals and in certain circumstances. The most important differentiation from the reasonable standard of care involves professionals. Professionals (doctors, lawyers, etc.) or those with special occupational skills are required to possess the skill and knowledge of a member of the profession or occupation in good standing in similar communities. The standard of care is *much higher* than the duty of reasonable care because clients place trust in their professionals.

Common carriers (bus drivers, couriers, etc.) and innkeepers (hotel and motel personnel) are also held to a higher standard of care than the reasonable care standard. Common carriers and innkeepers must be extremely careful towards their passengers and guests because they can be liable for even slight instances of negligence as compared to reasonable care standards.

Breach of Duty

A breach exists where one fails to exercise the applicable standard of care. As a procedural matter, it may be shown by the failure to follow industry standards (but even industry standards may be found negligent if they are not reasonable). For instance, a breach can occur when someone fails to act in accordance with typical customs or usage in a situation. Additionally, a breach can also happen when someone violates criminal or civil statutes (i.e., speeding).

Causation

The defendant's acts must be the actual and legal cause of the plaintiff's injuries. Here you must ask whether the plaintiff's injury would not have happened "but for" the defendant's negligence.

For example, if you have an accident while speeding to work because your wife forgot to set the house alarm, is your wife the legal cause of your accident? No. Your wife is not the legal cause of your accident because you caused the accident. *You* are the legal cause of the accident. But for *your* speeding, the wreck would not have occurred.

Even where a negligent act wouldn't normally cause an injury, you may still be liable to the plaintiff for aggravating an existing condition. This is called the "eggshell plaintiff" or "thin skull" rule. If you are negligent and your negligence injures a plaintiff, you are liable for those injuries even if your negligent actions would not have normally injured someone.

Consider a professor who negligently throws a stack of papers. The papers normally would not hurt anyone, but they hit John, who has a rare skull condition. Because of his rare skull condition, the papers severely injure John, and he has to have seven surgeries. The professor is liable for his negligent throwing of the papers even though that would not have caused a normal person to have seven surgeries.

Over the last couple of decades, courts have included more mental injuries. Here is an example. You negligently hit a plaintiff's car. The plaintiff bumps his head on the window. For most people, the bump would not have any effect, but it causes this particular plaintiff to relapse into mental illness. You are liable for these damages because of your negligence, even though the head bump would not have caused mental or emotional injury for a different person.

Damages

The negligence must actually cause harm to either the plaintiff himself or his property. There must be actual harm for the defendant to compensate.

Common Types of Negligence Lawsuits & Damages

The defendant may be liable for both monetary (e.g., loss of income, medical bills) and non-monetary damages (e.g., pain and suffering) resulting from **physical injury**. From the "bump on the head" example above, you would be liable for any hospital bills resulting from the bump on the plaintiff's head. If the plaintiff required counseling, you would be liable for the counseling. If the plaintiff missed three weeks of work, you would be liable for his lost wages.

The defendant can also be held liable for negligent conduct that causes damages to the plaintiff's **property**. For example, if you negligently hit someone's car and damage the front bumper, you are liable for the damage to the front bumper.

The defendant can be liable for negligent conduct that causes the plaintiff **financial or monetary damages**. If you suffer a loss on an unsuitable stock recommendation because your stockbroker negligently recommended that stock, he will likely be held to the standard of care of a licensed professional in his industry.

Negligent infliction of **emotional distress** is another type of negligence lawsuit. The defendant is liable if his or her conduct causes the plaintiff to suffer mental or emotional harm. However, there are usually limits on this type of recovery, and not all plaintiffs can sue based on emotional harm. In some states, plaintiffs cannot recover for emotional distress only. There must be physical harm either as a result of emotional distress or cause of emotional distress. In cases where the plaintiff suffered emotional distress because s/he witnessed another's an injury, the ability to sue may depend on whether the plaintiff is sufficiently related to the victim. The requirement of physical harm and the requirement of a close relationship vary greatly depending on the jurisdiction.

Many insurance policies cover these damages (i.e., car insurance, professional malpractice insurance, or home owner's insurance). The analysis is the same, regardless of the presence or absence of insurance.

PRODUCTS LIABILITY

Products liability is a distinct area of law from negligence. It imposes liability on the supplier of a defective product that injures someone. Such liability may be based on defective design, manufacturing defect, or inadequate warnings.

Defective design refers to an inherent flaw or error in the product's design. To be a defective design, the flaw must be found in the entire line of products. Consider a car airbag that shoots out metal shards when deployed because the airbag's design uses metal plates to hold the airbag in place. If the metal shards injure someone, that person can sue the manufacturer, alleging that the design of the airbag is defective.

A **manufacturing defect** occurs when an error in the manufacturing process creates the defect.

In contrast to defective design, which applies to an entire line of products, if a single product is defective, it is a manufacturing defect. If a car airbag injures someone by shooting out metal shards when deployed because an assembly line malfunction dropped metal shards into the airbag during the manufacturing process, that person can sue the manufacturer, alleging that there was a manufacturing defect in *that specific airbag*.

Inadequate warnings refer to a product's failure to provide adequate warnings or instructions.

A product needs to have clear warnings telling users of dangers that might not be apparent.

Consider what happens when a carmaker fails to warn drivers not to seat small children in front of an airbag. If a mother places her small child in the front seat, not knowing that the airbag can harm the child, and the child is harmed when the airbag deploys, the mother can sue the manufacturer based on inadequate warnings.

Categories for Products Liability Cases

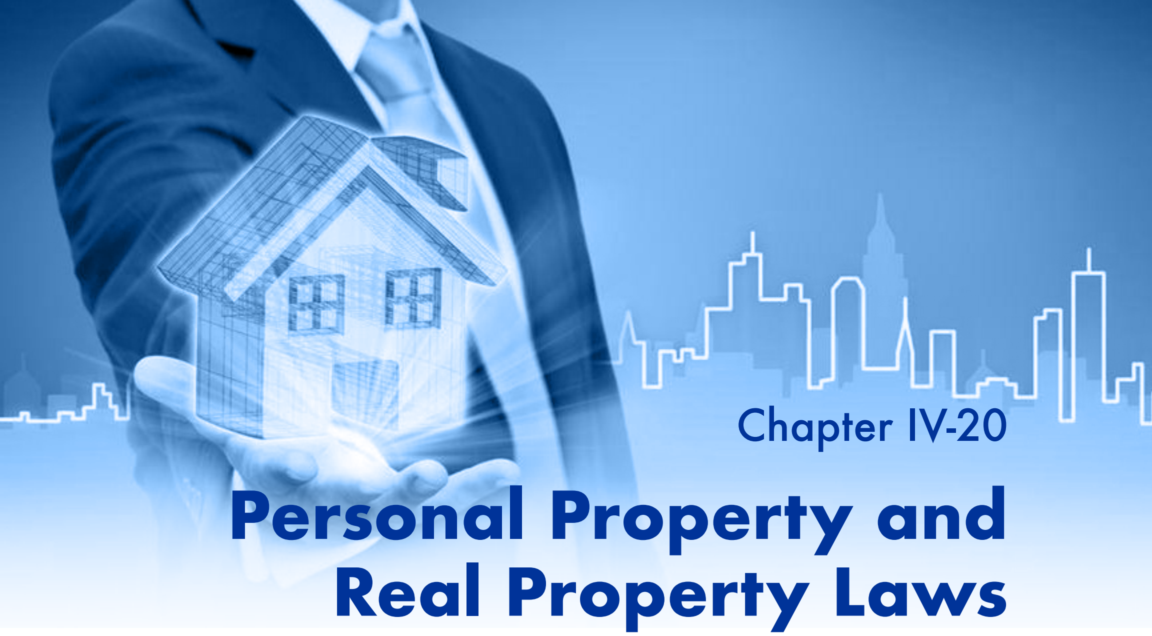
There are four categories of defects for product liability cases.

The first is **negligence**. All of those in the chain of sale (i.e., manufactures and sellers) owe a duty of care to every foreseeable plaintiff to properly design, manufacture, and market a product.

The second category is **strict liability**. All of those in the chain of commerce are liable for a product that is defective when it leaves their control. Negligence (duty, breach, causation, and damages) might be difficult to prove in some products liability cases, so courts have allowed more plaintiffs to sue without proving the elements of negligence. Under strict liability, the plaintiff must show that the harm occurred because of a defect in the product. If the plaintiff can prove this, he can sue anyone in the chain of commerce (i.e., anyone who supplied the product to the plaintiff). Here's an example. You buy a blender from a grocery store. The blender catches on fire and burns your counter. You can sue the grocery store or the manufacturer who supplied the blender to the grocery store under strict liability.

Implied warranty of merchantability is another category. The seller or manufacturer may be liable where the product is not of the average acceptable quality and is not generally fit for the ordinary purpose for which the product is used.

The last type is to **express warranties**. A buyer can sue a seller if the seller either makes a false, material statement regarding the product or the seller recommends a product s/he knows is not suitable for the buyer's need.



Chapter IV-20

Personal Property and Real Property Laws

The law defines property not as the "thing" one owns but rather as the "rights" one has over that thing. There are four main rights that make up property: the rights to possess/use, to exclude, to transfer, and to destroy. For example, John has a watch. John has the right to possess and wear the watch, the right to keep others from wearing his watch, the right to let someone else borrow or buy the watch, and the right to destroy the watch.

We can use a "bundle of sticks" as a metaphor for property rights. Rights (sticks) can be taken out of the bundle and given to others. In a rental agreement, for instance, the landlord gives the tenant the stick of possession for one year. The landlord will get that right (stick) back when the lease is up.

The law provides remedies when others unlawfully interfere with an owner's rights to his or her property. However, property rights are not absolute. So you have the right to exclude others from your land, but you cannot prohibit the police from entering.

Personal Property

Personal property is any moveable property. This includes any property that is not real property (land or immovable property attached to land). Personal property is subject to different laws than real property. Three common laws govern personal property rights: bailment, gifts, and lost property.

Bailment

A bailor is a person who gives an item of personal property temporarily to accomplish a specific task to another person, called the bailee. The relationship between the bailor and bailee is called bailment.

For example, a restaurant provides valet service to diners. The diner who hands his keys over is the bailor, and the valet who temporarily drives the car is the bailee.

If the bailee loses or damages the property, the bailor has a cause of action against the bailee. The bailee is *most* likely to be liable when the bailee has gained from the receipt of the property (the valet is getting paid to park the car, or you borrow a book from a friend). And the bailee is *least* likely to be liable when the bailee does not receive any benefits from the property or is not compensated (you keep a friend's car in your garage while she studies abroad for a semester).

Exculpatory statements (statements limiting the liability for damages) made by the bailee or the employer of the bailee may not be enforceable in these instances.

Gifts

The law governing gifts is that once given, gifts cannot be taken back. However, for a transaction to be a gift, it requires intent, delivery, and acceptance.

The owner must **intend** to immediately transfer the ownership; intention, and immediacy are the most important aspects of gifts. If a gift is promised in six months, then it becomes a gift only after six months and not immediately.

Physically handing over the property is sufficient for **delivery.** If physical delivery is not practical, symbolic delivery is also sufficient. For example, John tells Jane he wants her to have his lawn mower. John cannot physically hand over the lawn mower because he is bed ridden. Instead, John writes a note to Jane, telling her he is giving her the lawn mower and instructing her how to get it from his garage.

Acceptance is typically presumed unless the potential recipient expressly rejects the gift.

Generally, the lost property belongs to the finder against anyone except the true owner. The true owner can sue the finder if s/he refuses to give the property back.

Real Property

Real property is land or immovable property attached to the land. There are various types of rights in real property.

Absolute ownership implies that the owner has all four of the metaphorical sticks discussed above. Absolute ownership rights are also called "fee simple absolute."

There are several types of rights that are less than absolute ownership. For example, an individual can have an ownership right that is connected to someone's life. (Jane gives her house to John for as long as Jane is alive. John's ownership right in the house is connected to Jane's life.) Or ownership can be less than absolute if more than one person shares an interest in the property. (For example, a husband and wife own their house together.)

Another right that is less than absolute is called **easement**. An easement is the right to use land owned by someone else for a specific purpose (e.g., a shared driveway or a right to cross someone else's property). A common type of easement is a utility easement designed for use by a local utility company.

Landlord Tenant Law

If the period is longer than one year, the lease must be in writing. However, it is best practice to have all leases in writing. A periodic (month to month) lease is automatically renewed until proper notice is given. Proper notice must be equal to the lease period (month or year).

Tenancy at will means both the landlord and the tenant have the right to terminate the lease at any time and for any reason. Parties rarely enter into these types of leases. They occur most often when one of the other two types of leases is not valid under the law, but the parties still want to recognize a lease agreement.

There is also a distinction between residential and commercial leases. Tenants have less protection in commercial leases because they are perceived to be more sophisticated and have more bargaining power in creating the lease.

A landlord must provide the tenant with actual possession under the lease, maintain habitability (for residential leases, meaning keep the premises reasonably suitable for human residence pursuant to housing codes), and warn tenants of dangerous conditions not apparent to the tenant. Landlords must also comply with anti-discrimination laws that prohibit racial, ethnic, religious, gender, or familial status discrimination.

Tenants must pay rent, refrain from damaging the property, and refrain from committing illegal acts on the property. If the tenant violates one of these, the landlord may bring eviction proceedings.

Zoning

There are three major types of zoning laws governing future development: use (whether the building can be commercial or residential), area (lot size), and height.

Before building, one must consider all three types of zoning laws concurrently. The specifics of the laws vary by jurisdiction.

Liens

A lien is the right to possess property as security for payment of a debt. Liens can involve personal property but most often involve real property.

Premises Liability

A landowner can be liable for damage caused as a result of dangerous conditions on his or her property. If a landowner discovers or knows of a trespasser, s/he must then warn of or make safe known, non-obvious, highly dangerous conditions. However, the landowner owes no duties to an undiscovered trespasser.

For example, John owns 20 acres. There is a pond on the land containing highly hazardous chemicals. If John discovers that Jane is trespassing on his land, he must either warn Jane of the dangerous chemicals (i.e., post a sign) or make the pond safe (i.e., place a cover over the pond).

A business must keep its premises reasonably safe. Businesses can always be liable under negligence for dangerous conditions that are obvious (i.e., spills). The business owner must also make regular inspections to discover non-obvious, dangerous conditions. Upon discovering a non-obvious, dangerous condition, the business owner must either correct the condition or warn customers and employees about the condition. The duty to inspect is crucial because business owners can be liable for dangerous conditions that they should have discovered upon regular inspection.

For example, a restaurant manager inspects the restaurant and discovers a shard of metal protruding from the sink faucet. The shard is not dangerous or visible unless the hot water is turned on all the way. The restaurant must either fix the faucet or sufficiently warn customers not to turn the water all the way to hot.

Conveying Real Estate

The process of buying and selling real property can be broken into four parts:

(1) The parties negotiate the contract. This includes offer and acceptance, along with an initial deposit by the buyer. The contract contains conditions dealing with financing and inspection of the property.

(2) During the executory period, the buyer inspects the property, the parties negotiate financing, and the buyer evaluates the seller's title. This often includes obtaining mortgages, inspections, and title insurance.

(3) Title to the property is transferred when the seller delivers the deed to the buyer at closing. At closing, the lender also makes the purchase loan, commissions are paid to real estate agents, brokers, etc., and the seller is paid the sales price.

(4) Finally, the buyer records his deed with the local register. Often an attorney does this.

Contracts for the sale of real estate must be in writing. A deed is a document used to transfer real property. A deed contains warranties that the seller actually owns what s/he is conveying to the buyer. There are three common types of deeds.

A **general warranty deed** provides the *most* title protection by guaranteeing that there are no encumbrances on the property such as mortgages, liens, or easements. The seller is guaranteeing: I own this, I can convey this to you, the title is marketable, and I will be liable in damages if someone sues over ownership of the property.

A **special warranty deed** provides *some* protection by guaranteeing that the seller himself did not create any encumbrances on the property. This does not protect against encumbrances created by others, including previous owners.

A **quitclaim deed** provides the *least* amount of protection. The seller conveys the property without making any assurances to the buyer. The seller does not guarantee that s/he even owns the property.

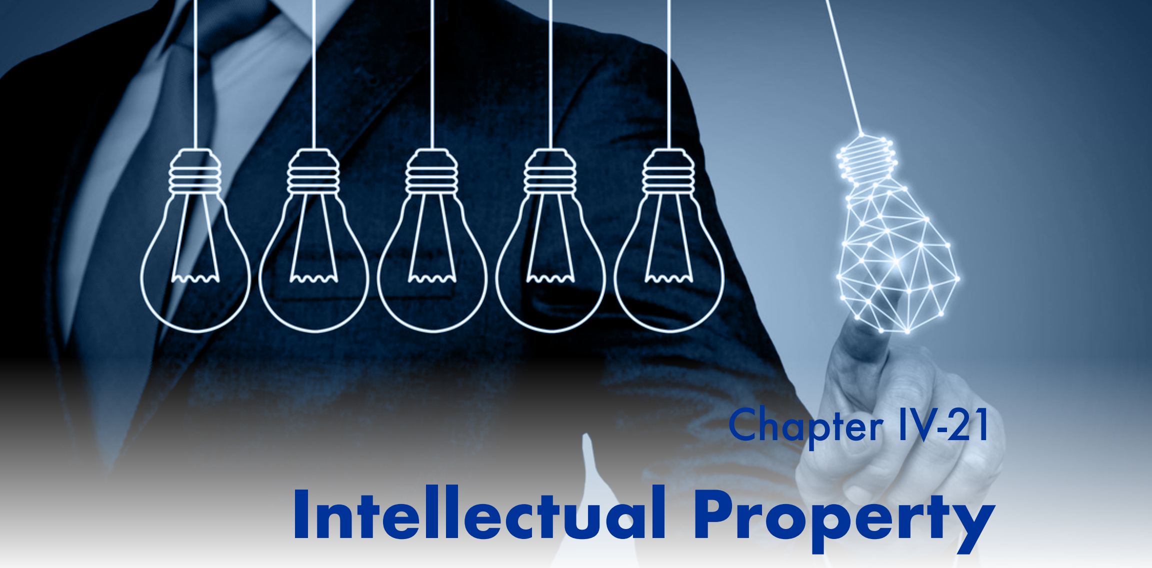
Many buyers today purchase title insurance from private title insurance companies to accompany deeds. The insurer promises to protect against defects in the title.

Adverse Possession

Under some circumstances, the true owner of the property can lose the title to an adverse possessor. This is often called "title by theft." Statutes indicate certain periods of time (statutes of limitation) over which an adverse possessor must retain possession to be granted ownership.

For example, state law provides that the statute of limitations for adverse possession is ten years. John owns 20 acres in the state. On January 1, 2010, Jane moved onto John's land, knowing it is not her land and occupies half an acre. Jane resides there continuously and openly until 2020. On January 1, 2020, Jane becomes the owner of the half-acre because of her adverse possession.

To prevent this, property owners can periodically search their property and demand that any adverse possessors leave.



Chapter IV-21

Intellectual Property

The goals of intellectual property are to protect ideas of businesses, inventors and authors; to foster creation; and to protect consumers from unknowingly buying copycat products.

The four main types of intellectual property are copyright, patent, trademark, and trade secrets. Trade secrets are discussed in the restrictive covenants chapter.

The best practice is to get as many different types of intellectual property as possible. This provides the greatest protection in case one form of intellectual property is found invalid. For example, you invent a grill that cooks evenly by controlling the gas flow according to different temperatures at different parts of the grill. You could seek a patent on the grill and also file for a trademark on any word, name, or symbol used to market and identify the grill. If you chose not to sell the grill to the public, you could protect the grill as a trade secret.

Knowing the differences between copyright, patent, trademark, and trade secrets can help business owners protect their ideas and products.

COPYRIGHT

The idea behind copyright comes from the Constitution, which explicitly authorizes Congress to promote science and art by granting exclusive rights to authors and inventors for their writings and discoveries.

Copyright protection covers a broad range of literary and artistic expression. An idea itself is not copyrightable, but the author's particular expression of an idea can be protected. For example, books, music, paintings, and movies are subject to copyright, but any underlying ideas or facts within those books, paintings, and movies are not protected. Copyright typically lasts the life of the author plus 70 years.

Having copyright over something protects the author from unauthorized copying. The copyright owner can control the sale and distribution of the copyrighted work, make copies and control public display of the work.

Copyright is protectable at the moment it is created. The three elements required for a work to be protected are originality, fixation, and formal registration with the copyright office.

Originality

The work must be an independent creation (the author must have created the work rather than someone else) and demonstrate a minimum level of creativity.

For example, compiling phone numbers into a phone book cannot be copyrighted because it does not exhibit a minimum level of creativity. A phonebook is a compilation of facts rather than an original, creative work. If there is only one way to arrange something, it is unlikely to be creative. Things that *cannot* be copyrighted include blank forms, underlying facts, and most systems (e.g., bookkeeping systems).

Fixation

To be copyrightable, the work needs to be tangible. For example, things people say out loud but never write down cannot be copyrighted.

Formal registration with the copyright office

Before 1989, the owner had to provide notice that the work was copyrighted (name, date, and copyright symbol ©), but that is no longer a requirement for protection.

Formal registration with the copyright office is not required to have valid copyright but is a prerequisite for bringing many types of copyright suits. This means a copyright owner will probably need to formally register the copyright to be able to enforce his or her rights.

To prevail on a copyright infringement action, the copyright owner must prove: the owner had a valid copyright to the work; the defendant copied the work; and, looking at the two works, protectable elements (not stock elements like facts) are substantially similar.

Once a copyright owner prevails on an infringement action, the remedy is typically an injunction requiring the infringer to stop use. However, fair use is allowed, meaning a copyright owner will not prevail on an infringement claim if the defendant used fairly. Fair use for purposes such as criticism, comment, parody, news reporting, teaching, and scholarship does not infringe on copyrights.

PATENT

Like copyright, the framers of the Constitution explicitly gave Congress the power to enact patent laws. A patent is a government-created monopoly that gives the patent holder the exclusive right to make, sell, and distribute an invention for a limited period of time.

A patent gives the holder the strongest amount of protection for the shortest amount of time. It provides a limited period of exclusive rights to encourage research and development. When the patent expires, it becomes part of the public domain and is freely available to all.

Patents promote balance between protection and innovation by giving protection for a certain number of years to motivate inventors to come up with new ideas and designs, but the protection expires after a certain number of years so the next innovation can develop. The requirements for a patent are a patentable invention, usefulness, novelty, and non-obviousness.

Patentable invention

An inventor can only obtain a patent on four types of inventions: a process, a machine, a manufacture, or any composition of matter. These are commonly divided into processes and products (machine, manufacture, and composition of matter). Each of these must be made by a human to be patentable; inventors cannot patent discoveries in nature.

An inventor may invent a process, or a product, or both. For example, an inventor might create a process for manufacturing a new drug. He will likely apply for a patent on the manufacturing process as well as on the drug itself.

A **process** is a method of doing something. For example, a method of producing a chemical, or a method for ridding insects from a crop. A **machine** is a product referring to a tangible object that accomplishes some act — for example, an iPod, a roller coaster, an airplane, or a tool. A **manufacture** is a product referring to a thing or article made by a human — for example, a pie, a mattress, a chair, or a mug.

A **product** can also be any composition of matter. Typically, this refers to the results of mixing chemicals (e.g., toothpaste). A composition of matter can also refer to other inventions. For example, a bullet proof vest might be made of 70% metal, 15% plastic, and 15% rubber.

There is often overlap among machines, manufactures, and compositions of matter. It typically does not matter which category of product an invention falls into. The main distinction between a process or a product is more general.

An inventor can patent a product or process but cannot patent an idea. Often, there is a thin line between what is patentable and what is not because an application of an idea is patentable even though the idea is not. For example, Einstein could not have patented his formula $E=mc^2$ because this is an idea. However, an inventor using the formula to invent a special lightbulb that could power an entire city could patent that lightbulb. Ideas (which cannot be patented) include things like math algorithms, negotiation strategies, laws of nature, particular storylines, and underlying facts.

Usefulness

The invention must provide some type of benefit that is *functional* in nature (e.g., you cannot patent a time machine because the laws of physics deem that impossible). The invention must be both plausible (meaning one can actually do the thing) and useful. Usefulness is the easiest element to establish because an inventor need only show one specific use. Moreover, an inventor need not actually "use" his product. He can patent something and let it sit in his basement for 20 years. The inventor just needs to establish that it can be used.

Novelty

An inventor cannot secure a patent on something that has already been invented. There are specific time limitations on patents called "prior art" that are outside the scope of this module. Generally, however, a patent will be denied if any individual (including the inventor) patented, published, publicly used, or sold the invention more than one year prior to the inventor's filing.

Nonobvious

An inventor cannot obtain a patent on an obvious invention. If the invention is the apparent conclusion based on existing knowledge and inventions, then it is likely obvious and therefore not patentable.

The inquiry is of a person who works in the same field the invention is from. For example, what would be apparent to a computer engineer would not be apparent to you and me.

Disclosure

An inventor must disclose sufficient information to enable others skilled in the art to make and use the invention.

For example, John invents a new device that is patentable, useful, novel, and non-obvious. He must file a patent application that includes the specific words used to describe the invention (claims), a written description of how to construct the invention, and drawings of the invention. The application must be so clear and precise that a skilled person could make and use the invention.

The inventor should submit a patent application to the U.S. Patent and Trademark Office (PTO). There is no automatic protection for patents. The inventor has no patent until s/he submits an application and the PTO approves.

An inventor must file a separate patent application with each nation in which s/he seeks protection. If granted, the inventor has exclusive rights to make the invention, use, and sell for 20 years from the filing date. A patent cannot be renewed. A patent gives the inventor the ability to prevent the making, using or selling the invention in the United States. An inventor can license others to make and sell the product. After 20 years, the invention enters the public domain.

Patent law is complex, and the best practice is to hire a lawyer experienced in the area to guide you through the application process. This is an expensive process. Filing a patent typically costs around $5,000 plus $5,000 to $10,000 in attorney fees. Litigation can cost hundreds of thousands of dollars.

Remedies in the patent are typically injunctions (e.g., stop making the machine) and damages (money) from lost profits and reasonable royalties. For example, Jane has a valid patent on a hibachi grill. John infringes on Jane's patent by licensing Jane's patented hibachi grill to Ryan. Ryan paid John $1,000 per year for 3 years to use the hibachi grill. If Jane wins in court, John will have to pay her $3,000 for the time he licensed the grill to Ryan. These are called royalties.

TRADEMARK

Unlike patent and copyright, trademark law is not specifically authorized by the Constitution. Rather, Congress relied on the commerce clause (Congress's ability to regulate interstate commerce) to authorize trademark legislation.

A trademark is a word, name, symbol, or device used to identify specific goods. A trademark lasts as long as it is not diluted, abandoned, or forfeited.

Dilution happens when the trademark name becomes generic, such as "Kleenex" or "Murphy bed." This means the average person uses the term to identify the good in general rather than a specific source of the good.

A trademark owner does not have to have registered the trademark to sue for trademark infringement, whereas with some copyright and all patents, the owner must have to have registered to sue. However, trademark registration puts all others in the U.S. on notice that you are using the mark and gives the owner a strong argument in court.

The original purpose of trademarks was to protect consumers from sellers attempting to use someone else's logo and to ensure that consumers are not confused about the source of the good or service. Trademark protection also incentivizes trademark owners to provide quality goods and services associated with their trademarks. Courts have begun moving away from protecting consumers towards protecting the property interests of corporations.

To be protected as a trademark, a mark must meet three elements: distinctiveness, non-functionality, and first use in trade.

Distinctiveness

A mark must be distinctive to be protected as a trademark. Distinctiveness allows consumers to tell the goods or services of one provider from those of another. Distinctiveness follows a spectrum, from no protection to the greatest amount of protection. Marks are grouped into categories of distinctiveness along this spectrum. The categories are generic (with no protection), descriptive, suggestive, arbitrary, and fanciful (with the strongest protection).

Generic marks are never protected. For example, no grocery store can trademark the term "grocery" because it is a generic term to describe a certain thing.

Descriptive marks can be protected if the mark acquires secondary meaning. A descriptive mark describes an aspect of the good or service being offered. A descriptive mark can be protected if the mark acquires secondary meaning, which means that the mark's primary significance is to identify the source. For example, "Burger King" identifies the source of that particular food; consumers associate Burger King with a particular source.

Suggestive marks can be protected if the mark acquires secondary meaning. A suggestive mark requires the consumer to use a little imagination, but it is connected in some way to the product being offered. For example, "Sizzle" for a restaurant conjures some imagery of food being served but does not necessarily mean restaurant.

Arbitrary marks are protected. An arbitrary mark alone does not indicate the nature of a product. The mark uses a word that typically describes something else. For example, "Apple" for a computer. An apple is a thing, but it is not otherwise associated with computers.

Fanciful marks are protected. A fanciful mark alone does not indicate the nature of a product. It is also a made-up word. For example, "Xerox" had no meaning before it became associated with the company and its products.

Non-functionality

Trademarks are not limited to only words but can extend to package design and colors (known as trade dress). For trade dress, the aspect of the product cannot be protected if it is essential to the functioning of the product. For example, the pink insulation that goes in homes is protected by trade dress. No other companies can make pink insulation except for the pink panther company. Other companies can make the same product in green or brown, but they cannot use pink because it is protected by trade dress.

First use in trade

This refers to the first one to actually use the trademark in marketing goods or services. A prerequisite for trademark protection is use. Generally, a trademark owner has the exclusive right to use the mark within the U.S.; however, international law is growing in favor of global trademark system. In the U.S., trademark owners can apply to have a trademark recognized by the Madrid Protocol, which includes protection in 80 nations.

To prevail on a trademark infringement claim, the plaintiff must prove: the plaintiff holds a valid trademark; the defendant used a copy of the trademark in commerce, and the defendant's use is *likely to cause confusion* or mistake to consumers.

The remedy for infringing on a trademark is typically an injunction (e.g., stop using the trademark). Courts do not usually give monetary damages for trademark infringement.

Chapter IV-22

Mergers & Acquisitions

Chapters 22 and 23 conclude this section with the two types of positive exits, merger or acquisition and IPO. To keep your financial interests safe and thriving, chapter 24 builds your foundation on the various types of stocks that you might own in the new entity.

Mergers and acquisitions are types of business combinations in which separate businesses become a single organization. They may be used as an exit strategy to sell a business to another company or to grow a business through acquiring a smaller company.

Mergers occur when two companies merge to become a single company. The assets and liabilities of the merging company are transferred to the resulting company. Shareholders of the merging company become shareholders of the resulting company or are compensated for their shares. There are three types of mergers. When a company acquires a competitor that produces and sells a similar product, it's called a **horizontal merger**. **Vertical mergers** occur when a company acquires a customer or supplier of their business. When a company acquires an unrelated company to expand for reasons not related to competition or supply chain management, it is called a **conglomerate merger.**

If a company acquires or takes control of another company, it is called an **acquisition**. They occur when the acquiring company purchases the majority of the target company's stock, or when the acquiring company purchases only the target company's assets.

When a company owns 50% or more of another company's stock, it has the ability to elect a majority of the board of directors, which allows them the ability to hire executive management and consequently steer the investee company's operations. The investor becomes the parent company, and the investee becomes a subsidiary. The parent prepares consolidated financial statements, which treat the two companies as a single entity.

Acquisitions happen in one of three ways.

Hostile Acquisition - The acquiring company makes an offer to purchase the majority of shares from the target company's shareholders, bypassing the company's management, essentially allowing them no say in the matter. The acquiring company will typically offer to purchase shares from the stockholders at a price higher than the market value. The acquiring company may use its control to force a merger which will combine the two companies

Non-hostile Merger - The target company is merged into the acquiring company in exchange for an agreed upon price. The shareholders may be given the right to receive a specific amount of cash in exchange for their shares.

Asset Acquisition - The acquiring firm buys the company's assets instead of stock. Typically following a bankruptcy, the acquiring company can take advantage of the target company's distressed position by purchasing their machinery and equipment at reduced prices. In this situation, the acquiring company is not liable for the target company's liabilities.

Reasons for Mergers and Acquisitions

Mergers and acquisitions can serve as an exit strategy, allowing a small business owner or large entrepreneur to essentially "cash-out" by selling their company in exchange for cash or stock of the acquiring company.

These business combinations may also expand a business in one of several ways. It could bring the business a new customer bases or the ability to enter a new market, offer larger or more efficient manufacturing capabilities, provide access to supply or distribution channels, enhance competitiveness by becoming a larger company or by reducing the amount of competitors, utilize brand recognition of the other company, gain research & development activities of the other company, or tap into the production and/or marketing expertise of the other company.

Mergers and acquisitions may also be used to provide tax benefits. For example, if a company operating in the highest tax bracket acquires a company with a large accumulated loss, this loss could be turned into immediate tax savings for the acquiring company, instead of being carried forward over multiple years for the target company.

Merging and Acquiring Process

The action to merge or acquire may be initiated by either a company looking to be purchased or a company seeking to acquire another. Investment bankers, lawyers, and accountants may also be used to help arrange mergers or acquisitions, value companies, negotiate deals and finance transactions. The acquiring firm will perform a business valuation of the target company, then determine whether the target company can be bought at that value or preferably less than the estimated value. The target company should accept the acquisition offer if the price exceeds the amount they would earn from continuing to operate independently.

PROFESSIONAL SERVICES

In arranging M&A deals, the assistance of many different professionals outside of the company is necessary to arrange and structure the transactions, while ensuring that the transactions are favorable to all parties and abide laws and regulations. Because mergers and acquisitions can often leave large sums of money and future operations at stake, it is important for companies to gather a team of qualified professionals who will assist each other and the company in arranging mergers and acquisitions.

The roles these professionals serve may overlap, but generally, consist of the following:

Investment Bankers

Investment bankers serve as strategic advisors, transaction executors, and financing sources. They study companies and offer advice regarding strategic directions and how to best position a company for future M&A opportunities. They execute deals by representing either buyers and sellers, they then market potential deals through gaining interest from other companies, and finally bring buyers and sellers together to structure M&A deals.

Also, buying a company often requires significant funds; investment bankers help companies raise funds by selling shares of stock or issuing debt. Investment bankers will find buyers for these debt and stock issues.

Accountants

Accountants assist in the M&A process by evaluating businesses, offering tax advice, and investigating due diligence. Accountants and financial specialists provide business valuations in determining what a business is worth, through analyzing a company's financial statements and the underlying profitability of a business. They offer advice regarding the taxation of gains or losses resulting from mergers and acquisitions.

This includes conducting due diligence by performing audits to verify the accuracy of financial information provided by the target company, and examining all matters that would have an impact on the acquisition of the company including business operations, management, environmental and legal factors.

Lawyers

Lawyers design the structure mergers and acquisitions, negotiate legal terms and requirements, ensure that the deal abides laws and regulations, and file the necessary documentation to close the deal. Lawyers structure unique types of acquisitions and mergers and attain documentation to ensure that the company is getting exactly what they want. They negotiate specific terms and agreements of the transaction with the other company, determine whether the transaction abides all state and federal laws, and ensure that the deal is legal and will not result in any future litigation. They also assist in attaining and filing the necessary documentation to close the deal.

Industry Specialists

Industry specialists are often used to assist the company, or the other professionals involved, in fully understanding the business, industry, and economic factors. Companies looking to acquire or merge with another company need to understand factors relating to the company's products, market, competition, and regulatory environment. Industry specialists will be able to help the company understand these factors.

Mergers and acquisitions often involve international companies. In these cases, industry specialists provide information related to geographic markets, politics, economic environments, and accounting differences.

BUSINESS VALUATION

A valuation should be performed to determine a target company's value. There is no single or "correct" way to measure the value of a business. Valuations may be extremely subjective due to varying opinions regarding a company's potential, the worth of their assets, and market conditions. There are three main approaches to valuing a business, and these different approaches can frequently yield extremely different results.

The **asset approach** values a company based on the excess fair market values of the company's assets over the company's liabilities. Assets are recorded in the company's financial statements at their book value, which is based on the historical cost of the asset to the company. The fair market value of an asset is the price someone would pay for the asset in a reasonable transaction. The company's assets are adjusted to their perceived fair market values where they can possibly be estimated by the valuator.

The **market approach** values a company based on the value of similar companies. This approach often makes valuation assumptions based on economic principles of competition within the company's industry. This method may be very difficult in valuing a private company, because similar companies may be difficult to locate, and their financials are not publicly available.

The **income approach** is based on the valuator's expectations of the company's future income generation. The income approach entails finding the discounted future cash flows of the company, which is the expected future cash flows of the company multiplied by a discount rate. The discount rate determines what the net cash flows are worth in present-day dollars while considering the risks of uncertainty regarding future cash flows.

There are a variety of methods that can be used to determine the discount rate used, the most common is the weighted average cost of capital (WACC), which is a blend of the company's cost of debt and cost of equity.

WACC = ((% of Equity Financing) x Cost of Equity) + ((% of Debt Financing) x (Cost of Debt) x (1 – Tax Rate))

The common method for calculating the cost of equity is the capital asset pricing model, which essentially estimates what it costs the company to maintain a stock price that is theoretically satisfactory to the investors.

Cost of Equity = Risk-Free Rate x (Beta x Market Risk Premium)

The risk-free rate is the amount obtained from risk-free investments, such as U.S. Treasury bills. The beta is a measure of risk associated with the volatility of the company's share price compared to the market as a whole. The market risk premium is the difference between the risk-free rate and the market rate, which measures what the investors expect to gain from taking the risk of investing in the stock market.

The cost of debt is the current interest rates the company is paying for their debt, which can be calculated as:

Cost of Debt = Annual Interest Payments / Debt Cash Available

Therefore the calculation to find the Discounted Future Cash Flows of a company is:

((Year 1 Cash Flows) / ((1+WACC)^1)) + (Year 2 Cash Flows / ((1+WACC)^2)) + (Year 3 Cash Flows / ((1+WACC)^3)) ....

Acquisition Price

The purchase price paid for an acquisition will almost always be higher than the intrinsic value of the target company because shareholders will refuse to sell their shares without additional benefit. This higher price the acquiring company will pay is attributed to an **acquisition premium**, which is the difference between the estimated value of the company and the price paid to acquire the company.

This premium is based on how the company values the **synergy** created by the business combination. Synergy is the concept that the value and future income generating abilities of the two companies combined will be greater than the sum of the separate companies.

Acquiring companies base their acquisition premiums on several types of synergies.

Cost Savings is the actual costs saved from consolidating the companies operations. Companies will be able to eliminate duplicate jobs, facilities, and other expenses. Lower costs will result from the ability to purchase more materials in bulk.

Revenue growth can result from selling a superior or complementary product. There is greater pricing power due to the reduced competition. Extensive distribution channels are available from obtaining the target company's customers.

Process improvements – by combining the strengths of the two companies, core competencies, and competitive advantages are transferable. Product development processes can produce new products faster and at a lower cost.

Financial engineering – companies may pool together their working capital and surplus cash. The new company's debt capacity increases, allowing them to borrow more money. One company can refinance the other company's debt at a more favorable rate.

Tax Benefits – successful tax planning can ensure that the overall tax rate of the combined company is lower than the tax rates of the separate companies. Companies can transfer income generating operations to a company or location with a lower tax rate. Debt may be attributed to the company with the higher tax rate, resulting in greater tax savings.

In addition to the preceding synergy valuations, companies may also pay an acquisition premium due to other strategic reasons.

These reasons could be due to management predictions, the willingness to overpay in order to reduce competition, or perhaps because if the acquiring company doesn't purchase the target company, then their competitor will.

MERGING AND ACQUIRING PROCESS

In negotiating a merger or acquisition, there are also many other factors that should be considered. The current owner-manager of the target company may or may not retain employment or a high-status position with the company after the acquisition. This should be addressed in the negotiation stage.

A **non-compete agreement** may be required to prevent the current owner from future engagement in business activities, in order to avoid competition.

A **non-solicit agreement** may be required to prevent the current owner from trying to lure away the company's customers or employees.

FINANCING MERGERS AND ACQUISITIONS

The acquiring company may finance the acquisition or merger using either cash, stock, or a combination of both. Cash used in the acquisition may be from the company's cash reserve, borrowed from a bank or other creditors or raised from issuing bonds or stock.

A **leveraged buyout** occurs when the acquiring company uses borrowed money and little capital to purchase the target company. Most of the debt is financed by selling the target company's assets, requiring the acquiring company to only pay a small percentage of the purchase price.

Vendor take-back financing occurs when the acquired company provides a loan, paid back over time, instead of receiving cash for the purchase. The seller will bear some of the risks of the business. This is ideal for a business owner who does not need immediate funds and wants to retain some control over the business.

LAWS AND REGULATIONS

Mergers and acquisitions must be approved by the company's board of directors and company shareholders. Registration with the Securities and Exchange Commission (SEC) is required when business combinations include corporate modifications, reorganizations, or transfers of control. Notice of the business combination must also be filed with the Secretary of State by the surviving company in the state where the entity has been formed.

Mergers and acquisitions are regulated by both federal and state laws, aimed to maintain business competition by reducing the ability of a single company to raise prices or reduce supply. No single federal law governs mergers and acquisitions; the largest laws stem from the Sherman Act, Clayton Act, and Celler-Kefauver Act, which all prohibit business combinations deemed to be anti-competitive.

The U.S. Federal Trade Commission is normally responsible for reviewing corporate mergers. Each individual state has its own set of corporate laws which apply to mergers and acquisitions.

Chapter IV-23

IPO (Initial Public Offering)

An initial public offering is a process by which a company sells some of its shares to the public for the first time. Going public has significant legal ramifications for a company, including broad regulations by the Securities & Exchange Commission. Along with drafting documents to be approved by the SEC, the IPO process involves the company and a large investment firm (the **lead underwriter**) selling company shares to other large investors (**secondary underwriters**).

A significant part of the IPO process is the **roadshow**, in which the company management and the lead underwriter travel across the U.S. making presentations to recruit large investors who ultimately purchase a number of shares at a particular price. The goal of the roadshow is to impress these large investors/secondary underwriters, so they agree to buy portions of the shares to sell to the public. The public, individuals, and other institutional investors, itself does not attend the roadshow.

The role of a lead underwriter is to value the business, manage the process, and recruit as many good secondary underwriters as possible to help sell the offering. The company management, the lead underwriter, and the selected set of secondary underwriters make up the **syndicate**.

Companies decide to go public after they have shown quarter by quarter increasing profits, stable and capable board and management, solid demand for the core business in the future, and potential for significant growth through new markets and products. In practice, however, companies that decide to go public vary dramatically, based on industry and economic factors.

IPO Process

After a company decides to go public, it will short-list three or four lead underwriters from whom it will ultimately choose just one. Underwriters are large, brokerage firms. Some of the more common underwriters in the U.S. are J.P. Morgan, Bank of America, Merrill Lynch, Goldman Sachs, and Morgan Stanley.

The company's management selects a lead underwriter based on personality, experience in the industry, marketing efforts, and potential share price the lead underwriter claims to deliver.

The company also needs to have counsel – legal representation. Experience in the IPO process and industry experience are the main criteria for the selection of counsel. (The lead underwriter may assist in selecting company counsel. Or, if the selection of counsel precedes the selection of the lead underwriter, experienced counsel can be invaluable in working through the selection of lead underwriter.) Counsel drafts the registration statement, including the prospectus, and guides the company through the various SEC rules and regulations.

The next step is to begin drafting the **prospectus**. The prospectus is the sales document. In addition to telling the company's story and status correctly and succinctly, it must also meet the disclosure requirements established by the SEC, including financial statements with rigid requirements. It must be factual and cannot be too "puffy" because it must be filed with the SEC, and the company will have liability for material misstatements. The prospectus must be a balance of making the company look good and hard facts.

After drafting the prospectus, the company files it with the SEC. The SEC can take anywhere from six weeks to months or even years to approve the prospectus, so it is the unapproved prospectus that is actually used throughout the roadshow. This unapproved prospectus is called a **preliminary prospectus**.

During the roadshow, the management and the lead underwriter tend to use more general, "puffy" language with the proposed secondary underwriters than used in the prospectus. The company wants to show off its members of management. Hopefully, they come off as experienced, intelligent, articulate and likable. The goal of the roadshow is to create interest in the deal, so the lead underwriter can come back and build a book of investors (secondary underwriters) who in turn sell their purchased shares to the public.

The Roadshow

The roadshow process takes anywhere from one week to ten business days in length, depending on the lead underwriter's preference and plan. However, the IPO process as a whole takes much longer. Companies hire lead underwriting firms up to one year before the shares are actually sold.

The roadshow itself includes four or five different presentations. The presentations usually take place in Boston, New York, Chicago, Houston or Dallas, and Los Angeles. Sometimes the lead underwriter presents in San Francisco. Where the presentations occur can depend on the industry. For example, biotech companies often present more heavily on the west coast. Recall that the goal of the roadshow is to create interest in the deal so the company can come back and build a book of investors.

The documents used in the roadshow are the preliminary prospectus (which has not yet been approved by the SEC) and a slideshow. The slideshow contains bullet points to explain the prospectus to potential underwriters. The company may give copies of the slideshow to the potential underwriters to take with them. The slideshow conveys information such as the securities being offered and why they are being offered, important features of the business, and a description of the market for the business.

The prospectus does not contain the price per share because the investors will discuss the potential range of pricing with the lead underwriter when deciding whether to purchase a number of shares. The process where investors (secondary underwriters) decide to purchase shares, the number of shares they purchase, and the price (determined by the lead underwriter based on the market) is referred to as "building the book."

After the Roadshow: Building the Book

After the roadshow, the lead underwriter, the potential secondary underwriters, and the company discuss the price per share, the IPO price. Depending on how many potential underwriters agree to join the syndicate after the roadshow, the lead underwriter and the company have a better feel of what the market will be like.

Recall that the lead underwriter gave a potential share price to the company when the company was determining who to hire as the lead underwriter. After the roadshow, if the lead underwriter does not get a lot of subscribers to the syndicate, the actual IPO share price will decrease. However, if the lead underwriter gets a lot of subscribers to the syndicate, the actual IPO share price will increase.

All underwriters get the same price, which is at a discount on the IPO price. The discount is typically between 6 and 7% per share and is the same for all underwriters – lead and secondary. (In practice, underwriters do not purchase shares until they have commitments from their own investors to buy at those terms.) The lead underwriter is now said to have **built a book** of secondary underwriters.

Underwriting Agreement

After the secondary underwriters agree to join the syndicate and each party has predetermined its set portion and the sale price, all parties sign the **underwriting agreement**. The parties to the agreement include the company, the lead underwriter, and the other underwriters who make up the syndicate. The underwriting agreement specifies each underwriter and the portions they agreed to purchase.

Underwriters sell their shares to other big investors. The big investors then sell their shares to the general public on the NASDAQ and the NYSE. Note that if an underwriter does not sell the shares (i.e., the public does not buy all of the shares), then the underwriters own the shares – at a discount to the original offering price. But this is very rare. The key is to make a "pass-through" – not to get stuck holding shares.

SPACs

SPAC, or Special Purpose Acquisition Company, is used as an alternative to the more traditional method of IPO. SPACs are shell companies that are already public. The "product" they sell in going public is a promise to acquire a target company in a particular industry. The equity raised by SPAC when it goes public is what is used by the SPAC to purchase a company. The target company is willing to get acquired by a SPAC because they get to go public at a less expensive and onerous process than IPO.

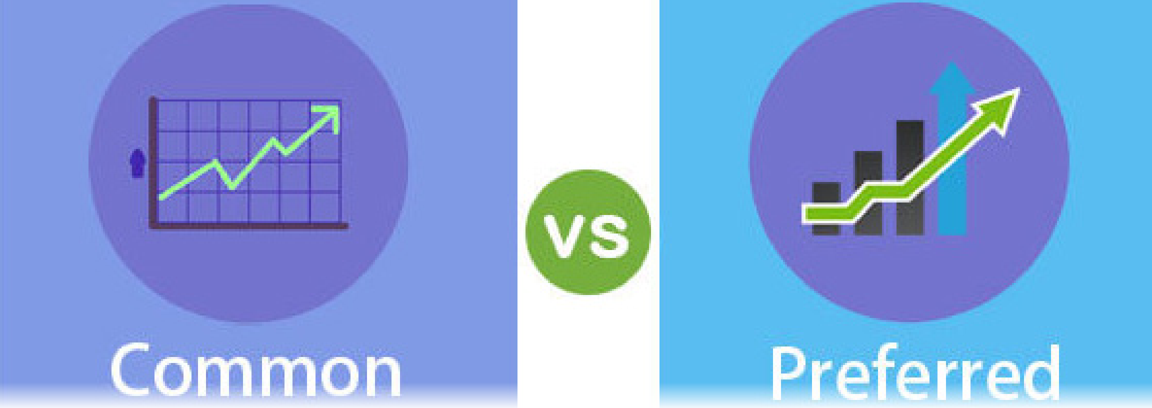
The SPAC's prospectus lays out and determines which industry or business type they seek to bring to the open market, but the SPAC is under no obligation to pursue those areas alone. They can choose to acquire companies in other sectors aside from those listed in the prospectus. The capital raised during this time is placed in escrow.

Generally speaking, the SPAC's founders(s) will receive some portion of the initial stock as compensation for going and finding the company. The rest of the investors in the SPAC, pre or post its going public, receive equity shares in some proportion to the amount they have invested in the SPAC.

Looking at just 2021, SPACs raised an incredible $162 billion. The growth has been spectacular when compared to $13.6 billion in 2019 and about $11 billion in previous years.

SPACs aim to offer higher valuations with greater speed and deliverance of capital to the target acquisition company over traditional IPOs. The process for acquisition by SPACs takes between three and five months on average compared to one year it takes for an IPO. On top of this, SPACs negotiate and enter a capital commitment and binding valuation and pay for most of the filing fees with bringing the company to market.

Institutional investors, Wall Street financial professionals, and high-flying CEOs have entered the SPAC mania. Some of the well-known names that have gone public via SPACs are Lucid, Nikola, DraftKings, Polestar, a 'subsidiary' of Volvo Cars, and Virgin Galactic.



Chapter IV-24

Types of Stocks

Stock is a type of security that signifies ownership in a corporation. Investors buy and sell stock based on their beliefs about a company's future performance. A publicly held corporation may have thousands of stockholders, while a privately held corporation may have only a few.

Stockholders may dispose of part or all of their ownership in a corporation simply by selling their stock. Transfer of stock is entirely at the discretion of the stockholder and does not require the approval of the corporation or other stockholders. Each share of stock exactly equals every other share of its type.

There are two classes of stock: common stock and preferred stock.

COMMON STOCK

Common stock is corporation's primary class of stock, each share of common stock gives the stockholder the following rights: the right to vote in election of board of directors at annual meetings and on actions that require stockholder approval, dividends that represent a share in the corporation's earnings, pre-emptive right to keep the same percentage of ownership when new shares of stock are issued, and residual claim to share in assets upon liquidation after all other claims on assets have been paid.

Dividends

Dividends are a distribution of a corporation's earnings to its stockholders on a basis proportionate to the stockholder's ownership. Dividends are generally paid out every quarter, although sometimes they are paid out annually.

Dividends, however, are not guaranteed. A corporation's board of directors choose whether or not to pay dividends. Dividends attract investors, so companies benefit when they do issue dividends.

Dividends may take five forms: cash, property, stock, scrip, or liquidating. Cash dividends are a distribution of cash to stockholders. Property dividends may be a distribution of inventory, real estate, investments, or whatever form the board of directors designates. Stock dividends are a distribution of the corporation's own stock to stockholders. Stock dividends leave the stockholder with more shares of stock, but no change in their ownership percentage. Scrip dividends may be issued when a company does not have sufficient funds to issue dividends; it is a promissory note to pay dividends a later date. Liquidating dividends are a return of capital that was originally contributed by the stockholder.

Stocks - Rights and Claims

Pre-emptive Right

The pre-emptive right is a stockholder's right to maintain its ownership percentage in a corporation as the company issues additional shares of stock to new investors. This right allows current stockholders to purchase their proportionate number of shares before a new stock offering takes place in order to maintain their ownership in the company. Without this right, the stockholder's ownership share would be diluted every time additional investors were allowed to buy into the corporation.

A stockholder's ownership is measured by the number of shares owned divided by the total outstanding shares, or a total number of issued shares of stock being held by stockholders.

Stock dilution results when additional shares of stock are issued by the company, causing current stockholder's ownership percentage to decrease.

Original Outstanding Shares	New Shares Issued	Total Outstanding Shares	Stockholder A's Shares	Stockholder A's Ownership Percentage
100	0	100	15	15/100 = **15%**
100	20	120	15	15/120 = **12.5%**

The additional shares cause stockholder A's ownership percentage to dilute. The pre-emptive right allows stockholder A to purchase the required number of shares necessary to maintain the same ownership percentage before the shares are available for sale to new investors.

In order for stockholder A to keep his original 15% ownership, he must purchase an additional 3 shares:

- 120 total shares x 15% = 18 shares required
- 18 shares required – 15 shares owned = 3 shares to purchase

Residual Claim

The residual claim is the right to a corporation's assets upon liquidation after all other claims have been paid. Liquidation is the process by which a company is brought to an end. Liquidation usually occurs when a company becomes **insolvent**, meaning they cannot pay their debts as they become due. Upon liquidation, the assets and property of the company are redistributed to others in the following order.

Secured Creditors

Secured creditors are creditors whose money is usually guaranteed or "secured" by collateral or contract. This includes the financial institution that holds your mortgage or any other creditor that a company pledges their possessions to in order to receive credit.

Unsecured Creditors

An unsecured creditor is any creditor that does not have a secured interest in the assets of the company. Unsecured creditors include employees, suppliers, government (if taxes are owed), banks, and any other creditor with unsecured claims.

Stockholder

Any remaining assets, after debts with secured and unsecured creditors are paid off, are dispersed to the corporation's stockholders. Preferred stockholders are paid first, and the remaining assets are then paid to common stockholders.

PREFERRED STOCK

Preferred stock is another class of stock that has properties of both an equity security (stock) and debt security (negotiable or tradable liability or loan). The main benefit to owning preferred stock is that stockholders have a greater claim on the company's assets than common stockholders. Preferred stock has contractual provisions that give it preference or priority over common stock in two areas: priority to be paid dividends before common stockholders and priority to receive liquidation assets before common stockholders.

Also, unlike common stock, preferred stock pays a fixed dividend, which remains the same and is paid in regular intervals. Most preferred stockholders have no voting rights, although some corporations give them special voting rights to approve extraordinary events or to elect directors.

A corporation may attach whatever rights or restrictions to preferred stock it desires, and in any combination it desires. A corporation may also issue more than one class of preferred stock.

Examples of different preferred stock rights include:

Cumulative preferred stock – if the company misses a payment of a dividend for financial reasons, it will be required to pay the missed dividend before any future dividends are paid on either class of stock, this amount is known as a dividend in arrears.

Convertible preferred stock – a stockholder can convert preferred stock for a predetermined number of common stock shares. This exchange may occur at any time the investor chooses, regardless of the market price of the common stock.

Participating preferred stock – offers an additional dividend to stockholder if the corporation achieves a predetermined financial goal.

Callable Preferred Stock – the corporation can purchase shares back from the shareholders at any time, and for any reason.

Common Stock vs. Preferred Stock

There are multiple reasons a stockholder would buy one class of stock as opposed to the other. Common stockholders have superior voting rights when it comes to corporate decisions. They also have the pre-emptive right to maintain their ownership percentage when new shares are issued and are last in line to receive dividends and assets upon liquidation.

Preferred stock may often be sold in bulk at a discounted price. Preferred stockholders receive a known, fixed amount of dividends. Corporate shareholders may deduct 70% of dividend income from their taxable income. Therefore the dividends from preferred stock are often favorable to corporate investors.

Dual Class Stock

Some companies issue multiple classes of common stock. This dual-class stock system features stock known as class A stock, class B stock, class C stock, and so on. Corporations can attach specific rights or restrictions to these dual classes of stock.

The most common reason for issuing multiple classes of stock is so a company can grant them superior voting powers compared to normal common stock. However, the economic value is usually the same or less than normal common stock. Class A stock may have one vote per share, while Class B stock may have ten votes per share or vice versa.

Companies will typically issue the class of shares with the fewest number of votes attached to it to the public while reserving the class with the largest number of votes for the founders so that they may maintain control over the corporation's operations and decisions.

Other reasons for issuing dual classes of stock may be to grant dividend priorities to one class or reserve one class for specific types of investors, for which they can sell a large number of shares for a discount. Many large corporations like Facebook, Google, Berkshire Hathaway, and Ford, use dual-class stock. The Ford Family, for example, owns Class B stock, which amounts to 4% of the corporate's equity and 40% of the corporate's voting rights.

Treasury Stock

Treasury stock is a corporation's own stock that has been reacquired by the corporation and is being held for future use. Treasury stock may be acquired in order to reissue the shares to officers and employees under bonus and stock compensation plans, or increase trading of the company's stock in the securities market (companies expect that buying their own stock will signal that management believes the stock is underpriced, which they hope will enhance its market value). They also may have additional shares available for use in acquiring other companies or to reduce the number of shares outstanding and increase earnings per share.

Issuing Stock

At some point, every company needs to raise money. To do this, companies can either borrow it from somebody, known as debt financing or raise it by selling part of the company, which is known as capital financing. A company sells part of the company by issuing stock.

A corporation can issue common stock directly to investors, or it can issue common stock indirectly through an investment banking firm that specializes in bringing securities to the attention of prospective investors.

The **initial public offering (IPO)** is the first time that the stock of a private company is offered for sale to the public through various organized securities exchanges.

Authorized stock is the amount of stock that a corporation is authorized to sell according to its corporate charter, which is filed with a U.S. state. If all of its authorized stock has sold, the corporation must obtain permission from the state before it can issue additional shares.

An increase in a company's outstanding shares can result from a primary market offering (such as the IPO), or from one of the following events: employers exercising stock options, a conversion of convertible bonds, a conversion of preferred shares, a conversion of warrants, an issuance of stock dividends, or stock splits.

Stock options are a benefit in the form of an option, given by a company to an employee, to buy stock in the company at an agreed upon price (usually discounted) within a certain period of time. Convertible bonds are a type of bond that the holder can convert into a specified number of shares of common stock in the company.

A **bond** is a debt instrument, in which the issuing company is obligated to pay the holder the principal debt amount and interest at a later date. Convertible preferred stock can be converted into a predetermined number of common stock shares.

A **stock warrant** is a security that entitles the holder to buy the stock of the company at a fixed price until the expiration date, similar to a stock option. Stock warrants are usually attached to bonds or preferred stock as a sweetener to allow the issuing corporation to pay lower interest rates or dividends.

Stock dividends are a distribution of the corporation's own stock to stockholders, which leave the stockholder with more shares of stock, but no change in their ownership percentage.

Stock splits involve the issuance of additional shares of stock to stockholders according to their percentage ownership, which may double a stockholder's amount of shares but reduce each share's value by the proportionate amount, resulting in the same ownership percentage. The purpose of stock splits is to increase the marketability of the stock by lowering its market value per share.

Stock Value and Price

Par Value

A stock's par value is the amount that appears on the stock certificate and is the amount recorded under the stock's balance sheet account. The par value is NOT the amount that the security is sold for; rather, it is essentially the minimum value a share of stock can be worth. The par value is used for state law requirements. Otherwise, it has little relevance. When a par value is required by law, a very low par value (from $0.01 to $1) is usually used for common stock.

Very low par value is used to avoid a contingent liability, a potential liability that may occur depending on an uncertain future event. This contingent liability exists because stockholders cannot lose more than their investment amount. For example, Acme Corporation's stock has a par value of $10 per share. The stock is currently being traded on the stock market for $5 per share. Acme Corporation would have a $5 liability per outstanding share.

When a par value is not required by law, which depends on the state where the corporation exists, no par stock may be used. No par stock does not have a stated amount on the stock certificate. No par stock essentially has no minimum value, which means no contingent liability will exist regardless of the selling price.

Preferred stockholders receive fixed dividends stated as a percentage of the stock's par value, so preferred stock often has a higher par value.

Market Value

A stock's market value is the actual selling price of a share of stock on the stock exchange. Market value is determined based on how much the market feels the corporation is worth. The excess of market value over par value on a share of stock is attributed to the additional paid-in capital balance sheet account. If no par value stock is issued, the market value is the amount stated in the stock's balance sheet account.

Book Value

A stock's book value is the amount of the company's book value attributed to each share of stock. This amount is only useful for evaluating the amount that each shareholder will receive upon liquidation. The book value may be used to indicate the dollar value remaining for shareholders after all assets are liquidated, and all debtors are paid. The book value is calculated as follows:

Stock's Book Value = Stockholder's Equity / Amount of Shares Outstanding

Stockholder's Equity = Company's Assets – Company's Liabilities

Example:

Acme Corporation has Total Assets of $1,000,000 and Total Liabilities of $300,000

If Acme Corporation has 40,000 shares of stock, the book value of each share will be

(1,000,000-300,000) / 40,0000 = $17.50

Balance Sheet Presentation

Stockholders equity section of a corporation's balance sheet includes paid-in capital and retained earnings. Paid-in capital is the amount stockholders paid to the corporation in exchange for shares of stock. Retained Earnings is the earned capital held for future use in the business.

Stock is only shown in the paid-in capital account, which includes two sections: capital stock and additional paid-in capital. Capital stock records par value of issued shares as a credit to common stock account or preferred stock account. Preferred stock is presented before common stock due to its preferential rights. It includes information about the par value, shares authorized, shares issued, and shares outstanding for each class of stock.

Additional paid-in capital includes the difference between proceeds from shares sold and the par value. It is the excess of amounts received over par value. There is an additional paid-in capital account for both common stock and preferred stock.

Companies seldom report sub-classifications (class B common stock, convertible preferred stock) within the stockholder's equity section. They usually combine and report as a single amount, and use notes to financial statements to provide additional details.

Stock Example

On January 1, Acme Corporation issues 40,000 shares of par value common stock for $10 per share. The par value per share is $1.

The company makes the following journal entry:

01/01/16	Cash		$400,000	
		Common Stock		40,000
		Additional Paid-In Capital		360,000

On February 1, in order to raise funds for a new warehouse, Acme Corporation decides to issue 1,000 shares of par value preferred stock for $100 per share. The par value per share is $50.

The company makes the following journal entry:

2/1/16	Cash		$100,000	
		Preferred Stock		50,000
		Additional Paid-In Capital		50,000

The company's stockholder's equity section of the balance sheet at the end of February 2016 is presented as follows:

Acme Inc. Balancing Sheet (partial) February, 2016		
Stockholder's Equity		
Paid-In Capital		
Capital Stock		
9% Preferred Stock, $50 par value, cumulative,		
1,000 shares authorized, 1,000 shares issued and outstanding		$50,000
Common Stock, $1 par value, 50,000 shares authorized,		
40,000 shares issued and outstanding		40,000
Total Capital Stock		90,000
Additional Paid-In Capital		
In Excess of Par Value - Preferred Stock	$50,000	
In Excess of Par Value - Common Stock	360,000	
Total Additional Paid - In Capital		410,000
Total Paid - In Capital		500,000
Retained Earnings		200,000
Total Paid - In Capital and Retained Earnings		700,000
Total Stockholder's Equity		$700,000

SECTION V

GLOBAL PUBLIC COMPANY

As a global public company, it is more immediately susceptible to environmental changes. It now has to keep on top of the economic, technological, global, and regulatory environments. This last and final section discusses these environments as effecting a large corporation.

CHAPTER V-1

MACROECONOMICS - THE GDP

A large global organization is more directly susceptible to economic, technological, global, and regulatory shifts and trends. The most important of these environmental factors is the economic one. The economy may be a consequence of other policies, legal, political, or technological or may be controllable per se. The direct control may be through, for example, interest rates which, when decreased, could stimulate demand; or through, taxes and government spending. The ripple effect of the increase in demand may be seen in inflation and unemployment.

Just so that they can be prepared for the future, organizations need to know the effect of the key economic variables on business. And better still, the *reason* and *process* of the effect.

The next 3 chapters begin the journey of understanding economics by investigating the three key dimensions of the health of an economy: Gross Domestic Product (GDP), Inflation, and Unemployment. These are followed by chapters that describe how the health of an economy can be managed by monetary and fiscal policies of the central bank and the government. The Central Bank manages the economy through interest rate/money supply (monetary policy), and the government manages through spending and tax rate (fiscal policy). Interestingly, both the government and the central bank somewhat disclose their proposed actions. Organizations can then determine, one hopes, what's in store for them. Will its costs increase? Could it and should it raise prices? Would there be a shortfall in labor? Should it borrow money now? And so on.

GROSS DOMESTIC PRODUCT (GDP)

Gross domestic product is often considered as the best measure of an economy's well-being. It measures the total income earned by individuals in the country as well as the total expenditure on all goods and services produced within the country. For an economy, income equals expenditure because every dollar a buyer spends becomes income to the seller. GDP (Gross Domestic Product) is defined as "the market value of all final goods and services produced within a country in a given period of time."

Key Terms in the Definition of Gross Domestic Product

Market Value – goods are valued at *market prices* (valued in the same units of currency). Activities which don't have market value are excluded. For example, if you hire someone to clean your apartment, it is included in GDP, while if you clean your own apartment, it is not included.

Final Goods – final goods are goods that are sold *directly to the final user* and are intended for use by the end-user. The final user may be an individual or an organization which buys goods (e.g., machinery for a factory) as an investment. Only final goods are used in calculating GDP. Intermediate goods are not used to calculate GDP to avoid double counting. Intermediate goods are goods that are used to make other goods. Therefore, if milk is sold directly to a consumer, it is used for GDP calculations, but if milk is sold to a coffee shop to make coffee, it is not part of the GDP calculation.

Goods and Services – GDP includes both *tangible goods and intangible services*. Examples of tangible goods include books, coffee, and furniture. Examples of intangible services include cleaning, haircut, and a visit to a doctor. (It is interesting to note that in the US from 1950 to 2015, the share of services have increased from approximately 40% to 65% of total US.)

Produced – GDP includes only newly produced goods or services within a specified period of time (usually quarterly or annual). Goods and services produced in the past are excluded.

Within a Country – GDP measures the value of production that occurs within a country's geographical boundary, whether done by its own citizens or by foreigners working in the country.

An Example

GDP is calculated by multiplying the price of each individual good produced in the economy by the quantity of each individual good produced and then adding up for goods and services produced in the country. For example, let's assume that a country produces only apples and oranges which are sold at $1 and $2. If 200 lbs of apples and 300 lbs of oranges are produced in the economy, then that country's GDP is equal to:

$$\$\,(200 \times 1) + \$\,(300 \times 2) = 200 + 600 = \$800$$

Inventories used in GDP

Inventories are defined as the unsold goods and services that have already been produced and are currently in storage. Inventories are included in GDP for the year in which they are produced. This is because inventories can be sold later or lost depending upon whether they are perishable or non-perishable. For perishable inventories (fruit and vegetables) wages paid to workers that handle them are included in GDP. If perishable inventories (fruit and vegetables) spoil, then the firm's profit decreases equally to the wages that they paid the workers. If the inventories are non-perishable and sold at a later date, they are considered a transfer of goods and their sale is not counted in GDP in the year they are sold.

Exceptions to GDP

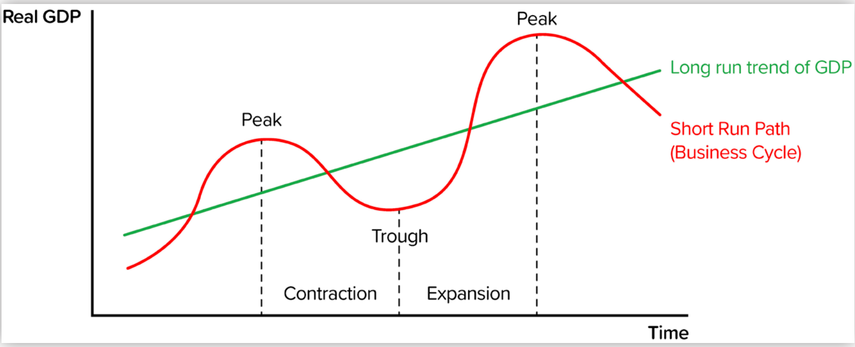
Underground economic activity (bootlegging and drug-dealing) is not included in GDP because they could not be sold in the marketplace. Owner-occupied houses are included in GDP using imputed market rent of a similar house in a same/similar neighborhood and government services (e.g., judges, police, etc.) are evaluated at cost and included in the GDP.

GDP and GDP per Capita

GDP is useful because it can be used to compare living standards across time and countries, to measure economic growth, and to determine whether an economy is experiencing an expansion or recession. Total GDP is not accurate for cross-country comparisons because it does not adjust for population size. GDP per capita or per person (GDP divided by Population) which corrects for population gives a better picture of the welfare of the average person. For example, China has a larger total GDP than Germany ($11.2 trillion versus $3.4 trillion), but Germany has a higher per capita GDP ($8,123 versus $41,936).

The Business Cycle

The Business Cycle is the short-run fluctuations in the economy around its long-run trend. The business cycle has two parts: expansions, which are periods of increasing economic activity, and contractions, which are periods of decreasing economic activity. Since 1965 the United States has had contractions in 1969, 1973, 1979, 1981, 1990, 2000 and 2008, the last one is referred to as the Great Recession because of its severity and length.



Gross Domestic Product Breakdown

GDP can be broken into four major components, consumption (C), investment (I), government expenditure (G), and net exports (NX).

$$GDP = C + I + G + NX$$

Consumption (C) is defined as the value of all goods and services bought by *households*. It includes durable goods (cars and furniture), nondurable goods (food and clothing) and services (education and dry cleaning). As of 2017 consumption makes up 60.2% of GDP, with services making up 38.5%, nondurables making up 14.3%, and durables making up 7.5%.

The investment (I) component of GDP is defined as spending on any physical asset used in future production. Also, new houses are included under the investment component as "residential fixed investment." Examples of investment include spending on factories, equipment, housing units, and any change in a firm's inventory. Investment comprises 16.4% of GDP with 12.5% coming from business fixed sources, 3.2% from residential sources and .06% from inventory.

Government spending (G) is defined as all government spending on goods and services (military and infrastructure) spending. Transfers payments (social security, unemployment checks) are excluded because they do not represent spending on goods and services. The majority of US federal government spending (23% of GDP) was allocated to non-defense programs such as Medicare and Social Security (20% of GDP) in 2017.

Net exports (NX) is defined as the value of goods and services sold in other countries minus the value of goods and services purchased from other countries. Net exports represent a small fraction of the total US GDP. The United States currently runs a trade deficit; meaning it imports more goods than it exports. This is not necessarily a bad thing because it means consumers in the United States have access to more goods and services.

Nominal GDP and Real GDP

Nominal GDP measures GDP in the current year's prices, whereas *Real* GDP measures GDP in the prices of a base year. Changes in real GDP can only be due to changes in quantities because real GDP is constructed using constant base-year prices. This is done to account for inflation and gain a clearer picture of what is actually produced in a given year. Let us assume that an economy produces two goods: apples & apple juicers. The quantity produced and the prices in the years 2016, 2017 and 2018 are as shown in the table below.

	2016		2017		2018	
	P	Q	P	Q	P	Q
Apple	$10	1,000	$12	1,500	$15	2,000
Apple Juicers	$100	200	$105	225	$110	250

Nominal GDP is calculated by multiplying Ps and Qs from the same year

2016: $\$30{,}000 = \$10 \times 1{,}000 + \$100 \times 200$

2017: $\$41{,}625 = \$12 \times 1{,}500 + \$105 \times 225$

2018: $\$57{,}500 = \$15 \times 2{,}000 + \$110 \times 250$

Real GDP is calculated by multiplying each year's Qs by 2016 Ps

2016: $30,000

2017: $37,500 = $10 × 1,500 + $100 × 225
2018: $45,000 = $10 × 2,000 + $100 × 250

The inflation rate is the percentage increase in prices over a period of time. One way to measure the inflation rate is by using the GDP deflator, which is simply Nominal GDP divided by Real GDP multiplied by 100. Therefore, in 2017 the GDP deflator is 100 * (41,625/37,500) = 111.0). Since the base year is 2016, the inflation rate is 111.0-100 = 11.0%.

Similarly, the GDP deflator for 2018 is 100 * (57,500/45,000) = 127.8. The percent increase over 2017 is (127.8 - 111.0)/111.0 = 15.1%.

	Nom. GDP	Real GDP	GDP Deflator	Inflation
2016	$30,000	$30,000	100	-
2017	$41,625	$37,500	111	11.0%
2018	$57,500	$45,000	127.8	15.1%

Why GDP is Important

GDP per capita is the main indicator of the average person's standard of living in a country. However it is not a perfect measure of a person's well-being. GDP per capita does not value non-material factors such as the quality of the environment or leisure time. Understanding GDP is important because GDP is related to many indicators of quality of life. For example, GDP is positively correlated with average schooling, water quality, and life expectancy.

Gross National Product (GNP)

Another measure of well-being is the gross national product. Gross National Product (GNP) is defined as the total income earned by a nation's individuals and businesses *regardless of location*. This differs from GDP because GNP takes into account production outside of that nation's borders, whereas GDP does not. Income received by residents from abroad is added when computing GNP, while income earned by foreigners in the domestic country is subtracted.

CHAPTER V-2

INFLATION

Inflation is defined as the percentage change in the prices of goods and services over a period of time. In the section on Gross Domestic Product, we used GDP deflator as a measure of prices. The GDP deflator is one of several methods which can be used to measure the inflation rate. The most common is the Consumer Price Index (CPI), which measures the price level based on the consumption pattern of the average consumer.

Understanding the inflation rate is important because it is a critical measure of the health of the economy, and the changes in the prices of goods and services can have lasting economic consequences. Since 1900 the US inflation rate has gone through periods where it was extremely high, such as during World War I, World War II, and a pair of oil shocks in the 1970s, as well as periods where it was very low or even negative, such as during the Great Depression or the financial crisis of 2008.

In this section, we will address how to measure the inflation rate, the differences between the CPI and GDP deflator, issues with the CPI that limit its accuracy and the costs and benefits of inflation.

Consumer Price Index (CPI)

The **Consumer Price Index** (CPI) is a measure of the overall price level of a basket of goods and services in the economy. A basket is defined as a collection of goods and services, and the price level is how much each costs. The CPI's primary use is to track changes in the typical household's cost of living. The measure is published at regular intervals by the Bureau of Labor Statistics (BLS). It also can be used to compare dollar amounts at different times in history. For example, we can use the CPI to factor out inflation to see how much the average family in 1918 would make in 2017 dollars. Many contracts that make adjustments for inflation use the CPI.

The BLS surveys consumers to determine the composition of the typical consumer's "basket" of goods, or the goods and services that they typically purchase. Every month, they collect data on the prices of all of the items in the basket and calculate the cost of the basket using the formula below.

CPI in any month equals: 100 x (cost of the basket in that month)/ cost of the basket in the base year

The CPI can be used to measure the cost of living and inflation rate on a monthly or annual basis. Consider the following example: Suppose the basket consists of 1,000 apples and 200 apple juicers.

Basket: 1000 apples, 200 apple juicers

Year	Apples	Apple Juicer
2015	\$5	\$95
2016	\$10	\$100
2017	\$12	\$105
2018	\$15	\$110

The CPI for 2015, with 2015 as the base year is 100 – (1000 × \$5) + (200 × \$95) = \$5,000 + \$19,000 = \$24,000 → 100 × 24,000/24,000 = 100

If we repeat this calculation for the next year. We get:

(\$1,000 x 10) + (200 x \$100) = \$30, 000 → 100 x 30,000/24, 000 = 125

The inflation rate is given by the percentage change in prices (CPI), which is 25% for 2016. The CPIs for 2017 (with base year 2016) and 2018 (with base year 2016) and inflation rates are shown in the table below.

Year	Cost of Basket	CPI	Inflation Rate
2015	\$24,000	100	0%
2016	\$30,000	125	25.00%
2017	\$33,000	137.5	10.00%
2018	\$37,000	154.17	12.12%

The basket of goods that is used in calculating the CPI is spread across the goods and services that the average American household consumes. 41.4% of the basket is devoted to housing, 16.4% to transportation, 14.9% to food and beverages, 7.6% to medical care, 5.8% to recreation, 3.8% to communication, 3.2% to education and the remaining 3.4% to miscellaneous goods and services.

Other Price Indexes and Ways to View Inflation

The CPI is not the only price index used by economists to measure inflation. The Producer Price Index (PPI) is similar to the CPI, but only measures the prices of the goods and services bought by firms.

Another approach is to factor out core inflation when calculating the inflation rate. Core inflation is defined as the increase in the price of a consumer basket that excludes food and energy products. Food and energy prices are generally very volatile in the short-term, and therefore some economists view core inflation as a better gauge of ongoing inflation trends.

The Bureau of Labor Statistics also computes price indexes for specific types of goods (food, housing, energy).

Comparing Dollar Values Over Time

The CPI can be used to compare dollar amounts in different time periods. Suppose you earned $20,000 in 1989 and you want to know what a comparable salary would be in the year 2014. You calculate this by multiplying your salary in 1989 dollars by the ratio of the CPI in 2014 to the CPI in 1989.

$20,000 x CPI 2014/CPI 1989 = $10,000 x 237/124 = $38,226

CPI vs. GDP Deflator

The CPI and GDP deflator both measure the inflation rate but differ in some several specific areas. The CPI measures prices of only the goods and services bought by consumers and excludes capital goods (goods typically bought by businesses and the government). Capital goods are included in GDP deflator. The CPI includes imported goods that are consumed. The GDP deflator, in contrast, does not include imported goods as they are not a part of GDP. The CPI also assigns fixed weights to the prices of different goods. GDP deflator assigns changing weights. This means that the CPI is forced to maintain the same composition of goods and services, while the GDP deflator can have different types of goods and services produced in different quantities each year.

Since 1960, GDP deflator and CPI have largely tracked the same fluctuations in the inflation rate, but GDP deflator has consistently shown lower measures of inflation than the CPI.

The fixed basket (CPI) tends to overstate the true cost of living because it does account for the fact that, as the prices of goods rise, consumers may switch to cheaper alternatives which are not included in the CPI. The changing basket (GDP deflator) while it considers substitution tends to understate the true cost of living. An example illustrates these over and underestimation of inflation.

Suppose all domestically produced peaches are completely destroyed by extremely cold weather. The only available peaches are from the previous year, significantly increasing the price for the year. The CPI will increase because it uses a fixed basket of goods – even if most consumers did not buy peaches that year. The GDP deflator, on the other hand, does not even show an increase in the price index because peaches did not even enter into the calculations of GDP that year.

Besides substitution by consumers, there are three other reasons why CPI may overstate inflation. The CPI does not take into consideration the introduction of new goods that give consumers more benefits for their money, which increases the real value of their income. (e.g., upgrading from a car with 20 mpg to newer one with 50 mpg). Again, this is because the CPI uses fixed weights which do not change with the introduction of these new goods. Secondly, improvements in the quality of products are also not included in CPI. Better quality increases the value of the dollar, but these benefits are often not fully measured. Finally, the CPI uses the full retail prices of goods, but many people purchase products at a discount (e.g., 50% off sales). This is called outlet bias.

Since 1999, the BLS has used a formula that accounts for substitution bias and adjustment for quality changes. Also, in 2000, a new chained CPI was instituted. It is more difficult to measure, and current reports are not yet based on chained CPI). Most economist, now, believe that the CPI overstates true inflation by .05 to one percentage point.

Unexpected and Expected Inflation

Inflation can fall into two categories. Expected inflation is inflation that is anticipated and accounted for by governments, consumers, and firms. Unexpected inflation is inflation that is not anticipated and, therefore, unaccounted for by governments, consumers, and firms. Unexpected inflation can create distortions in the economy, as shown below.

The Costs of Expected Inflation

When the central bank prints money to raise revenue, it causes inflation. Inflation acts to depreciate the value of the money already held by people. This phenomenon is called the inflation tax because inflation reduces the amount of goods that an individual holding money can purchase, just as a tax does. Individuals can reduce the amount of inflation tax paid by reducing their money balance, but not, however, without a series of costs and inconveniences. These are called shoe leather costs.

In addition, inflation also results in what is called menu costs. Menu costs are costs that a business incurs over time (such as changing restaurant menus, updating databases with new price information or reprinting magazines with new prices). Menu costs take their name from the fact they require the reprinting of menus when a price change occurs.

Firms facing menu costs change their prices *infrequently* because of the costs involved. This can lead to differences between the price consumers pay for a good or service, and what should be the real price taking into account inflation. For example, if a firm updates its prices in January and sticks to those published prices through the year while the general price level rises throughout the year, then the firm's margins will fall.

Some taxes are not adjusted to account for inflation. This includes the capital gains tax, which can lead to heavier tax burdens due to inflation. For example, if you were to buy $1,000 worth of stock on January 1st, and sold the stock when it reached a price of $1,100 you would earn a capital gain of 100 or 10%. If the inflation rate was 10% over the period of time which you held the stock, then your actual capital gain would be 0%. However, you would still have pay taxes on the 10% nominal capital gain. Thus, it is theoretically possible, with high enough inflation, to lose money, even when you sell your stock and make a profit!

Finally, the general inconvenience of comparing nominal values of different time periods can prove troublesome and complicating for long-range financial planning. This is another cost of inflation.

The Costs of *Unexpected* Inflation (Redistribution of Purchasing Power)

Unexpected inflation can lead to the arbitrary redistribution of purchasing power. For example, many long-term contracts, such as auto loans, are based on the level of inflation that is expected to occur in the future. For a lender, what matters is the real interest rate they earn on loan. This is defined as the nominal interest rate minus the inflation rate. However, because the contracts are negotiated long before actual inflation occurs, they are based upon projections of the inflation rate. If actual inflation is higher than these projections, then lenders will earn a lower rate of return. If actual inflation is lower than these projections, then they will profit from a higher rate of return.

When inflation is high, it is generally prone to more *unexpected* increases and decreases than when the inflation is low. Thus, this makes arbitrary redistributions of wealth more likely during periods of high inflation.

Benefit of Inflation

One benefit of inflation is that it can improve the functioning of labor markets. Nominal wages (the actual wage you are paid) are rarely reduced, even during periods when the equilibrium wage (the wage that the labor really deserves based on demand and supply) falls. This creates a distortion in the labor market because now firms are overpaying for employees. Inflation depreciates the value of the dollar, causing the real wage to drop and equilibrium to be reached. To illustrate with an example, consider the situation where the nominal wages are really 3% higher than what the equilibrium wages ought to be. Without inflation, the labor would continue getting this 3% advantage. With inflation of say 5%, employers can pay a 2% increase in nominal wages and adjust for the 3% overpayment.

CHAPTER V-3

UNEMPLOYMENT

Unemployment is defined as the percentage of people *looking for a job* who cannot find one. Unemployment is important because it acts as a very good gauge of the health of the economy, along with the inflation rate and GDP. Understanding the unemployment rate provides an additional tool to analyze the state of the economy and make decisions based on economic data.

The Bureau of Labor Statistics (BLS) compiles the unemployment rate by surveying 60,000 households every month (called the current population survey or household survey) and places each person of working age (+16) into one of three categories, employed, unemployed, or not in the labor force.

This section will cover how the unemployment rate is measured, different types of unemployment, and the factors affecting unemployment.

U.S Unemployment Rate Over Time

Since 1900, the unemployment rate has gone through a series of fluctuations, usually between 3% and 7%, but with several notable exceptions. Unemployment peaked at 25% during the Great Depression, and 10%

during the Oil Shocks of the 1970s, and the Financial Crisis of 2008. Unemployment was close to 0% during World War II and World I.

Unemployment Categories

The unemployment rate is broken into several categories that help to define its parameters. Employed persons are defined as paid employees, self-employed individuals, or unpaid workers in a family business. Unemployed persons are people not working who have looked for work during the previous 4 weeks. Persons who are not in the labor force include retirees, homemakers, full-time students, active-duty military personnel, incarcerated felons, or individuals in the hospital. The total labor force of a nation is the total number of employed person plus the total number of unemployed persons.

Labor Force Statistics

The Unemployment Rate is defined as the percentage of the labor force that is currently unemployed.

Mathematically:

$$\text{U-Rate} = \frac{\text{Unemployed}}{\text{Labor Force}} \times 100$$

The Labor-Force Participation Rate measures the percentage of the adult population (the people that could actually work) that is working or looking for work.

Mathematically:

$$\text{L} - \text{F Participation Rate} = \frac{\text{Labor Force}}{\text{Adult Population}} \times 100$$

The Employment Population Ratio is the percentage of the working age population that is employed.

Mathematically:

$$\text{Employment Population Ratio} = \frac{\text{Employed}}{\text{Adult Population}} \times 100$$

How the Unemployment Rate Understates Unemployment

The unemployment rate is not a perfect indicator. It tends to understate unemployment because it excludes discouraged workers (workers who would like to work, but have given up looking for jobs) because they are classified as not in the labor force rather than unemployed.

The unemployment rate also does not differentiate between part-time and full-time work. Thus individuals who want to work full-time jobs, but can only find part-time jobs are not reflected in the unemployment rate.

How the Unemployment Rate Overstates Unemployment

The unemployment rate can overstate unemployment for two reasons. Firstly, it is possible for people to falsely report that they are looking for work which would lead them to be classified as being in the Labor Force. Secondly, people might claim not to be working, perhaps, to avoid paying taxes. Because of these reasons, the BLS calculates other measures of unemployment to try to control for these factors.

Official vs. Broad Measures of Unemployment

Since 1998 the official unemployment rate has fluctuated between 4% and 8%, with peaks during the 2001 and 2008 recessions. However, broader measures of unemployment (measures that take into consideration underemployed and discouraged workers) show that the unemployment rate is on average 4% higher than the stated unemployment rate, with peaks of 10% and 16% during the 2001 and 2008 recessions.

The BLS computes statistics for the overall population, but it also collects statistics on the unemployment rate of specific groups within the population (men, women, Caucasians, African Americans, teenagers, and prime-age workers).

The Establishment Survey

The BLS obtains the second measure of employment by surveying businesses and asking how many workers are on their payrolls. This measure has its issues as well, and will often diverge from the household survey due to the fact that new firms are included in the establishment survey, and self-employed persons are not included in the establishment survey (while they are included in the household survey).

Types of Unemployment

Unemployment can be grouped into three broad groups. Frictional unemployment occurs when a worker leaves one job to find another and is unemployed in the interim. Structural unemployment occurs when there is a mismatch between the skills and attributes that a worker has and the skills and attributes that are required of the jobs available in the market. For example, when computers were first created, there was an extremely high number of computer programming jobs available, but relatively few workers that could fill them, because they did not have the skills. Cyclical unemployment occurs as a result of the business cycle. Cyclical unemployment peaks during recessions and bottoms out during expansions.

Frictional unemployment happens because it takes time to search for a new job after leaving a job. It takes time for information about new jobs to circulate to job seekers once they are open, and for employers to find suitable candidates. Seasonal unemployment (when a firm increases its staff during peak season and decreases it after peak season) can also contribute to frictional unemployment.

Frictional unemployment is inevitable in any economy and actually improves efficiency because it allows for workers and employers to find better matches.

Structural unemployment is caused by a persistent mismatch between the skills and attributes of workers and the requirements of jobs. Structural unemployment is caused by changes in the industrial makeup of the economy. Generally, structural unemployment lasts longer than frictional unemployment and can be caused by technological progress that requires workers to acquire the training and skills needed to function in the new marketplace.

Structural unemployment is inevitable in a growing economy and is, in some ways, a sign of the health of an economy. An example of structural unemployed could be manufacturing workers having to retrain as web developers after they lose their jobs to automation.

Since 1800, the United States economy has undergone an astonishing change in terms of the composition of jobs in the economy. In 1800 nearly 90% of jobs were in agriculture, with the remaining 10% split between industrial and service jobs. With the advent of the industrial revolution, this ratio fell to 50% agriculture, 25% industrial and 25% service by 1900. As of 2010, 70% of jobs are in services, 30% are industrial jobs, and 1% are in agriculture.

Cyclical unemployment is unemployment associated with economic downturns. Unemployment generally waxes during recessions (with the most extreme examples being the Great Recession and Great Depression), and the wanes during expansions.

Structural and frictional unemployment are referred to as natural unemployment and would exist under normal macroeconomic conditions. Natural unemployment is estimated to be between 5% and 5.5%. The natural rate of unemployment is the typical rate of unemployment in a healthy economy and will exist regardless of economic output. When an economy reaches full employment output, then an economy has no cyclical unemployment.

The US unemployment rate has generally fluctuated between 4% and 10% since 1965, with the natural rate of unemployment being between 4.5% and 5.5%.

Government Influence

There are four ways the government can influence unemployment:

Government Employment Agencies – which provide information about job vacancies to speed up the matching of workers with jobs. This reduces frictional unemployment.

Public Training Programs – which train workers from declining industries with the skills required in growing industries. This reduces structural unemployment.

Unemployment Insurance – which pays part of a worker's former wage for a limited time after a job loss. This improves efficiency by facilitating better matching between workers and employers. In this case, frictional employment is increased.

Minimum Wage Law – which mandates that employers pay a minimum hourly wage to every worker. This has the effect of increasing structural unemployment.

Other Factors Influencing Unemployment

Labor Unions work by giving workers the ability to negotiate with collective bargaining for higher wages. This increases structural unemployment, similar to the minimum wage.

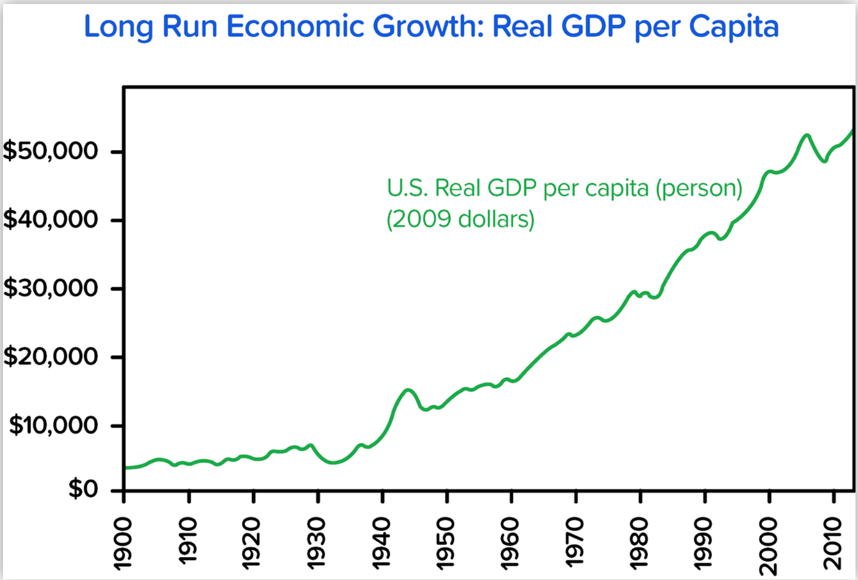
Efficiency wages (wages above the market wage willingly paid by firms to increase workers' productivity) increase structural employment by reducing worker turnover, attracting better quality applicants, and increasing workers' effort level by making shirking at the job more expensive.

CHAPTER V-4

MACROECONOMIC PRODUCTION AND GROWTH

Overview

Our perception of the health of the economy is dominated by year-to-year or quarter-to-quarter fluctuations. GDP rises with expansions and falls with recessions. However, if we look at the economy over many years, we see that these short-term fluctuations occur along with a long-run trend-line.



Since 1900 per Real Capita GDP (adjusted for inflation) has risen from less than $10,000 to $50,000, with short-run declines during the Great Depression, the financial crisis, and the oil shocks of the 1970s.

This section will cover long-run economic growth, the short-run business cycle, how to measure economic growth, the financial system, loanable-fund market, a model of economic growth, and how governments can promote economic growth.

Time Horizons

Economists define the short run as being the period of time when prices are **sticky**, or remain the same. For example, restaurants do not change prices every day; they do so over longer intervals of time (sometimes months or years). The period of time when prices do change is referred to as the long run. The economy behaves differently in the short and long run, with long-run theory being useful for explaining why economic growth happens, and short-run theory being useful to explain the business cycle.

Sticky Prices in the Short Run

It is important to remember that different firms change their prices at different intervals. For example, a University of Chicago survey found that 65.1% of firms change their prices four or fewer times in a year, while 34.9% change their prices more than four times per year.

Long Run Economic Growth

We care about long-run economic growth because it is directly linked with the standard of living. For example, between 1950 and 2009 Japan and the UK had real GDP per capita annual growth rates of 2.0% and 3.9% respectively, and saw real per capita GDP rise from $10,400 in the UK to $33,386 in 2005, and $3,118 in 1950 for Japan to $31,958 in 2009.

Calculating Growth Rates

For one year:

Real GDP in 2013 = $ 15,710 billion
Real GDP in 2014 = $ 16,086 billion

$$\text{Real GDP Growth} = \left(\frac{\$16{,}086 \text{ billion} - \$15{,}710 \text{ billion}}{\$15{,}710 \text{ billion}} \right) \times 100 = 2.4\%$$

Over a few years:

In 2012, real GDP growth was 2.3%
In 2013, real GDP growth was 2.2%
In 2014, real GDP growth was 2.4%

$$\text{Average Annual Real GDP Growth} = \frac{2.3\% + 2.2\% + 2.4\%}{3} = 2.3\%$$

The Rule of 70

The Rule of 70, is a useful tool for calculating how long it will take for an economic variable to double.

$$\text{Number of Years to Double} = \frac{70}{\text{Growth Rate}}$$

For example, if the growth rate is 5 percent, the variable will double in 70/5 = 14 years.

Over 50 years, a 1.3% growth rate leads to a 91% increase in real GDP per capita, whereas, a 2.3% leads to about 212% increase.

What determines LR GDP Growth

Labor productivity determines long-run GDP growth, and it is defined as the quantity of goods and services produced by one worker or by one hour of work. Mathematically, if Y = real GDP (quantity of output produced) and L = quantity of labor, then productivity is equal to Y/L. Labor productivity, in turn, is determined by physical capital, human capital, natural resources, and technical knowledge, each of which is described next.

Physical capital per worker (K) is defined as the stock of equipment and structures used to produce goods and services per worker. Mathematically if K = capital, and L = labor, K/L = capital per worker. Productivity is higher when the average worker has more capital (more machines and equipment to work with). Thus an increase in K/L will result in an increase in Y/L.

Human capital (H) per worker is defined as the knowledge and skills workers acquire through education, training, and experience. H/L is defined as the average worker's human capital. Because higher human capital (better skills, education, etc.) means workers are generally more efficient, productivity is higher when the average worker has more human capital. Thus, an increase in H/L increases Y/L.

Natural resources (N) is defined as the inputs into production that nature provides (e.g., land mineral deposits). All things being equal, more natural resources allows a country to produce more income, or in per-worker terms, an increase in N/L causes an increase in Y/L. Countries like Saudi Arabia are wealthy because they have an abundance of natural resources, while other nations, like Japan, are wealthy in spite of having few natural resources. Nations that do not have adequate natural resources have to import them from abroad.

Technical knowledge is defined as a society's understanding of the best way to produce goods and services. In this case, innovations or new methods of combining inputs (labor, capital, human capital, etc.) into outputs allow workers to produce more in a given period of time. The role of entrepreneurs, in this case, is critical to bringing together the factors of production to produce better or lower-cost products.

Property rights, the right of people to own physical property and keep what they produce also plays a role in determining productivity.

SAVING, INVESTMENT AND FINANCIAL SYSTEMS (LOANABLE FUNDS MARKET)

In order to increase productivity, *financial investment* in capital, technology, and human capital is needed. This money for investment can either come from a firm's retained earnings (the profits that a firm reinvests in itself), or from the financial markets. Financial markets are where financial securities, stocks, or bonds are bought and sold. (Recall, a stock is financial security representing partial ownership in a firm. A bond is financial security promising to repay to the lender a fixed amount of the principle and the interest.) Financial intermediaries are firms (banks, mutual funds, pension funds, and insurance companies) that borrow funds from savers and lend them to borrowers.

The Loanable Fund Market

The loanable fund market is a model of supply, the amount of money available for loans, and demand, the amount of money needed by entities. In this market, the demand for loanable funds comes from firms and households. Firms and households tend to borrow more when the cost of borrowing (the interest rate) is low. The supply of loanable funds comes from households and the government (if the government is running a surplus, see below). Households tend to supply more loanable funds when the return from lending (the interest rate) is high.

Essentially, the supply of loanable funds mostly comes from the savings accounts that households register with banks, and the demand for loanable funds mostly comes from the firms who receive loans from banks for various business ventures. In this model, we assume that there is only one financial market (one place where suppliers and demanders can meet) where the price of loanable funds is equal to the real interest rate.

The Supply of Loanable Funds (Savings)

As previously stated, loanable funds come from the savings accounts registered with banks. Private savings can be defined as income (Y) minus taxes (T) minus consumption (C)

$$\boldsymbol{S}_{\textbf{Private}} = \mathbf{Y - T - C}$$

Public savings can be defined as (T – G). Taxes (T) are the revenues government (federal, state, and local) collects, and G is the amount the government (federal, state, and local) spends. When the public savings is positive, the government is said to have a surplus when it is negative a deficit, and when it is zero, the government is said to have a balanced budget.

$$\boldsymbol{S}_{\textbf{Public}} = \mathbf{T - G}$$

$$S_{\text{Public}} = 0 \text{ : Balanced Budget}$$
$$S_{\text{Public}} < 0 \text{ : Budget Deficit}$$
$$S_{\text{Public}} > 0 \text{ : Budget Surplus}$$

If we combine private and public savings, we see that total savings is equal to GDP minus consumption minus government spending ($S = Y - C - G$).

$$\boldsymbol{S}_{\textbf{National}} = S_{\text{Private}} + S_{\text{Public}}$$
$$= (Y - T - C) + (T - G)$$
$$= \mathbf{Y - C - G}$$

The government funds its current deficits by borrowing (selling treasury bonds). This means that there is less money available for investment because the government takes up a bigger part of the supply for loanable funds.

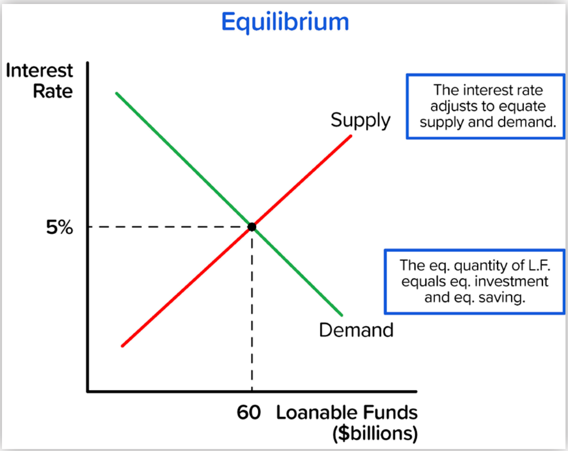
When the interest rate increases, savings becomes more attractive for households, and they switch from spending their money on goods and services to placing it in savings accounts. This causes the supply of loanable funds to increase.

Demand for Loanable Funds (Investment)

Recall that GDP, Y = C + I + G + NX (GDP (Y) is equal to Consumption (C) plus Investment (I) plus Government Spending (G) plus Net Exports (NX)). If we assume that net exports are zero, then we can arrange this equation to get: I = Y – C – G (or investment is equal to GDP minus consumption minus government spending). This amount is the same as $S_{National}$. Or in other words, I = S, or savings is equal to investment.

When the interest rate decreases, it also decreases the cost of borrowing. Firms then become more willing to take out loans for projects (building a new factory or buying new equipment), which then increases the demand for loans. This is shown as the downward sloping demand line in the picture.

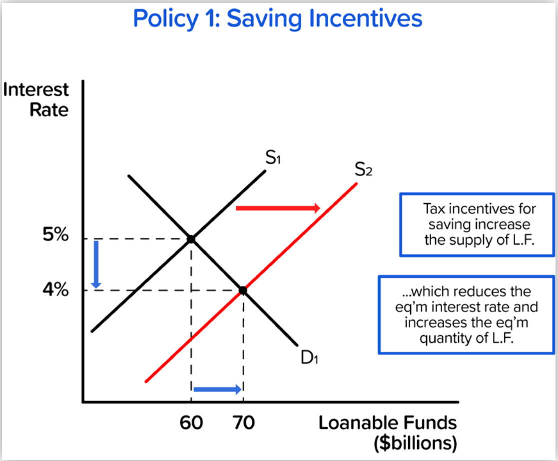
Because the supply of funds increases with interest rate, the relationship between the two variables is an upward sloping line. The point at which the two lines intersect is the equilibrium point where the demand and supply of funds for a loan are the same.



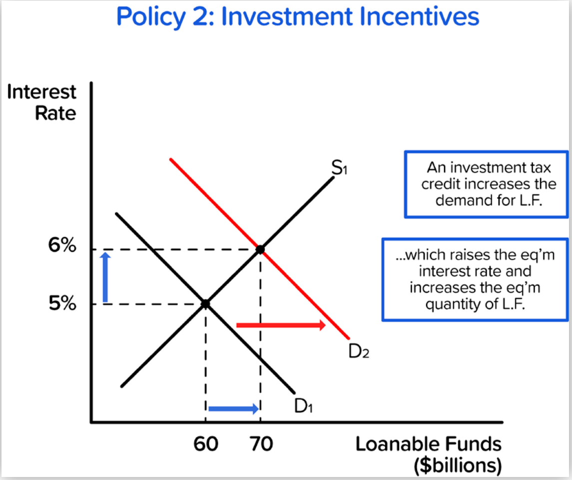
GOVERNMENT POLICIES

The government can influence the market for loanable funds through several different types of economic policies.

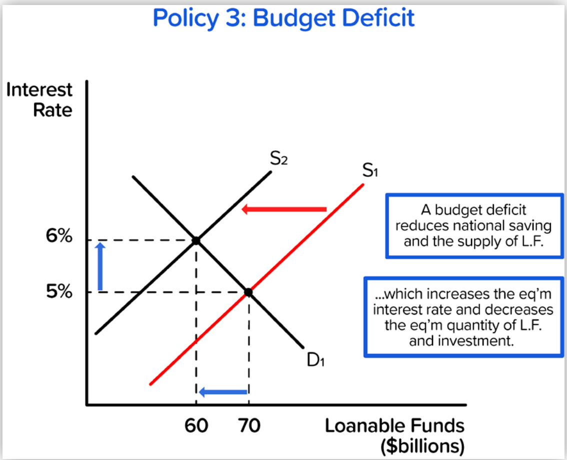
First, by using tax incentives, the government can implement a **savings incentives** policy. These incentives encourage people to save. The increase in the supply of loanable funds reduces the interest rate.



The government can also use tax incentives to implement an **investment incentives** policy. These incentives encourage firms to invest. The increase in the demand for loanable funds increases the interest rate.



Budget deficits describe the shortfall that occurs when a government's expenses are greater than its revenues (spending on defense and social programs is greater than tax revenues). A budget deficit reduces national saving and decreases the supply of loanable funds. This has the effect of increasing the interest rate and decreasing the equilibrium quantity of loanable funds and investment.



Budget Deficits, Crowding Out and Long-Run Growth

Based on our analysis, an increase in budget deficit causes a fall in investment. The government then borrows to finance its deficit, leaving fewer funds available for investment. This phenomenon is called crowding out. Investment is important for long-run economic growth because it is what allows businesses to expand and grow, and budget deficits (via crowding out) reduce the economy's growth rate and future standard of living.

A MODEL OF ECONOMIC GROWTH

Economic growth models explain growth rates in real GDP per capita over the long run. In these models, labor productivity is one of the key drivers of economic growth. Two main factors affecting productivity are the quantity of capital per hour worked and the level of technology in the economy. Technological change is also critical in determining economic growth because it allows for firms to produce a higher level of output with the same, or fewer inputs.

The Production Function and Diminishing Returns

We have seen that the higher the level of capital per worker, the higher the level of productivity. However, this is only true up to a point. If workers have a little capital (equipment) then increases in the amount of capital will make them more productive. However, with each unit of capital, the increase in the productivity of the worker decreases. This is called diminishing returns to scale.

The Production Function and Technological Change

If a country is relatively lacking in capital (developing countries), increasing capital will be very effective at increasing real GDP per capita. However, in countries where the amount of capital is already relatively high, technological change is more effective at increasing GDP per capita (via increasing productivity).

The Catch-Up Effect

The catch-up effect describes the phenomenon whereby poor countries generally grow at faster rates than rich countries. For example, between 1960 and 1990, the United States and South Korea devoted a similar share of GDP to investment (I). Because of the law of diminishing returns, the United States saw a growth rate of approximately 2%, and South Korea saw a growth rate of 6%. This difference can be attributed to the capital effect. Because the capital per worker was far smaller in South Korea than in the U.S, South Korea grew faster.

The Catch-Up Effect Examined

If we apply the catch-up effect to high-income in general countries (measured in real GDP per capita) we see that countries with higher real GDPs per capita in 1960 (United States, Australia, and Switzerland) did grow at slower rates than countries with lower real GDPs per capita (Taiwan, South Korea and Portugal).

However, if we try to apply the catch-up effect to low income in general countries, we see that it breaks down. Countries such as Colombia and Venezuela, who had relatively low per capita GDPs in 1960, did not see higher growth rates.

This begs the question as to why the catch-up effect fails with low-income countries. Lack of clearly defined property rights, wars and revolutions, poor public education and health, and underdeveloped financial systems all work to depress savings, investment, and productivity. Some, if not all, of these, are common with the low-income countries.

Growth Policies

Governments can implement policies to enhance economic growth.

Investments: Investment from abroad can take the form of *foreign direct investment*, which is just a capital investment (a factory) that is owned and operated by a foreign entity; or it can take the form of *foreign portfolio investment* which is a capital investment financed with foreign money, but operated by domestic residents. Of course, some of the returns from these investments flow back to the foreign countries that supplied the funds. Investment from abroad is especially beneficial in poor countries that cannot generate enough saving to fund investment projects themselves. It also helps poor countries learn state-of-the-art technologies developed in other countries.

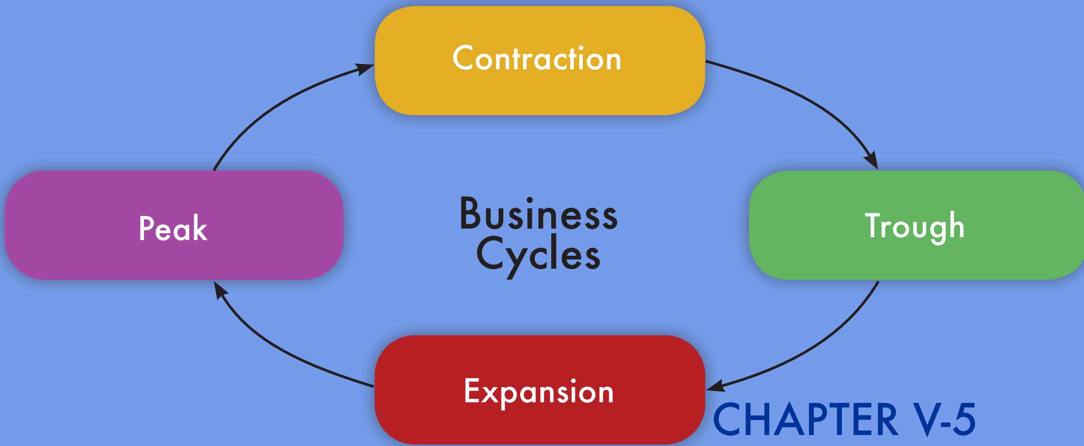
Education: Governments can increase productivity by promoting education (investment in human capital (H)). Examples include public schools, subsidized loans for college, and tax breaks for college students. Education has significant benefits. For example, in the United States, each year of schooling raises a worker's wage by 10%. However, investing in human capital involves a tradeoff between the present and future. Spending a year in school requires sacrificing a year's wages now to be able to earn a higher wage later.

Healthcare: Health care expenditure is a type of investment in human capital because healthier workers are more productive, both because they live longer and because they have more energy. In countries with significant malnourishment, raising worker's caloric intake (how much they eat) can significantly improve productivity. Between 1962 and 1995, caloric consumption rose 44% in South Korea, and per capita GDP increased more than 6% per year. Nobel prize winner Robert Fogel, estimated 30% of Great Britain's growth from 1790 to 1980 was due to improved nutrition.

Property rights and political stability: In many poor countries, the justice system doesn't work very well. Contracts are not always enforced fraud and corruption often go unpunished, and firms must bribe government officials for permits. In this case, political instability (frequent coups) and weak property rights create uncertainty. When people fear that their capital might be stolen or confiscated by the government, there is less investment, including from abroad. This results in lower living standards. Hence, economic stability, efficiency, and healthy growth require law enforcement, effective courts, and a stable constitution.

Free trade: Trade policies can have a significant impact on economic prosperity. Free trade policies can generally be classified into two categories. Inward-orientated policies (e.g., tariffs, limits on investment from abroad) aim to raise living standards by avoiding interaction with other countries. Outward-orientation policies (e.g., the elimination of restrictions on trade or foreign investment) aim to raise living standards by seeking to promote integration with the world economy. Free trade has similar effects as discovering new technologies, in that it improves productivity and living standards. Countries that have embraced inward-orientated policies have generally failed to create growth (e.g., Argentina during the 20^{th} century) whereas countries with outward-orientated policies have often succeeded (e.g., South Korea, Singapore, and Taiwan after 1960).

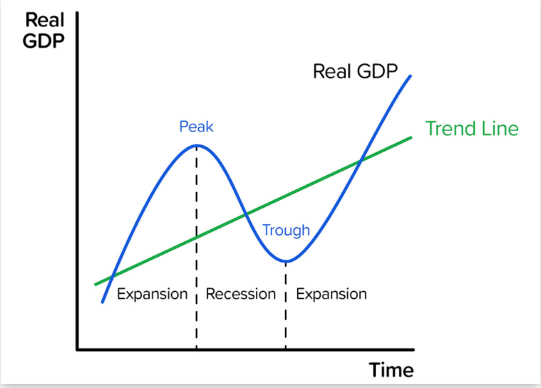
Research and Development: Technological progress is the main reason why living standards rise over the long run. One reason is that knowledge is a public good (a good that is available to everyone in the economy for free). Ideas can be shared freely, thus increasing the productivity of many with no cost. Some examples to promote technological progress include patent laws, tax incentives for private sector R&D, and grants for basic research at universities.



CHAPTER V-5

BUSINESS CYCLES

Over the long run, real GDP grows about 2-3% per year on average in developed countries. In the short run, GDP fluctuates around this trend. Recessions are periods of falling real incomes and rising unemployment. Occasionally, recessions can be very long and very severe. These are called depressions. Generally, depressions are very rare. Expansions are periods when GDP and employment are rising. These short-run economic fluctuations are often called business cycles. The point at which the economy moves from expansion to contraction is called a peak and the point at which an economy begins recovery after a recession is called a trough.



In this section, we will try to understand business cycles by understanding aggregate demand and aggregate supply in an economy.

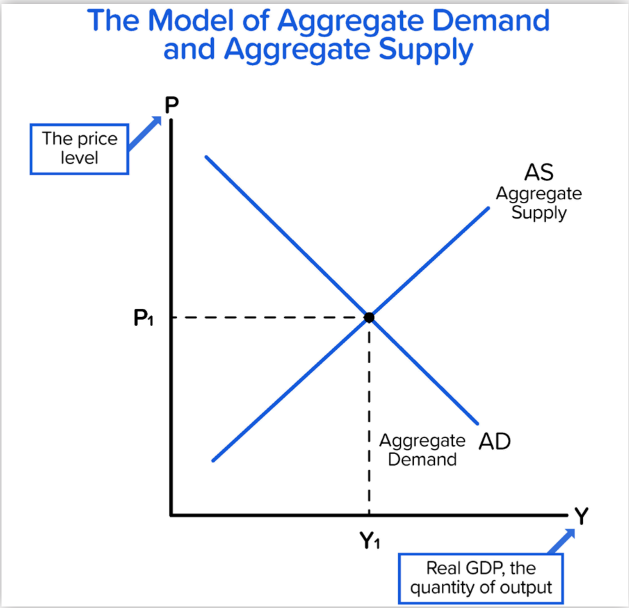
Three Facts About Economic Fluctuations

Since 1965, US real GDP has steadily risen, with seven recessions in (1970, 1975, 1980, 1985, 1990, 2002 and 2008). These periods of recessions and expansions are irregular and unpredictable. Most economic variables (GDP, investment, consumption, income) fluctuate in unison; in other words, they rise and fall together. As output/GDP falls, unemployment rises; as output/GDP rises, unemployment falls.

Explaining these fluctuations is difficult, and the theory of economic fluctuations is controversial. Most economists use the model of aggregate demand and aggregate supply to study fluctuations. This model explains why the economy experiences the business cycle.

The Model of Aggregate Demand and Aggregate Supply

Aggregate demand (AD) is a concept of demand for a hypothetical product which is a collection of *all* products (goods and services) of a nation. Aggregate demand is given by the total amount consumed by consumers (C), + by investment (I), + by governments (G) + by net exports. It stands to reason that, by and large, if the prices go up, less will be demanded. Hence, the AD curve is downward sloping. There are many technical explanations (e.g., wealth, interest-rate and exchange rate effects) that can be offered for assuming a downward sloping demand curve, but that is beyond the scope of this discussion.



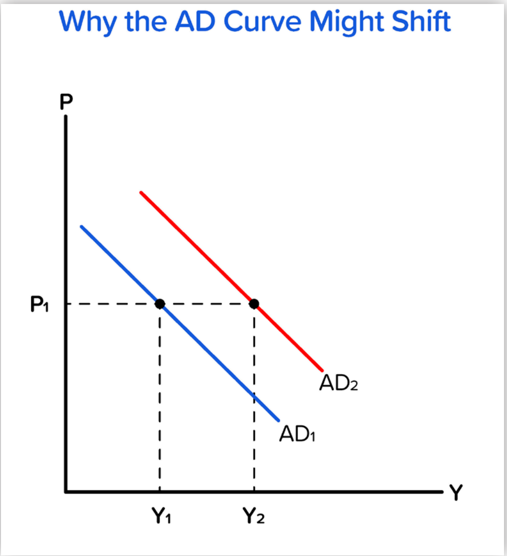
In the picture above, the aggregate supply curve is shown to be sloping upwards. This implies that when the prices go up, the supply increases. This again stands to reason as manufacturers, and other providers of goods and services will find it more profitable to make, sell, or supply more as prices go up while the costs are the same.

In the above figure, the point at which the demand and supply curve intersect is called the equilibrium point. At price P_1, Y_1 is the amount demanded and is also the amount producers would want to make at the price level. In a steady state, Y_1 is equal to the capacity of an economy as determined by its stocks of labor, capital, natural resources, and technology. At Y_1 employment is at its full natural level. (Over time Y_1 will increase because of the amount of available labor or its productivity. This increase in Y_1 is the long run growth of the GDP.

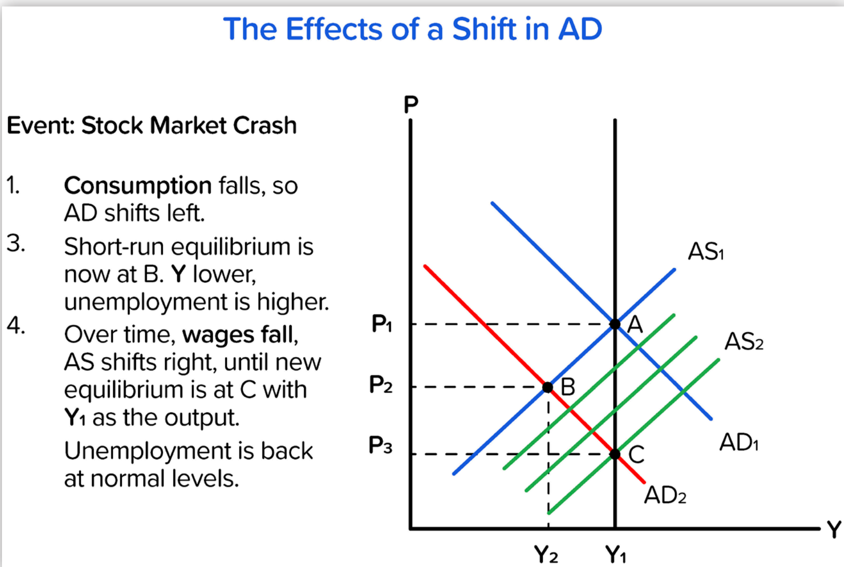
Why the AD Curve Might Shift

Even in a steady state, fluctuations can still happen. Both the AD line and AS line might shift. The AD curve might shift to the right and upwards as shown in the picture below because consumers get optimistic for some reason, for example, a rise in stock prices. It could move down and to the left, if consumers become pessimistic for some reason, for example, a tax hike. Changes in investments due to interest rates or investment tax credit or changes in government spending such as defense and social security can also move the AD curve up or down. Similarly, changes in net exports caused by booms or recessions in countries that buy our exports can also move the AD curve. (This hints at what can be done by a government to *intentionally* move the AD curve. More on this later.)

When the AD curve moves right, we see that the amount demanded has increased at the same price point. (Similarly, when a negative shock happens AD curve moves left and the amount demanded is decreased for the same price point.)



The figure below shows the case of a recession. Let's consider an example. For some reason or another, the stock market takes a significant hit. People feel less wealthy and cut down their consumption. The AD curve starts gradually moving left, finally stopping at a position shown as AD_2. While the curve is shifting left and downward, the output (GDP) is shrinking, and the nation is said to be in recession. The AD curve finally comes to a stop when it receives a positive impetus (e.g., the government reduces the interest rate to increase investment spending I). Short-run equilibrium is now at point B. The output *Y* is lower and, therefore, unemployment is higher. With higher unemployment, workers bargaining power decreases, leading to a fall in wages. The fall in the cost of production increases profit margins, which (like before) makes firms produce more. This moves the AS curve to the right. As long as there is unemployment, wages will keep falling and AS keeps shifting until the new equilibrium is reached at point C with Y_1 as the output. B signals the trough of the business cycle. C signals back to full employment and the same GDP. With a positive shock to the economy, AD starts moving back up. And the nation enters into an expansion mode.

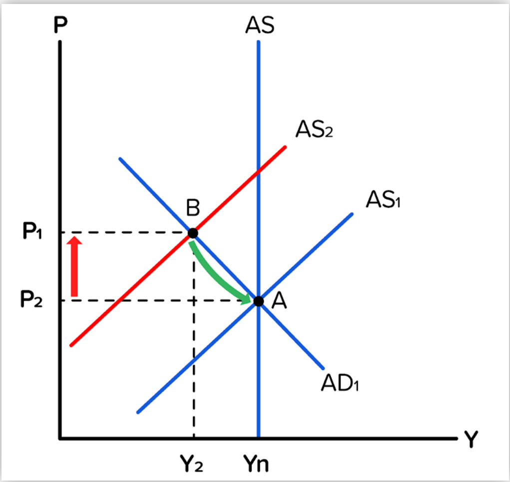


Why the AS Curve Might Shift

Besides the AS curve moving right because of cut in wages, the AS curve can shift right or left for other reasons. More investment capital, labor force quality and quantity, the discovery of natural resources, improvements in technology, and oil price decreases can shift the AS curve to the right. Similarly, because higher prices (and other negative factors leading to less productivity) mean production is less profitable, output (Y) falls and the AS shifts to the left.

Example: Shift in the AS

Suppose OPEC slashes oil production, causing oil prices to rise significantly. Because oil is used by almost every mode of transportation, transportation costs will rise, which cause the AS supply curve to shift to the left. At this new equilibrium point, prices are higher, but the output is lower. This phenomenon of decreasing output, but increasing prices is called stagflation. In the long run, unemployment will cause wages to decrease, which will shift the AS back to the right to point A.



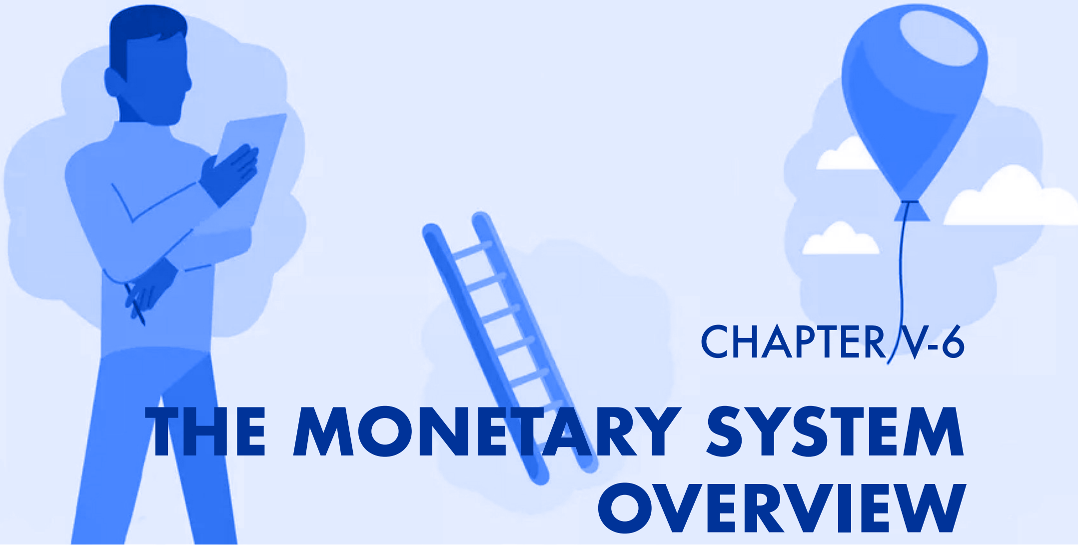
Conclusion

When an economy is hit by a recession, we will see a drop in consumption and spending at an individual level, which lowers demand and hence lowers production levels. Consumption decreases because of individuals' expectations that current and future income will be reduced.

When there is lower demand, firms and businesses could stop hiring new employees, lay off existing employees, reduce worker income, delay raises and promotions or reduce the number of worker hours, effectively increasing unemployment.

When an economy is hit by a recession, we could let the economy recover on its own. However, most economists and politicians agree that *some* action through changes in government spending and taxes is warranted.

Recession and expansion do not follow a predictable pattern. Hence, it becomes difficult to judge when an expansion or a recession will end. Some clue of when a recession is coming on or ending (i.e., expansion beginning) is provided by the Leading Economic Index. This index includes 10 economic variables, including average hours, worked per week in manufacturing; manufacturers' new orders, in consumer goods and materials; new building permits for private housing, and average consumer expectations for consumer business conditions. The idea is that these 10 variables will, on average, begin to decline before the overall economy falls into a recession and will begin to rise before the economy gets out of recession.



CHAPTER V-6

THE MONETARY SYSTEM OVERVIEW

Money is defined as an asset (anything of value) that can be used for buying goods and services. In this section, we will cover what money is, how it is measured and created, how the government can use monetary policy to impact the economy, and when and why monetary policy doesn't work.

Money Functions

Money is a medium of exchange, meaning it can be used to buy goods and services. In a barter system, people trade goods and services for other goods and services. This system is inconvenient because it only allows for the exchange when two parties are matched in terms of timing and needs.

A requirement of using money as a medium of exchange is that everyone has to agree upon a common unit of money (that can be used to measure prices and values) in order for this exchange to be accepted. This property is called the **unit of account**.

Money allows people to defer consumption to a later date by **storing value**. Other assets (hard assets, e.g., gold, that isn't easily damaged) can do this too, but money does it particularly well because it is liquid (it can easily be exchanged for goods).

Money also acts as a standard of **deferred payment**. Under a barter system, it is inconvenient for consumers to pay for goods and services later or over time. Money allows for payment to be deferred because its value in the future is predictable.

Liquidity is the ease with which an asset can be used as a medium of exchange. Money is the most liquid asset because it can be exchanged for any good or service. In a barter economy, trading goods and services directly for other goods and services requires the double coincidence of wants, or for both people to have similar goods and services to trade. If simultaneous wants do not exist, resources (goods and services) can be wasted.

Types of Money

Commodity money has intrinsic value, independent of its use as money. Examples of commodity money include gold and silver coins, precious gems, and cigarettes in P.O.W. camps. If gold is used is to guarantee the value of a paper currency, the paper currency is said to be on the gold standard. The issue with commodity money is that it is generally difficult to transport, and its underlying value can fluctuate if more of the commodity is discovered or lost.

Fiat currency is a paper currency issued by a government. Fiat currency has no intrinsic value if it is not accepted as money by businesses and consumers. It is backed by people's willingness to use the currency as a medium of exchange. Examples of fiat currency are the coins or paper currency we use. Fiat currency is authorized by the central bank of a country, and firms are NOT obliged to accept as payment.

MONEY SUPPLY AND MONETARY POLICY

The **money supply** (MS) is the quantity of money available in the economy. The supply of money is controlled by a central bank which has a monopoly over printing money. Monetary policy is the control over money supply that central bank exerts to influence macro-economic events.

The U.S. central bank is called the Federal Reserve ("the Fed"). The Fed's open market committee meets every six weeks to discuss monetary policy (MP). To control the money supply, the Fed uses open market operations (OMO) to purchase and sell government bonds.

The Fed buys bonds to increase the money supply and sells bonds to decrease MS. The open market committee consists of seven board of Governors and 12 regional bank's presidents (all attend, but only five presidents get to vote).

Measures and Creation of the Money

There are several ways to measure the size of the money supply. The most basic is a currency, which is literally all of the dollar bills and coins circulating in the economy. As of 2015, the amount of currency in the United States economy was 1.28 billion dollars. The second measure is M1, which includes currency, demand deposits, and travelers' checks, which can be converted quickly into cash. In 2015 M1 was 2.99 billion dollars. M2 is the most inclusive of the three measures and includes small time deposits, savings deposits, money market mutual funds, and money market deposit accounts in addition to M1. By far the largest of the three categories, M2 was 11.85 billion dollars in 2015.

Banks' Role in the Monetary System

The money supply is controlled by the Fed using open market operations, but it is also affected by people and banks. For this section, we will focus on M1 (ignoring travelers' checks).

In this instance, the money supply (M) equals currency (C) plus demand (checking account) deposits (D):

$$M = C + D$$

Since the money supply includes demand deposits, the banking system plays an important role.

A Few Preliminaries

In general, we deposit money in a bank. The bank, then, keeps a part of it and loans out the rest. Reserves (R) are the portion of deposits that banks have not lent (they stay in either bank's vault or are deposited in the Fed). There are two broad systems that banks can employ for managing these reserves. The first is 100% reserve banking. In this system, banks hold all deposits as reserves. Fractional reserve banking, in contrast, is a system in which banks hold a fraction of their deposits as reserves, and loan out the rest.

To understand the role of banks, we will consider three scenarios. 1) no banks, 2) 100% reserve banking (banks hold all deposits as reserves), and 3) fractional reserve banking (banks hold a fraction of deposits as reserves, use the rest to make loans). In each scenario, we assume C = \$1,000. *Please note that only <u>currency</u> held by the non-bank public is considered as MS. Currency in bank's vault or with the Federal Reserve is not a part of the money supply.*

Scenario One

In scenario one, with no banks, deposits (D) equal zero, and the money supply equals the amount of currency held.

$$D = 0 \text{ and } M = C = \$1{,}000$$

Scenario Two

$$\text{Initially } C = \$1000,\ D = \$0,\ M = \$1{,}000.$$

Now suppose households deposit the \$1,000 at "Firstbank." After the deposit, currency (C) is zero, and deposits (D) are \$1,000. Thus, a 100% reserve banking system keeps the same size of the money supply.

Scenario Three

Suppose banks hold 10% of deposits in reserve, making loans with the rest. Firstbank will make \$900 in loans. The money supply now equals \$1,900. The depositor has \$1,000 in demand deposits, and the borrower holds \$900 in currency. *In this case, the fractional reserve banking system, banks create money.*

Suppose the borrower deposits the $900 in Secondbank. Secondbank keeps $90 (10%) in reserves and lends $810 (90%) in loans.

If this $810 is eventually deposited in Thirdbank, then Thirdbank will keep 10% ($81) of it in reserve and loan out the rest 90% ($729).

Finding the Total Amount of Money

The total amount of money supply is given by $M = (1/RR) \times C$, where RR is the ratio of reserves to deposits, and C is the original deposit. In our example above, with $RR = 0.1$ and $C = \$1000$ the original deposit of $1000 has been expanded by the banks by continuously lending out of 90% of the currency. With each successive loan the money supply expands, until the total money supply = $(1/0.1) \times \$1{,}000 = \$10{,}000$

The **required reserve ratio** is the minimum fraction of deposits banks are *required by law* to keep as reserves. Banks might choose to hold **excess reserves** (ER), or reserves over the legal requirement. Increasing reserves decreases the money supply.

Simple Deposit Multiplier vs. Real World Deposit Multiplier

1/RR is called **simple deposit multiplier**. Let's say the law requires the reserve to be 0.1. In that case, the simple deposit multiplier is 10. But the actual multiplier, **real world deposit multiplier**, might be much lesser than a simple multiplier. This is because banks may not lend out as much, meaning they may keep excess reserves, or they cannot find credit-worthy borrowers. Potential depositors may also keep some currency out of the bank.

During "normal" periods, the real world deposit multiplier is about 2.5. It is also noteworthy that during the recession of 2007-2009, research suggests that the real world multiplier fell to close to 1.

Bank Runs and the Money Supply

A **bank run** is when people suspect that their banks are in trouble, and they "run" to the bank to withdraw their funds, holding more currency and fewer deposits. Under fractional-reserve banking, when banks don't have enough reserves to pay off ALL depositors, banks may have to close.

The Federal Reserve

In the late 19th and early 20th centuries, the United States experienced several bank waves of panic. In response, The Federal Reserve system was founded in 1914. "The Fed" makes loans to banks called discount loans, charging a rate of interest called the **discount rate**. These loans are to prevent banks from being out of cash when depositors ask for their money. (During the Great Depression of the 1930s, many banks were hit by bank runs. Fearing *bad* banking practices, the Fed refused to make discount loans to many banks, and more than 5,000 banks failed. Today, many economists are critical of the Fed's decisions in the early 1930s, believing they made the Great Depression worse.)

Response to the Great Depression

In 1934, Congress established the Federal Deposit Insurance Corporation (FDIC). The FDIC insures deposits in many banks, up to a limit (currently $250,000). This government guarantee has helped to limit bank panics. Bank runs are still possible; during the recession of 2007-2009, a few banks experienced runs from large depositors whose deposits exceeded the FDIC limit.

THE INSTRUMENTS OF MONETARY POLICY

Monetary policy can be defined as the actions the Federal Reserve can take to manage the money supply and interest rates to influence economic variables: GDP, unemployment, and inflation. The Federal Reserve can change the money supply in a few ways:

Using open market operations (the Fed's preferred method of monetary control). To increase the money supply, the Fed could *buy* government bonds, paying with new dollars. These new dollars then enter circulation in the economy, and the money supply increases. Conversely, if the Fed *sells* bonds, it takes money from the buyers, and there is a decrease in the total money supply.

Changing reserve requirements. A decrease in reserve requirements is equivalent to increasing the money supply. And, vice versa, an increase in reserve requirements will decrease the money supply. Fed can also lend money to banks. The banks can use the money to bolster reserves and lends out money. The Fed is often considered the lender of last resort but undertakes this type of operation much less often.

Changing the discount rate. The discount rate is the interest rate charged to banks by the Fed. To increase the money supply, the Fed could lower the discount rate, encouraging banks to borrow more. Banks then can lend out more, increasing the money supply. (With reduced discount rate, banks can also lend at a lesser interest rate which stimulates investments and demand for money. The excess supply of money is matched by extra demand for money.)

The Fed decides on the amount of increase or decrease it wants in money supply by targeting a particular federal funds rate. It keeps buying or selling bonds until the federal funds rate reaches the targeted amount. The **federal funds rate** is the interest banks charge each other for very short term loans. The federal funds rate is directly proportional to the discount rate. All other types of interests on loans (e.g., mortgage, car, etc.) are also positively related to the basic discount rate.

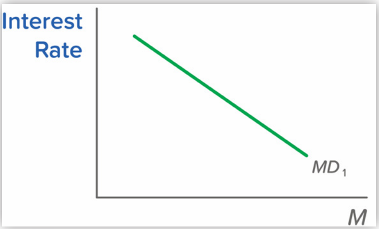
Since Oct 2008, the Fed started paying interest on bank reserves deposited with the Fed. To reduce the excess reserve, the Fed could pay a lower interest rate on reserves, which would incentivize banks to loan more money out and, thereby, increase the money supply. The Fed could also take the reverse action by increasing the interest on reserves and reducing the money supply.

The above were three techniques to increase the money supply. We now turn to how money supply affects the economy, GDP, unemployment, and inflation.

THIS IS HOW IT WORKS – THEORY OF LIQUIDITY PREFERENCES

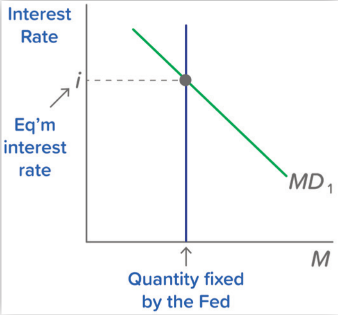
The theory of liquidity preferences is a simple theory of nominal interest rate, which adjusts to balance supply and demand for money. The money supply is assumed to be fixed by the central bank and, therefore, does not depend upon the interest rate. The result is that when graphed, the money supply curve appears vertical.

Money demand reflects how much wealth people want to hold in *liquid* form. For simplicity, suppose household wealth includes only two assets – money (which is liquid but pays no interest) and bonds (pay interest but not as liquid). A household's *money demand* reflects its preference for liquidity. An increase in interest rate induces individuals to invest and earn interest. Or in other words, reduces the demand for liquid money – downward sloping money demand.



Determination of Federal Fund Interest Rate

Because the money supply is vertical (the Fed fixes money supply and is not influenced any type of interest rate), an increase in the money supply shifts the vertical line to the right and, hence, the interest rate falls. Similarly, when the Fed decreases the money supply, the vertical line moves left and interest rate increases.



Monetary Policy and Aggregate Demand

Suppose the Fed decreases the money supply, which causes the interest rate to rise. This results in a fall in the demand for investments and a fall in consumptions (consumers have more incentive to save now that interest rate is higher). A decrease in I and C results in a decrease in Y (recall Y = C + G +I +NX). A high U.S. interest rate attracts foreign funds, which raises the demand for the US dollar. This causes the US dollar to appreciate (high exchange rate), which results in relatively more expensive US products. Thus, we see a fall in net export also. The opposite happens when the Fed increases the money supply and decreases the interest rate.

Liquidity Traps

Monetary policy stimulates aggregate demand by reducing the interest rate. However, what happens when the interest rate reaches zero. In this circumstance, a liquidity trap can occur. The liquidity trap was largely theoretical and had never actually been observed before the financial crisis when interest rates dropped to directly above zero in 2008. In this situation, the Fed could not stimulate the economy using standard monetary policy, because it couldn't lower the interest rate any lower than zero.

In this case, the central bank conducted open-market ops using other long-term assets like mortgages and corporate debt, thereby lowering rates on these kinds of loans. The Fed pursued this option in 2008–2009 called *quantitative easing*.

The use of monetary policy to stimulate (or cool) the economy works in the short-run when the Fed feels that real GDP is below (or above) potential real GDP. Many economists argue that monetary policy cannot be used for long-run economy regulation, and the Fed should be mostly concerned with long-run growth. Their argument is discussed below.

MONEY GROWTH AND INFLATION – THE QUANTITY THEORY OF MONEY

One of the dangers of increasing the money supply is inflation. With more to go around, everything else being the same, the prices of goods and services and salaries go up. The quantity theory of money (QTM) explains the long-run relationship between money growth and inflation. Integral to QTM is the velocity (the rate at which money circulates in the economy) of money. The velocity of money can be defined as the number of times the average dollar bill changes hands in a given time period. For example, suppose in 2015, there were $500 billion in transactions, and the money supply was $100 billion. In this case, the average dollar was used in five transactions in 2015, so, velocity, V = 5. V is called transaction velocity of money.

Quantity Theory of Money

The above suggests the following definition:

$$\boldsymbol{V = (P \times T)/M}$$

Where M is the money supply, T is the # of transactions, and P is the average price/transaction. (In the 2015 example, M equaled $100 billion, and P x T equaled $500 billion).

But because we are interested in GDP (T includes used and imported goods), we have to replace T with Y (where Y is domestic goods transactions only, not used or imported goods).

QTM: $\boldsymbol{MV=PY}$

It is empirically observed that V is fairly stable and, hence, assumed constant.

In terms of growth rate, $M \times V = P \times Y$ becomes:

Growth rate of the money supply+Growth rate of velocity

= Growth rate of the price level (or the inflation rate)

+ Growth rate of real output

Assuming that the velocity of money is constant, we obtain:

Inflation rate = Growth rate of the money supply −Growth rate of real output

Inflation and Money Growth Rate

Between 1960 and 2015, the US inflation rate and money supply growth rate sometimes correlated with each other and sometimes diverged. Between 1970 and 1980 the money growth rate and the inflation rate moved in opposite directions on occasion, whereas between 1980 and 1995 they largely moved in unison. However, if we correct for many of the short-term fluctuations in both variables what we see is that both the money growth rate and the inflation rate follow the same long-term trend. Even internationally, a simple scatter-plot comparing the inflation rate to the money supply growth rate for many countries shows that the two are generally positively correlated. Countries with high money growth rates also have high inflation rates.

The Classical Dichotomy and The Neutrality of Money

If we assume that velocity (V) is stable, a change in M causes nominal GDP, (P x Y), to change by the same percentage according to the above equation. (A change in the money supply (M) does not affect output (Y) because money is just a medium for exchanging goods and isn't directly involved in the production. The output is determined by technology and resources.) Thus, money supply (M) growth causes price (P) growth or inflation.

Classical dichotomy and neutrality of money are theoretical notions that state that there is a separation of real and nominal variables – nominal variables do not affect real variables.

For example, if the central bank doubles the money supply, all nominal variables – including prices – will double, however, all real variables, e.g., output and real wages, will remain unchanged. (Higher money supply raises prices (P) but also wages (W), resulting in an unchanged real wage (W/P)).

Most economists believe the classical dichotomy and neutrality of money describe the economy in the long run. But in the short run, the real variables of the economy might be affected by the money supply.

Hyperinflation

The common definition of **hyperinflation** is an inflation rate of over 50% per month. Under hyperinflation, money ceases to function as a store of value, and may not serve its other functions (unit of account, the medium of exchange). In many of the countries that have experienced hyperinflation, people have resorted to conducting transactions by bartering with goods or using a stable foreign currency.

Hyperinflation is caused by excessive money supply growth. When a government cannot raise taxes or sell bonds, it must finance spending increases by printing money. If the government prints too much money too fast, then hyperinflation results. In theory, the solution to hyperinflation is simple: stop printing money. However, in the real world, this requires drastic spending restraint that is painful to the population.

After World War I, in order to pay war reparations to the allies, Germany resorted to printing to money. Between 1922 and 1924, the money supply increased by 10 billion paper marks with concurrent increases in the price level. At its peak in 1923, the monthly inflation rate was over 10,000%. This period of hyperinflation was catastrophic to the German economic, and drastic fiscal reforms had to be enacted to avoid total disaster. A third of all government employees were laid off, war reparations had to be suspended, and the Reichsbank (German Central Bank) had to be replaced with the Rentenbank, who committed to not financing government spending by printing money.

Several countries in South America and Africa have experienced hyperinflation from the 1980s onwards. For example, in the 1990s Zimbabwe instituted several land reform acts that vastly distributed land in the country. As a result, a sharp decline in farm output occurred, which caused a sharp drop in tax revenue. This coupled with other socialist reforms, and the Congo Wars led to a severe series of budget deficits. The government's response was to print money to pay for its massive spending. This led to hyperinflation. In order to control the massive increase in inflation, the government was forced to impose price controls. However, this only led to the growth of the underground economy, which caused a further fall in tax revenue. Between 2005 and 2007, the annual growth rate in the CPI topped 5316%. In March of 2009, it adopted the US dollar as its official currency, which finally stabilized inflation.

Cryptocurrencies

The central banks in countries control their country's money supply and currencies. The cryptocurrency was conceptualized and launched with the idea that no central bank/country has control over the currency and that financial intermediaries such as banks were not necessary to keep the financial transactions going. Such a system has come to be known as Decentralized Financial (DeFi) platform. While currencies, notes and coins, are physical in nature, a cryptocurrency is *purely digital* in nature.

There are several types of cryptocurrencies in circulation now. The first cryptocurrency was Bitcoin which was developed by a person operating under the name Satoshi Nakamoto. To illustrate what cryptocurrency is and how it works, only Bitcoin will be considered here; and the terms, Bitcoins and cryptocurrency, will be used interchangeably.

Physical currencies are created by minting coins or printing notes. Digital cryptocurrency is created (called mined) by solving complex mathematical problems. Sophisticated computer hardware and software are required to solve these mathematical problems. The individual or entity that solves such problems is rewarded in the form of Bitcoins (or part of it). Thus, a Bitcoin is created.

Just like each physical currency note has a unique identifying number, each Bitcoin has a unique number too. This Bitcoin identifier number consists of a long string of numbers and letters. All the information of each Bitcoin, from its initial creation to all its movements from one person/entity to another, is added to the alphanumeric identifier of the Bitcoin. This addition of information, therefore, creates a chain of strings. The database technology that captures all the information across all Bitcoins and across time is called Blockchain. The eventual result is the creation of a record-keeping system, commonly known as a ledger in the accounting discipline. These long strings of characters capturing and identifying the unique history of a Bitcoin comprise a public address and a private key. The private key identifies the persons who have held or now hold the whole or part of the Bitcoin. The public address identifies the unique position of Bitcoin in the public ledger of all Bitcoin transactions.

Though the public address and private keys are required to buy and sell products with Bitcoin or trade Bitcoin for other currencies, only the public key is visible. The identities of the buyers and sellers are hidden from each other and the public at large.

As with paper money, Bitcoins (their public and private keys) can be saved in a wallet. These digital wallets can exist in the cloud, one's personal computer, or some other physical gadget. If a wallet is hacked, i.e., public and private Bitcoin key is stolen, that Bitcoin is lost.

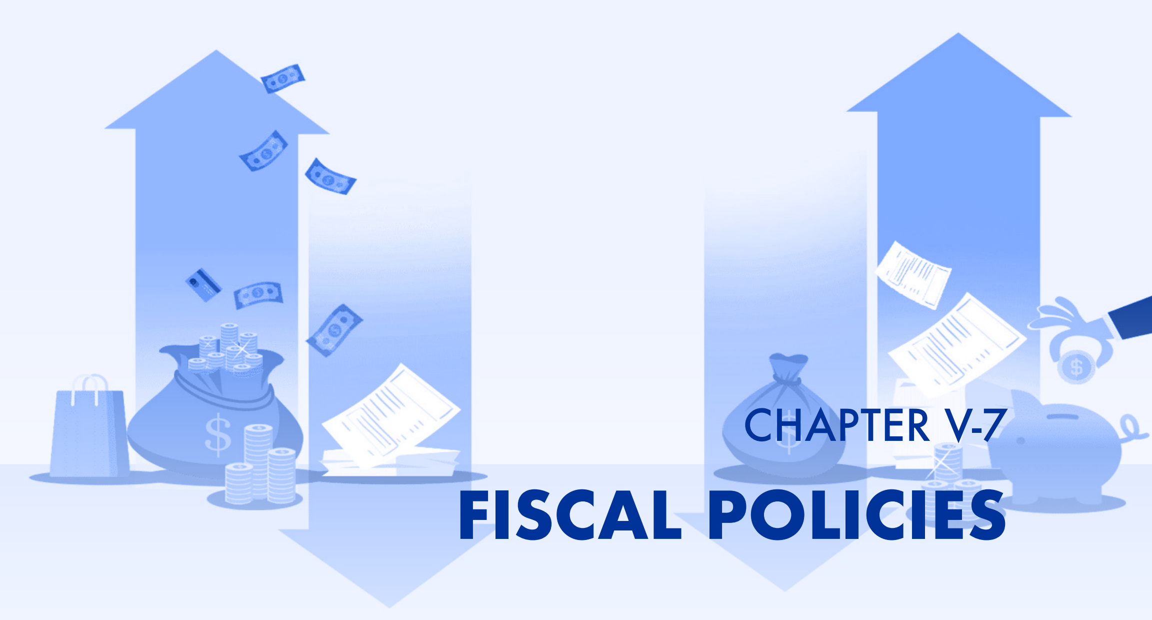
The Bitcoin algorithm has a built-in limit of 21 million Bitcoins, meaning when this many have been mined, production will stop completely. Each Bitcoin can be divided into smaller portions, with the smallest portion, called a *satoshi*, equaling 0.00000001 bitcoins. Or in other words, there could be 21×10^{14} satoshis in existence at some point in time.

The mathematical problems by which Bitcoins are created get increasingly harder as more Bitcoins enter into circulation and are transacted. Every Bitcoin transaction is verified by the Bitcoin mining community and posted on the public ledger – a task that gets more and more complex. Verification is required to prevent "double-spending" of a Bitcoin, i.e., the same Bitcoin is used to buy more than one product and to prevent "reversing" charges. In the crypto world, once a transaction is completed, reversing charges is almost impossible, unlike, let's say, with credit-card transactions.

The rate of Bitcoin creation is expected to be halved every 4 hours. Also, the rewards are cut in half at regular intervals. So, there's a gradual slow-down in the rate at which new Bitcoins enter circulation. It is expected that the mathematical limit of 21 million Bitcoins will be reached by around 2140.

As with any product, there is always competition. The above method of cryptocurrency creation is based on *Proof of Work*, i.e., Bitcoins are created as a reward to miners for their work. The Bitcoin algorithm requires a very considerable amount of energy to run sophisticated computers and knowledgeable labor. This drawback of *Proof of Work* cryptocurrencies has led to other models of cryptocurrencies based on *Proof of Stake*. Also, Bitcoins are based on alphanumeric codes that are not very user-friendly. Cryptos that allow a clear understanding of some aspects of the code have come along, e.g., Ethereum. Like most current currencies of the world that are not pegged to gold or other real assets, many cryptocurrencies are not pegged. So, another form of differentiation is whether to peg the crypto to gold or USD or some other real assets. Pegged cryptos are supposed to be less volatile and are called Stablecoins.

The whole domain of cryptocurrency is evolving fast. At the time of this writing, many companies in the crypto ecosystem are going bankrupt. Keeping up with the new happenings is the responsibility of anyone interested.



CHAPTER V-7

FISCAL POLICIES

As we saw in the chapter on business cycles, the economy is subject to fluctuations wherein the economy expands and contracts. We have discussed how monetary policy (money supply) can be used to control the economy in the short run. In this chapter, we will cover how fiscal policy (government spending and taxes) can be used to stimulate or slow down the economy so that the swings are not too large, again in the short run.

FISCAL POLICY AND AGGREGATE DEMAND

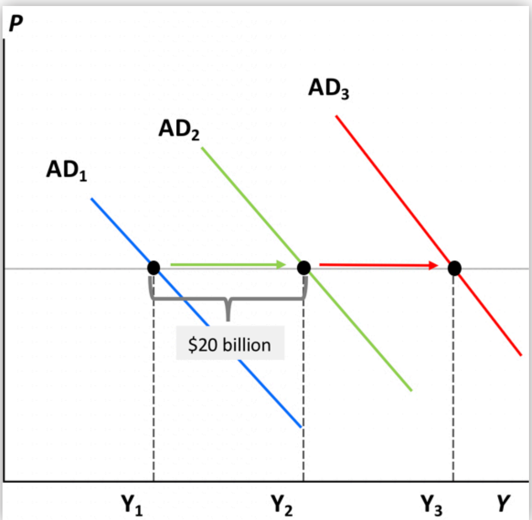
Expansionary fiscal policy is an increase in G (government expenditures) and a decrease in T (taxes). Both an increase in G and a decrease in T result in more money to spend and GDP increases (the aggregate demand curve shifts to the right). Alternatively, a contractionary fiscal policy utilizes a decrease in G and an increase in T shrinks the economy (AD shifts left).

There are additional effects on aggregate demand when G and T are manipulated. The additional effects are called the multiplier effect and the crowding effect.

The Multiplier Effect

The multiplier effect can be defined as the additional *positive* shifts in aggregate demand that result when fiscal policy increases G or decrease T. This can be understood with an example. If the government buys $20 billion worth of planes from Boeing, Boeing's revenue increases by $20 billion. This excess revenue is distributed to Boeing's workers (as wages) and owners (as profits or stock dividends). These people are also consumers and will spend a portion of the extra income. This extra consumption causes further increases in aggregate demand.

A $20b increase in G initially shifts AD to the right by $20b. The increase in output (Y) causes consumption (C) to rise, which shifts aggregate demand further to the right.



This begs the question of how big the multiplier effect actually is. The answer depends on how much consumers respond to increases in income. Marginal propensity to consume (MPC) is the fraction of extra income that households consume rather than save. For example, if MPC = 0.8 and income rises $100, C rises $80.

A Formula for the Multiplier

Notation: $\Delta \boldsymbol{G}$ is the change in $\boldsymbol{G}$,

$\Delta \boldsymbol{Y}$ and $\Delta \boldsymbol{C}$ are the ultimate changes in $\boldsymbol{Y}$ and $\boldsymbol{C}$

$\boldsymbol{Y} = \boldsymbol{C} + \boldsymbol{1} + \boldsymbol{G} + \boldsymbol{NX}$	identity
$\Delta \boldsymbol{Y} = \Delta \boldsymbol{C} + \Delta \boldsymbol{G}$	$\boldsymbol{I}$ and $\boldsymbol{NX}$ do not change
$\Delta \boldsymbol{Y} = MPC\ \Delta \boldsymbol{Y} + \Delta \boldsymbol{G}$	because $\Delta \boldsymbol{C} = MPC\ \Delta \boldsymbol{Y}$
$\Delta \boldsymbol{Y} = \dfrac{1}{1 - MPC} \Delta \boldsymbol{G}$	*solved for* $\Delta \boldsymbol{Y}$

The multiplier

The size of the multiplier depends on MPC. The bigger the MPC, the bigger the change in consumption caused by the change in income, which in turns causes a bigger change in output.

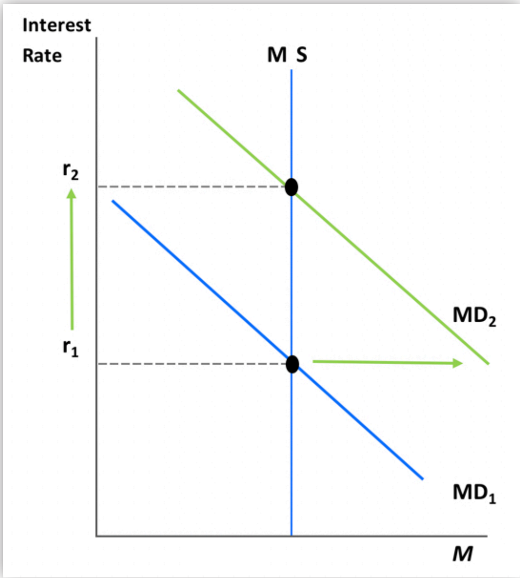
The size of the multiplier depends on MPC. For example,

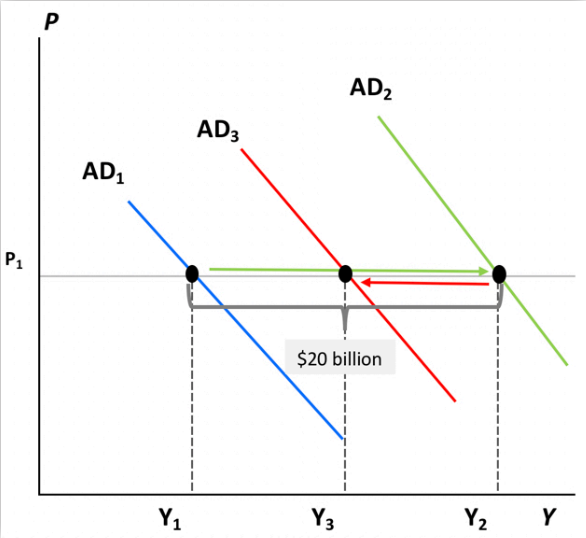
if MPC = 0.5	multiplier = 2
if MPC = 0.75	multiplier = 4
if MPC = 0.9	multiplier = 10

The multiplier effect is also true for the other components of GDP. For example, suppose a recession overseas reduces demand for U.S. net exports by \$10 billion. Initially, aggregate demand falls by \$10b. However, the fall in output (Y) causes consumption (C) to fall, which further reduces aggregate demand and income.

The Crowding-Out Effect

Fiscal policy has another effect, crowding-out effect, on aggregate demand that works in the opposite direction. A fiscal expansion raises the need for money. When money demand increases, interest rates rise, which reduces investment. This, in turn, reduces the net increase in aggregate demand. So, the size of the aggregate demand shift may be smaller than the initial fiscal expansion. This is called the crowding-out effect.





Changes in Taxes

A tax cut increases households' take-home pay. Households respond by spending a portion of this extra income, increasing the GDP. The size of the increase is affected by the multiplier and crowding-out effects. Another factor is whether households perceive the tax cut to be temporary or permanent. A permanent tax cut causes a bigger increase in C (and a bigger shift in the AD curve) than a temporary tax cut.

FISCAL POLICY AND AGGREGATE SUPPLY

Most economists believe the short-run effects of fiscal policy mainly work through aggregate demand. However, fiscal policy may also affect aggregate supply. A cut in the tax rate gives workers an incentive to work more. This is because workers believe that they can keep a larger percentage of their wage than before. An extreme example of how a tax cut can increase worker-hours is the case with 100% tax. No one would be willing to work if the government took all the money away. To a point, as taxes are reduced, worker-hours go up. The increase in the amount of labor increases the quantity of goods and services supplied. People who believe this effect is large are called "Supply-siders."
Government spending might also affect aggregate supply. For example, suppose the government increases spending on roads. Better roads may increase business productivity, which increases the quantity of goods and services supplied. This effect is probably more relevant in the long run as it takes time to build the new roads and put them into use.

USING POLICY TO STABILIZE THE ECONOMY

Since the Employment Act of 1946, economic stabilization has been a goal of U.S. policy. There is considerable debate today about what role the government should play in stabilizing the economy. Economists like Britain's John Maynard Keynes advocated for an interventionist stance on responding to economic events, while critics argue that such policies may actually do more harm than good. (Remember, the contraction and expansion of the economy was automatically limited.)

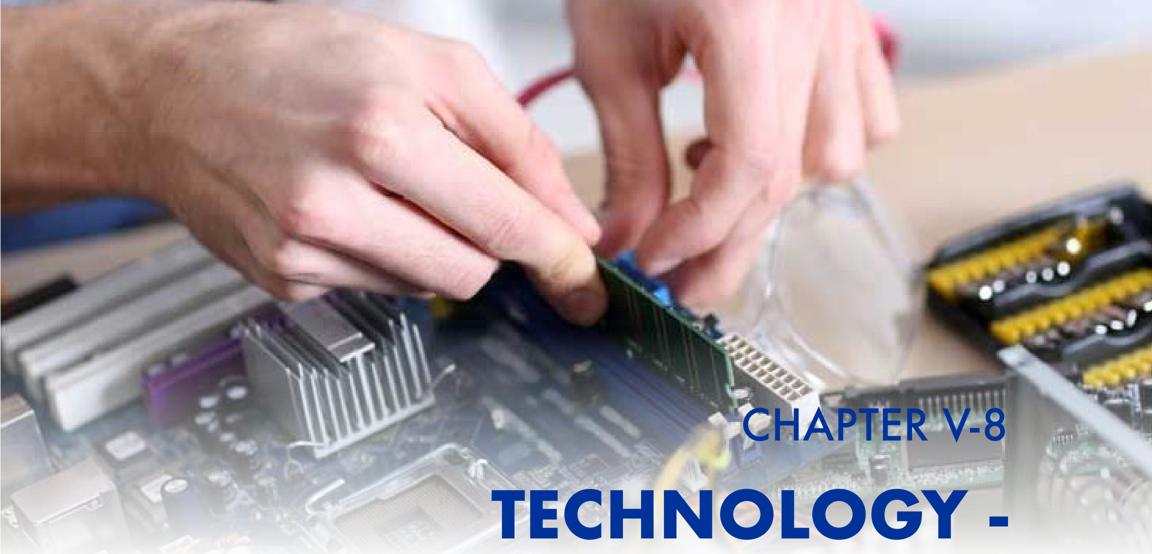
Keynes wrote about "Animal spirits" (the underlying psychological motivations of individual behavior) which cause waves of pessimism and optimism among households and firms, leading to larger shifts in aggregate demand and, hence, larger fluctuations in output and employment. Factors that cause such waves include people panicking after a stock market crash or exhibiting irrational exuberance when the stock market is high – both domestic and international. If policymakers do nothing, these fluctuations are destabilizing to businesses, workers, consumers. Proponents of active stabilization policy believe the government should use policy to reduce the magnitude of these fluctuations.

There have been several notable examples of Keynesians occupying the White House and successfully influencing economic policy. In 1961 John F. Kennedy successfully pushed for a tax cut to stimulate aggregate demand, at the bidding of several economic advisors who were followers of Keynes. Similarly, in 2009, Barack Obama successfully advocated for tax cuts and spending increases to increase aggregate demand in the face of a deep recession.

The Case Against Active Stabilization Policy

Many economists argue against too much meddling with the economy by monetary or fiscal means. We saw in the discussion of monetary policy that increasing money supply without accompanying growth in the economy just results in an increase in prices or inflation. Similarly, increasing government spending or decreasing taxes can result in budget deficits. Budget deficits can cause their own problem. The government has to borrow to make up for the deficit. The interest paid on borrowed money can become a substantial portion of the next year's budget. Interest payments result in fewer investments by the government, and so on. Also, both monetary and fiscal policies take time (several months or years) to impact the economy. And by the time they do impact, the economy might have changed by itself. Critics prefer automatic stabilizers when the economy comes out of a trough or cools down after expansion on its own (see Business Cycles Learning Concept) to active stabilization policies.

These critics contend that policymakers should focus on long-run economic growth through education, health-care, R&D, and investment.



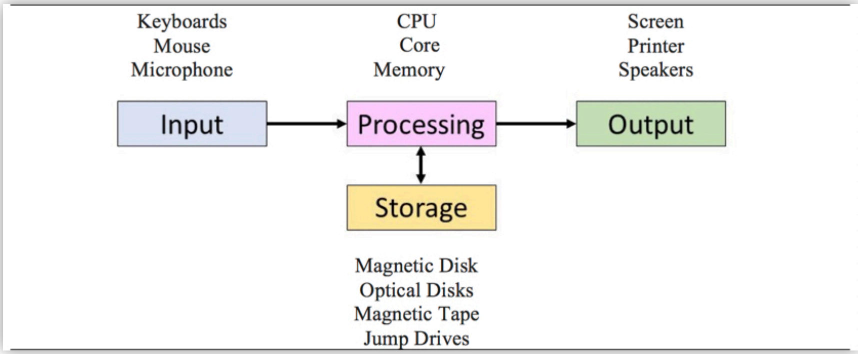
CHAPTER V-8

TECHNOLOGY - COMPUTER HARDWARE AND SOFTWARE

The next significant environmental factor an organization needs to keep an eye on is technology. There is considerable credible chatter that very soon, a large percentage of certain types of employees wouldn't be required because of the advent of Artificial Intelligence. Artificial Intelligence is probably the ultimate in helping the productivity of organizations. Hence, it is prudent for organizations to evaluate these technologies for their own purposes. However, its capabilities cannot be fathomed unless the simple notions of a computer are understood. With business as the setting, the computing evolution from the fundamentals of hardware and software to Big Data and AI are explored in these 11 successive chapters: 1) Computer Hardware and Software Fundamentals, 2) Instruction Set, Programming and System Software, 3) Application Software, 4) The Internet, the World Wide Web, Web Languages and Web Services, 5) Web Services, Cloud Services, and Virtual Machines, 6) Computer Networks, 7) Big data & Big Data Storage Technologies, 8) Data Visualization,

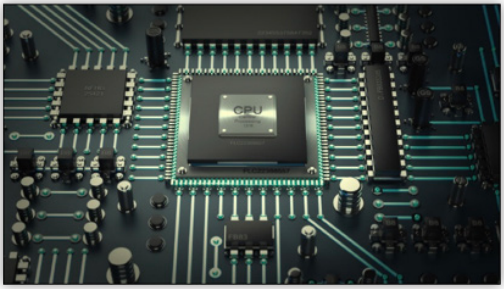
9) Machine Learning & Data Mining, 10) Natural Language Processing and 11) Artificial Neural Networks & Face Recognition Systems.

A computer is an input-processing-output (and storage) system. Computer hardware is the physical components of a computer system: the monitor, the keyboard, the central processing unit, and disk drives that perform these four key functions.



The Central Processing Unit (CPU) aka Microprocessor

The central processing unit is the most important component of a computer; it is an integrated circuit chip that functions as the "brain" of a computer system.



A typical CPU for a personal computer will have three components. The **control unit** interprets software instructions and literally tells the other hardware devices what to do, based on those instructions. The **arithmetic-logic unit (ALU)** performs all arithmetic operations (for example, addition and subtraction) and all logic operations (such as sorting and comparing numbers). The **registers** are storage areas for holding data needed to process the current instruction.

Storage

Broadly speaking, there are two types of storages or memories in a computer. The storage "within" a computer and back-up storage. Back-up storage is for mass storing of data. The memory within a computer is used mostly for processing information.

Before we get into the details of each type of memory, it should be pointed out that in the current state of development all data that are stored and processed in a computer are in binary form – a one or a zero (akin to a bulb being on or off).

Different components have been used to store a one or a zero in a computer. Perhaps the easiest to comprehend is the "magnetic core." These were little donut shaped metallic pieces that could be magnetized. If the core is magnetized, it holds a one; if it isn't, it holds a zero. Now, of course, all types of memories are semiconductor based.

In the computer world or digital world, even the data stored in back-up memory, e.g., magnetic tapes or disks, are binary. Computer magnetic tapes are not unlike the audio tapes; some of us might be familiar with. Whereas the old audio cassettes stored sound in analog form, computer tapes store data in digital form.

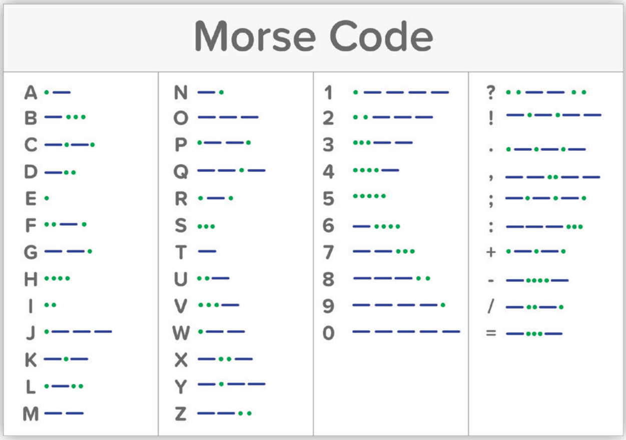
ENCODING DATA

The above begs the question as to how data are converted to a binary form. We will consider three types of data: text, audio and images, and video.

Text

One of the first implementations of encoding data and transmitting via electrical signals was the telegraph system. An encoding scheme requires an *agreement* between sender and receiver as to what signals will be used to express data. Telegraphs used an encoding scheme called

Morse code (after its inventor Samuel Morse). Morse code uses long and short electrical pulses, referred to as dots and dashes, to convey information. Each letter of the alphabet had a unique code consisting of a sequence of electrical pulses – such as dot-dot-dot or dot-dot-dash.



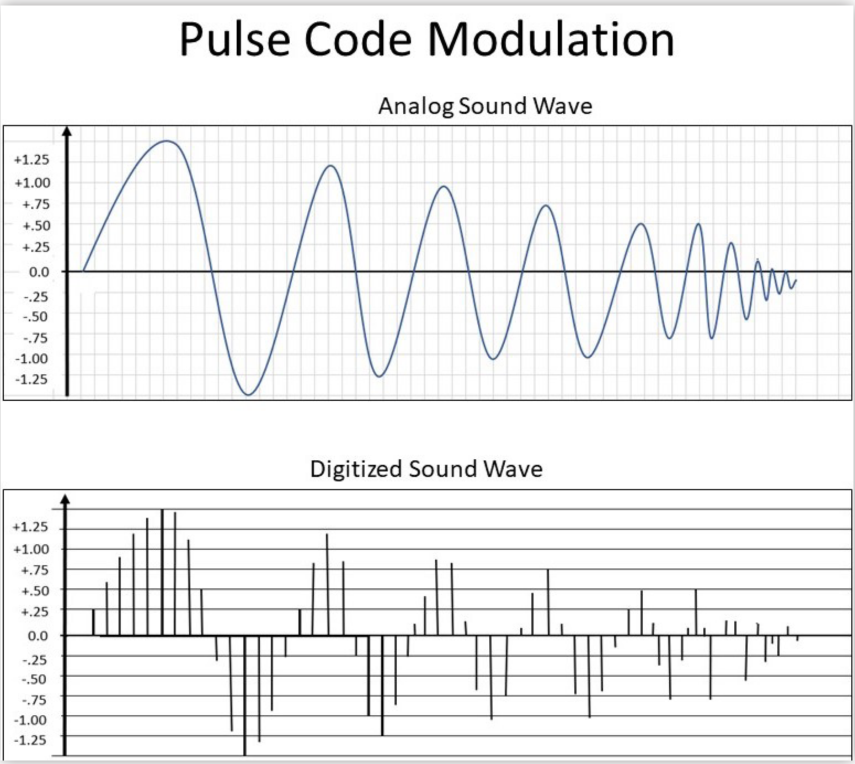
Computer systems use these same concepts to encode, transmit, and store data, e.g., a dash is equivalent to a one and a dot to a zero. One of the first encoding schemes used by computers was called **ASCII** (pronounced ASK-ee). ASCII is an acronym for **American Standard Code for Information Interchange.** ASCII used an eight-digit sequence of ones and zeros to represent each letter of the English alphabet and various punctuation symbols. For example, the ASCII code for the letter A is 01000001.

ASCII Codes of A Through E	
A	01000001
B	01000010
C	01000011
D	01000100
E	01000101

The original ASCII encoding scheme was later expanded upon to include codes for non-English language character sets such as the alpha-numeric systems used in other languages such as Russian, Spanish, Arabic, Hebrew, Chinese and Japanese. ASCII, which used an 8-digit, binary encoding scheme was insufficient because it was only possible to create 2^8 or 256 unique codes. ASCII has been largely replaced by UNICODE which uses a 16-digit encoding scheme and is, therefore, able to have 2^{16} or about 65,000 unique codes. Unicode-32 uses 32-digits to encode alphanumeric symbols.

Audio

The exhibit below portrays how an analog sound wave signal is converted into digital information. A sound wave is sampled at a predetermined rate (frequency). The height of the wave at the time of each sample is converted to binary form. The binary numbers are the ones that are transmitted. At the receiving side the binary information of heights of pulses is converted back into the sound wave.



Images and Video

An image is digitized by decomposing it into a series of dots, and then each dot is assigned the appropriate color code. A dot in the context of image/picture encoding is called pixel. **Color encoding schemes** are used to assign a binary code to each color. Examples of color encoding schemes are **JPG, PNG**, and **BMP**. If a color encoding scheme uses 24 bits for each color code, then 2^{24} (about 16 million) different colors may have unique codes.

To render the image the screen, the color codes are sent to the corresponding pixels that then display its assigned color. The human eye naturally blends these color dots together, creating the illusion that the image is realistic.

Monitors may differ in terms of the screen size and the number of pixels that are used to display images. **Resolution** is the term used to describe the number of pixels that a monitor may display. For example, a monitor with a native resolution of 1024 by 960 would have a grid of pixels that is 1024 rows by 960 columns. If two monitors are the same size (e.g., 17 inches), but one has a greater resolution (more pixels per inch), then it will be able to display a higher quality (sharper) image.

To save an image to a file, the pixels' color codes can be stored in sequential order (starting with the pixel in the top left corner and continuing to the pixel in the bottom right corner). If each color code is 24 digits long, and the image is decomposed into 1,024 by 960 dots, then the file size could be (24 * 1024 * 960) or about 24 megabits or two megabytes in size, a relatively large file size.

To create a full-motion video, 30 images must be displayed in sequence per second. With the addition of the soundtrack, the size of a file that contains a two-hour movie can be very large. Video encoding schemes (such as MOV or AVI) typically apply compression techniques to reduce the size of video files.

Processing Data

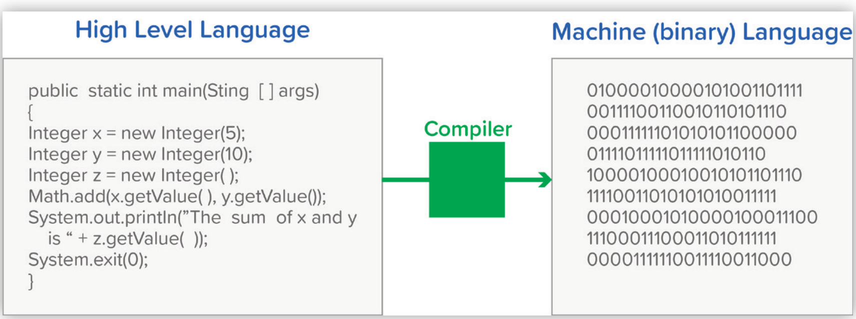
Having understood how data are stored, we now try to get a basic understanding of how data are processed by the CPU. The CPU interprets and executes instructions. Each computer instruction must contain exactly one operation code and zero to three operands. For example, the first instruction in the exhibit below contains the binary code for "addition" and two operands that represent the numeric values five and three, to be added together. The second instruction contains one operation code, the binary code for "stop" with no operands.

ADD	5	3
01011011	00000101	00000011
HALT		
00000001		

When the operation code 01011011 goes through the circuit, it triggers the Adder. The Adder then knows to add the next two sets of 8-bits. The Adder circuit is such that it outputs eight bits corresponding to the number eight (5+3).

Each type of computer has its own set of instructions that make the circuits do certain tasks – all by electrical signals.

In the early days of computing, programmers had to write their programs in this **binary language** (also called **machine language**). For humans, this process was tedious and error-prone. Nowadays, programmers write programs using various "high level" languages such as C++ and Java. No matter what language is used to write a program, it must ultimately be translated into a series of binary instructions. A **compiler** is a computer program that performs this language translation. Each high-level language must have its own language compiler to translate its instructions into **binary instructions**.

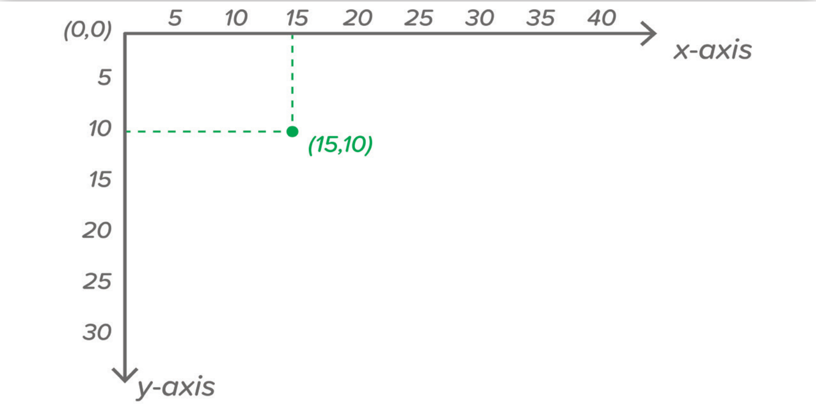


Entering Data

The next step in our understanding entails how the data (instructions or operands) are entered into the circuits. As alluded to above one could physically enter the electrical signals and make the circuits works. Or one could store the electrical signals and have the circuits read them. Programming in machine language entailed the latter. For entering data and instructions that humans feel comfortable dealing with, a keyboard or other input devices are used.

A keyboard has keys that map to alphanumeric characters, non-printing symbols and other input signals. Once a key is pressed, the keyboard has a built-in encoder that converts that key's character or signal into a scan code. If the scan code represents an alphanumeric character, then it is, in turn, translated into that character's binary code based upon the encoding scheme that is being used by the software program that reads and processes that data. If the scan code represents a non-character signal, such as a function key, it may trigger an event handler, which is a series of instructions that should be executed when that particular key is pressed.

A mouse has a rubber ball inside that rolls when the mouse is moved around. Sensors inside the mouse detect the movement and translate that movement into information that instructs the screen cursor to move in the same direction. The pointer's location is expressed as X-Y coordinates on a display screen.



Screen Coordinate System

The X-Y coordinates of the mouse pointer are tracked along with other information, such as whether a mouse button was clicked or double-clicked. Mouse movement and clicking events are tracked by an event-handler that will trigger the appropriate series of instructions to respond to mouse events. For example, if you are viewing a web page that contains a data entry form, you may position the mouse pointer over a text-input area and click a mouse button. This would trigger the form to accept input into the text area from the keyboard. When you click on the form's submit button, this triggers the process of capturing the form's input data into a *post array* and sending it as a *response message* to a web server.

Several other forms of data entry are now available, including various types of scanners and microphones. They all work by converting the input (sound, image, video) into electrical signals. The electrical signals are processed and converted back into the form the programming humans want. These outputs could be printers or monitors or electrical gadgets that control other mechanisms.

Other Key Terms

Bits and Bytes are related in the sense that a single binary digit is referred to as a *bit* and a set of eight (see ASCII code above) bits is called a *byte*.

RAM (Random Access Memory) consists of a grid of billions of bytes. It is called random access because each byte or (collections of bytes) can be accessed individually and with the same speed irrespective of where the byte is stored. Compare this type to tape storage where the tapes have to rewind or fast forward to reach the location of the data one is looking for. RAM is available as integrated circuit chips and is hosted on "memory cards" running into Giga (billion) and tera (trillion) bytes.

ROM (Read Only Memory) is typically used to store a computer's initial boot up instructions. ROM is not available for users to write on to.

Initially used in the 1950s to store analog signals (such as audio and video) on a magnetized medium, **magnetic tape** can be used to store digitized data (zeros and ones) by imposing one of two magnetization states in a series of storage regions that spanned the tape. The disadvantage of magnetic tape is that data must be stored and accessed sequentially. Therefore, data access times can be slow. To retrieve data on say frame 100, it is necessary to read data on frames one through 99 to get to frame 100. The advantage of magnetic tape storage is that it is inexpensive compared to other storage mediums. Many large data centers continue to use tape-based storage devices in their backup storage facilities.

Magnetic disks are the most commonly used secondary storage devices because of their relatively low cost, high speed, and large storage capacity. Magnetic disks store data using magnetic particles. If the particles are aligned positive, they are storing a one; if the particles are aligned negative, they are storing a zero. Magnetic disks store data on platters divided into concentric circles called tracks. Each track is divided further into segments called sectors. A group of sectors is called a cluster. To access a given sector, a read/write head positions itself over the track and then waits for the sector to pass by as the disk spins. When the read-write head is positioned over the sector, it detects the direction of the magnetized particles to read the disk.

Optical Disks (CDs) store data by a laser to "burn" *holes* to store zeros (the "pits") and NOT burn a hole to store ones (the "lands"). The "burning" process cannot be undone, thereby making the data on the disk *permanent* and *not erasable*. When a CD-ROM disk drive *reads* the data on the CD, it shoots a low-powered laser beam on each storage spot. If the surface is smooth (a "land"), the light reflects back, and therefore it detects a one; if the surface has a 'pit,' the light will *not* reflect back, and therefore it detects a zero. Blank CDs are available where users can burn their own data. Finally, CD-RWs (compact disc – read and write) are optical disks that are erasable and re-writable. CD-RWs do not use the land-and-pit method to write data to a disk. CD-RWs use phosphorus dots to store data. When the phosphorous dot is heated to a particular temperature, it crystallizes, storing a one. If heated to a *higher* temperature, it de-crystalizes, storing a zero. A phosphorus dot can be heated and reheated repeatedly to switch back and forth between the two states, enabling the disk to be erased and re-written to multiple times.

Solid State Storage Devices use integrated circuit assemblies to store data. SSDs have no moving mechanical components and are therefore more resistant to physical shock, run silently, have quicker access times as compared to magnetic and optical media. There are two kinds of SSD devices used by computers: SSD hard drives and jump drives (also called flash memory sticks). Both jump and SSD drives use a type of *non-volatile* memory chip so that they can retain their data without being connected to a power source.

CHAPTER V-9

INSTRUCTION SET, PROGRAMMING AND SYSTEM SOFTWARE

Instruction Set

In the previous chapter on computer fundamentals, we explained that the CPU interprets and executes instructions. We also discussed how each type of computer comes with its set of instructions that are executed in the electric circuit. A computer **program** is a collection of step-by-step instructions that can be interpreted and executed by a computer. A program is written to accomplish a task that is useful for an application.

Typically, that instruction set will include basic mathematical operations (add, subtract, multiply and divide), as well as other non-mathematical instructions such as "load input" (from another hardware component such as keyboard or mouse) and "send output" (to some other hardware component such as screen or a printer). It will also include instructions to MOVE data and instructions from one component or "storage location" to another. See below for a list of basic instructions that are included in most desktop computers' CPUs.

Basic List of Computer Instructions

Data Transfer Instructions - move or copy data or instructions around memory locations

MOVE - Copies data from a source location to a destination location (such as register to register)
LOAD - Copies an address from source location to destination location (such as copying an instruction's starting address into the instruction pointer register)

Arithmetic Instructions - perform arithmetic operations

INCREMENT - Add 1 to a numeric value
DECREMENT - Subtract 1 from a numeric value
ADD, SUBTRACT, MULTIPLY, DIVIDE

Establish named memory locations for holding data - declare variable

INTEGER X - Names a memory cell "X" and designates it to hold integer values
FLOAT Y - Names a memory cell "Y" and designates it to hold any real number
CHAR C - Names a memory cell "C" and designates it to hold a single character
STRING S - Names a memory cell "S" and designates it to hold a sequence of characters

Logical Instructions - produce a result of true or false

AND, OR and NOT
COMPARE - Compares two numbers for <, <=, >, >=, !, =

Branching Operations - alter the sequential order of instruction execution

JUMP - Jumps past certain instructions to get to other instructions
CALL - A type of jump instruction that jumps to a subroutine
RETURN - A type of jump instruction that jumps back from a subroutine

Control Operations

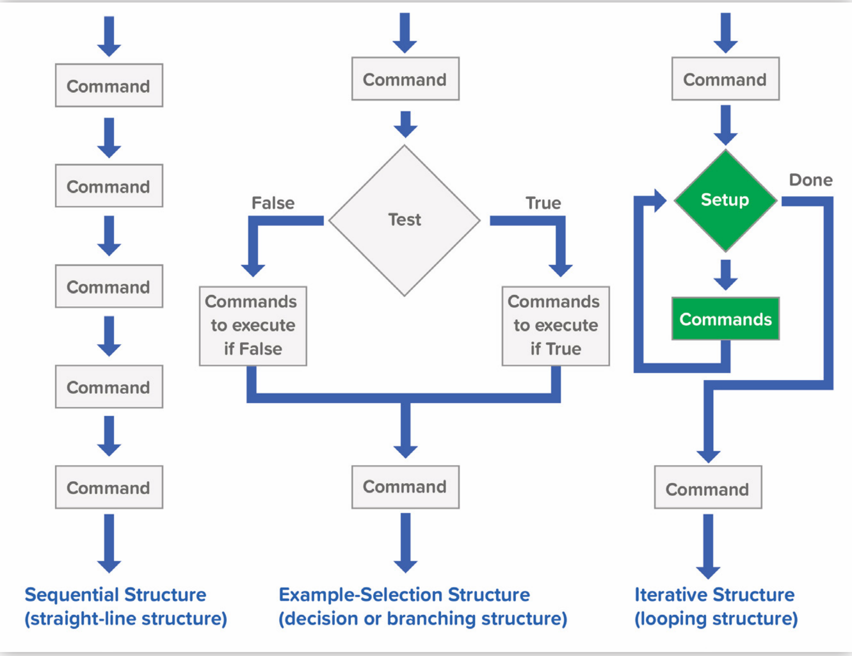
PAUSE
HALT - stop

Input/Output instructions - fetch data from an input device or send data to an output device

LOAD - fetches data from memory or storage
SEND - sends data to a screen or printer

Control Structures

Another group of control instructions called **control structures**, control the order in which instructions are executed. By default, instructions are executed in sequential order, that is, the order in which they appear in a program file. But there are two other control instructions that may be used to alter the *flow of operations* – the branching control structure and the iterative (looping) control structure.

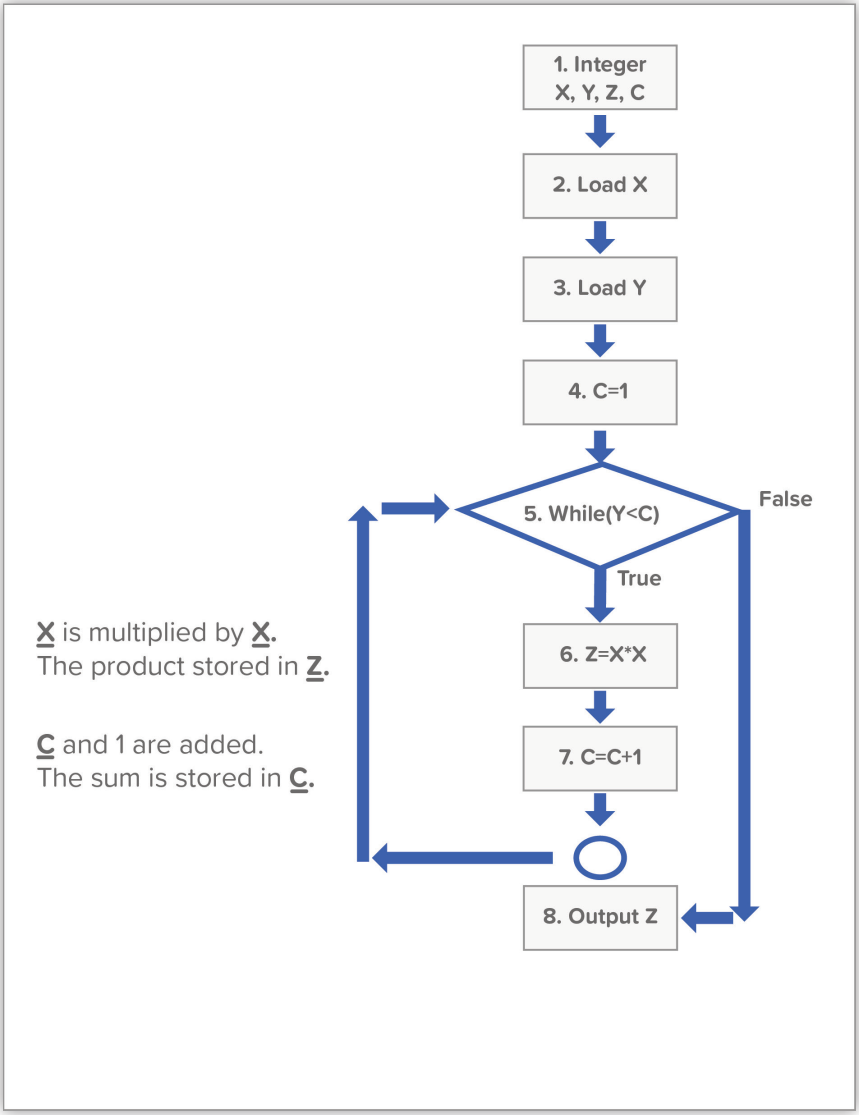


Most computer languages will have more than one way to implement basic control structures. Typically, a computer language will have three types of branching structures: **IF, IF/ELSE** and **SWITCH** and three types of looping structures: **WHILE, DO-WHILE** and **FOR.** Specific types of branching and looping structures that are used in the languages of C, C++, and many other general-purpose programming languages are listed below.

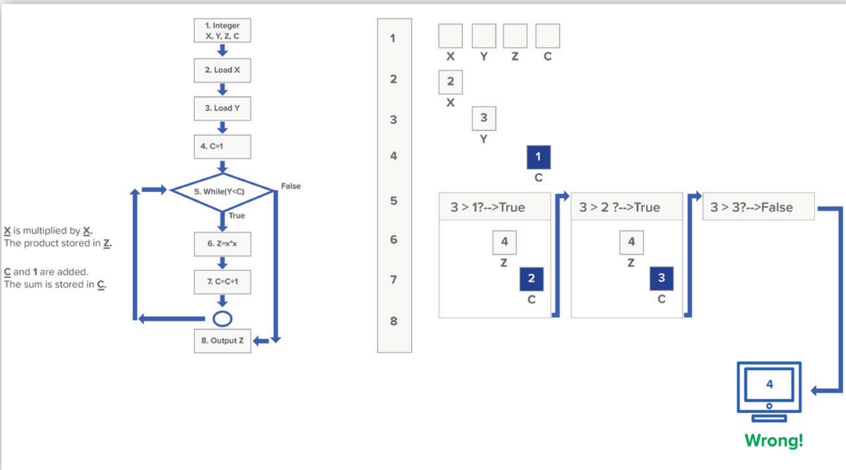
Control Structures Implemented in the Language of C and C++	
Branching	
IF	If a condition is true, the statements within the "IF" block will be executed, if the condition is false, the statements in the "if" block will be skipped over.
IF-ELSE	If a condition is true, the statements within the "IF" block will be executed, if the condition is false, the statements in the "ELSE" block will be executed.
SWITCH	If a condition "resolves" to one of the values in an item set, the code block that follows that item's value will be executed. If the condition does NOT resolve to one of the values in the item set, all blocks of code will be skipped over.
Looping	
WHILE	The WHILE condition is evaluated and if true, the instructions in the WHILE block are executed. Once completed, program control returns to the WHILE condition to be re-evaluated. If still true, the instructions in the WHILE block are repeated. If flase, control proceeds to the next instruction below the WHILE block.
DO-WHILE	Same as the WHILE structure but the instructions in the WHILE block are executed first, and then the WHILE condition is evaluated for the first time. If true, the instructions in the WHILE block are repeated. If false, control proceeds to the next instruction below the WHILE block.
FOR	A "FOR" block is repeated a pre-determined number of times. Also referred to as "counter-controlled repetition" since a counter variable is used to keep track of the nummber of times the instructions in the FOR block should be repeated.

An Example of a Program

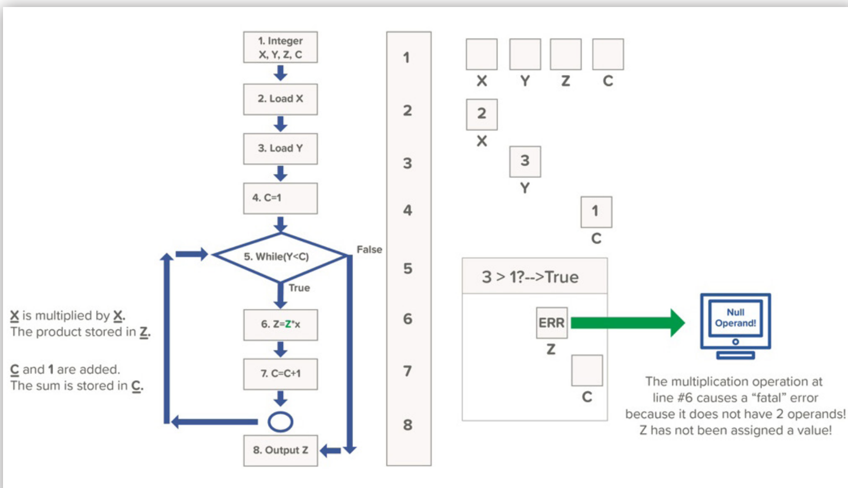
Let's use these commands that we have learned to write a simple program. We will write a program that accepts two numeric values, we'll call X the mantissa and Y the exponent, and the program will raise X to the Y power. We will create a flowchart – which will display the basic logic or flow of program instructions. The instructions will be expressed in pseudocode – which is a structured English way of writing out computer instructions in English that resemble how these instructions would be expressed in a specific programming language. Here is our initial flowchart for our program.



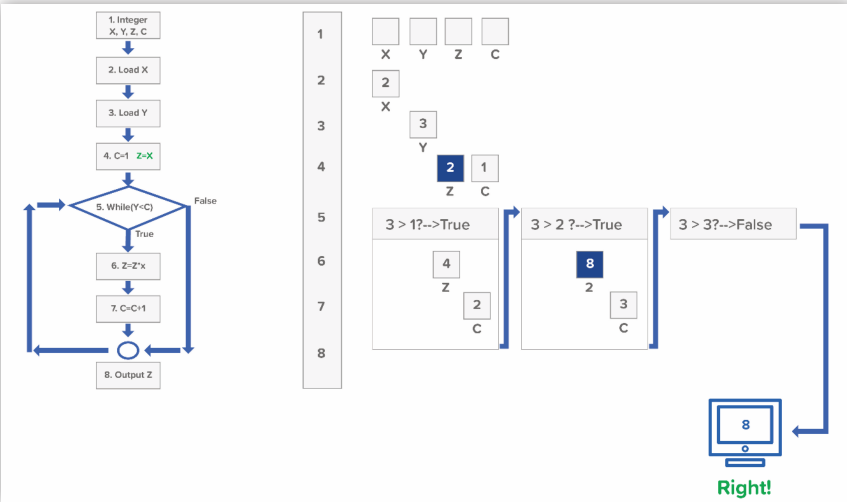
Let's test our procedure using the input values of X = 2 and Y = 3. Z should be 8.



The process is not correct. The problem lies with instruction #6: Z = X * X. Since the value of X was not incremented in the loop, the product of X times X remains at 2 times 2 or 4. Let's attempt to correct this error.



At line #6, we will change the formula of Z = X * X to Z = Z * X. Let's walk through the process. Again, we will use X = 2 and Y = 3. This time the problem again occurs at operation #6. But it's a different error. When a computer "sees" the instruction Z = Z * Y, it "resolves" the expression on the right side of the equal sign first, and then assigns the result to the variable name on the left side of the equal sign. In this case, the computer could not perform the mathematical operation of multiplication because it did not have two valid operands. Since Z has not yet been assigned a value, it is a "null" cell – not a valid operand. This actually causes a "fatal error" meaning that the program would "crash" because of this error and the program will terminate, returning control of operations to the operating system. Let's try something else.



This time, we assigned the value of X to Z in operation number 4, so that Z has an initial value that is equal to the user's input value of 2 for X. When the CPU attempts to initiate operation #6, Z = Z * X, the multiplication operation can be performed this time because the instruction includes two valid operands. C, which is the counter variable, keeps track of how many times the loop is repeated. Since Z was assigned the value of X initially, the loop need only be repeated Y – 1 (or 2) times. This time, the end result (of 8) is correct, and the program terminates successfully.

A careful examination of the above logic will show that the flow chart does not work for cases where Y=0 or is negative. The next step would be to fix for these enhancements.

Now, let's say that we have other programs that need to use this power procedure. Should we copy and paste this block of code into every program that requires this formula? The answer is NO. What we want to do is create a **function** (aka a **method**) and store it in a "**library**" along with other useful methods that we may develop. Programmers can import functions into their programs to streamline application development and to minimize redundancy of code.

High-Level Programming Languages

The flow chart drawn with very basic instruction set can be cast into a program using one of many high-level languages. Hundreds of languages, such as COBOL, C, C++, Java, or JavaScript, have been developed to write computer programs.

Some programming languages (such as those just mentioned) are ***general purpose languages***. They can be used to write various types of programs. Other languages are ***dedicated purpose languages*** – they are designed to write a specific type of program. For example, ***Hypertext Markup Language (HTML)*** is a computer language designed to write web page files. HTML code consists of instructions that tell a browser how to render a web page in a browser window. Another example of a dedicated purpose language is ***SQL (standard query language).*** SQL code consists of data manipulation and extraction instructions that are interpreted by a database management system such as Microsoft Access or Microsoft SQL server.

Below are examples of some high-level languages categorized by the generation and purpose.

Gen	Description	Sample Code	Example	Typical Usage
1	Machine language–uses only binary codes	1.00100111 2.01101011 3.11011000 4.10101100	Only one: "machine language"	For CPUs only
2	Assembly language–uses short mnemonic codes to substitute for binary codes to make instructions more human readable	1. LOAD X 2. LOAD Y 3. ADD X Y 4. MOV Z 5. STOP	Only one: "assembly language"	For writing device drivers and other applications that need direct control over hardware.

3	Any "High Level language". Use more English-friendly instructions than low-level languages and are hardware-independent	#include <stdio.h>
		int main(void)
		{
		printf("Hello World");
		return 0;
		}
			Java, COBOL, C, C++	Many different purposes.

4	More English-friendly than 3GL	Select last_name, first_name where ID ="123" from StudentTable	SQL	Used for querying databases.

Language	Design for Developing
C	Opertating System Software
COBOL	Business Data Processing Applications
Fortran	Mathematically-intensive Applications
HTML	Contents in Web Pages
Java	Any type of program
JavaScript	Client-side scripts that run in web browsers
LIST	Artificial Intelligence Applications
PHP, ASP, JSP	Server-side scripts that run on web servers
R, Python	Statistical programs for data mining
SQL	Databases and database queries

Operating Systems Software

In addition to the instruction set that is incorporated into a computer, a computer also contains several programs that manage the interaction between application programs and hardware. No matter how large or small a computer system may be, its operating system will include a collection of modules to support a variety of hardware management functions. Here are some of the most common functions managed by operating systems.

Traffic cop – Computers typically run several applications simultaneously. These applications must take turns using the computer's finite resources (such as its CPU and RAM). The operating system manages the sharing of resources usually using a round-robin approach – each application gets a "time slice" to use the computer's resources and then must be placed on hold while the other applications take their turn. A time slice may be just a few milliseconds. On some more powerful systems, a complete cycle of turns may happen so fast that it may appear to users that all applications are running simultaneously.

Memory manager – When a program is running, the instructions needed for the current operation will be copied from the computer's storage (such as a hard disk) to the computer's RAM. One by one, those instructions will be fetched by the CPU from the RAM to decode and initiate execution of that instruction. The operating system manages this process. It has algorithms that are used to anticipate what instructions and data the CPU will need next, and it will load those instructions or data into regular RAM or cache RAM so that they are readily and quickly accessible to the CPU. Generally speaking, the more instructions that can be loaded into RAM at one time, the faster the program can execute. The operating system may swap instruction blocks in and out of RAM as part of this management process. In addition, most computers have virtual RAM, which is actually a space on the hard drive that can be treated as addressable RAM space. Therefore, the swapping process involves continually moving blocks of code around between virtual RAM, regular RAM and cache RAM (aka high-speed RAM).

File Clerk – When a disk is recognized as storage space by the operating system, the operating system fetches a list of all the files on that disk (called the File Allocation Table or FAT). The list includes each file's name and its storage location (which may be a collection of non-adjacent sectors). When a file needs to be opened, the operating system uses the FAT to “pull together” that file and copy it into RAM so that it can be displayed on the screen. Similarly, when the file is stored, the operating system must determine if that is enough space on the disk to store that file and then it instructs the disk controller to write that file to one or more sectors.

Security Guard – When a user or program attempts to access a computer system or a specific computer resource, they may be prompted for a password. It is the operating system that requests the password and then verified whether that user should be granted access to the resource or not.

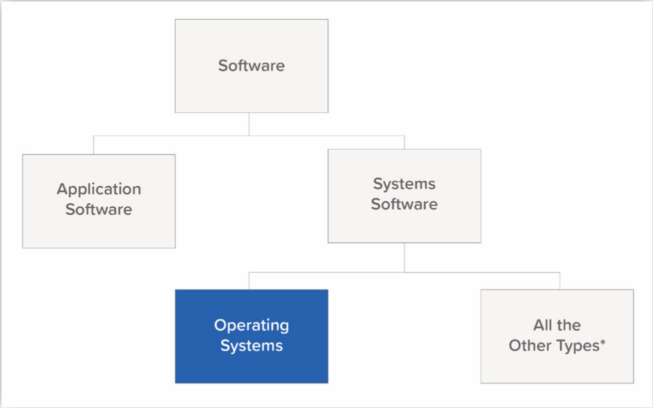
Receptionist – When a computer system is booted, the computer will run through a system of tests and other processes and, if successful, a welcome page or window will display on the screen. The operating system is in charge of running the bootup processes and displaying the system’s user interface (a welcome screen such as the Window’s desktop).

The operating system that most users are probably most familiar with is **Microsoft Windows**.

Here are the four most popular operating systems for desktop computers:

- Microsoft’s Windows – the operating system for PCs (IBM-compatible computers).
- Bell Lab’s UNIX (or a UNIX-variant such as Ubuntu). Originally designed for large enterprise computer systems but may also be used on desktop or laptop computers.
- Apple’s Mac OS X – the operating system for Apple computers.
- Linux – a UNIX-variant that is open-source.

Other types of system software include **language translators** (compilers), **utility programs** (anti-virus program, disk defragmenters) and **device drivers** (the programs that directly control hardware devices such as a device driver for a printer or scanner).


Software
Application Software
Systems Software
Operating Systems
All the Other Types*

CHAPTER V-10

APPLICATION SOFTWARE

Application software is a general term that covers everything from simple programs written by individuals for their own needs to massive software packages consisting of many programs with millions of lines of code that are meant for large corporations. Application software often includes programs to handle payroll and CRM (customer relationship management) and also includes *productivity tools* such as Microsoft Office, web browsers, email, and so forth.

Applications can be classified as either horizontal market applications or vertical market applications. **Horizontal market applications** are general purpose programs not specifically used by any one particular type of organization or industry (e.g., Microsoft Office and general-purpose accounting packages). **Vertical market applications** are industry-specific programs such as a medical billing and patient records system used to schedule appointments, track insurance claims, maintain medical records, and provide health management services such as referrals.

As more and more applications migrate to the web, applications are often classified as either **web-based** or **installed** applications. Web-based systems use internet web technologies to deliver information and services to end-users and other web-based applications. Installed systems are hosted local systems such as a desktop computer or an individually-owned mainframe computer with terminals connected to it. Web-based systems are usually also cloud-based systems meaning that they are hosted on remote servers that may or may not be owned by the end-users of the application.

Enterprise Software

To conduct day-to-day operations, businesses engage in many types of routine transactions. Examples of routine transactions include selling products, purchasing supplies, making bank deposits, and withdrawal, and issuing payroll checks to employees.

Since the 1950s, computers have provided services that support work processes in businesses and other organizations. Computer programs developed during that time were mostly customized software developed in house and were designed to capture and store data about routine business transactions. Record-keeping is essential to maintaining normal business operations, and it is required by law for financial reporting purposes. Computer programs of this type were referred to as **transaction processing systems (TPS).**

TPS capture and store transactional data, but they are also used to summarize the data to generate periodic summary reports. Periodic summary reports (sales reports, financial statements, and exception reports) can help organizational level managers understand what is happening regarding current operations so that they can make better-informed business decisions.

TPS has been a core component of a business's IT infrastructure for well over half a century, but the technologies that are used by TPSs have changed substantially over the years as innovations in hardware and software continually emerge. The evolution of TPS technologies can be described as a series of five generations.

First Generation TPS

The first generation TPS captured and stored transactional data on magnetic tape. This process was rather slow, as this first generation TPS would store *static* data, such as a list of bank accounts or a list of hourly-wage employees in what was referred to as the **master file**. As transactions were conducted as part of normal business operations, transaction records were generated and stored in what was called the **transaction file**. Periodically, the records in the transaction file would be used to update the records in the master file, and a new master file was generated. For example, each time a bank customer made a deposit or withdrawal from their bank accounts, a transaction record was generated and stored in the transaction file. On a nightly basis, the master file containing the customer's account balance would be updated using the transaction file. This newly generated master file included the up-to-date balances of customer accounts. This method of updating the master file was referred to as **batch processing** because transactions were accumulated and then processed in "batches" at fixed time intervals.

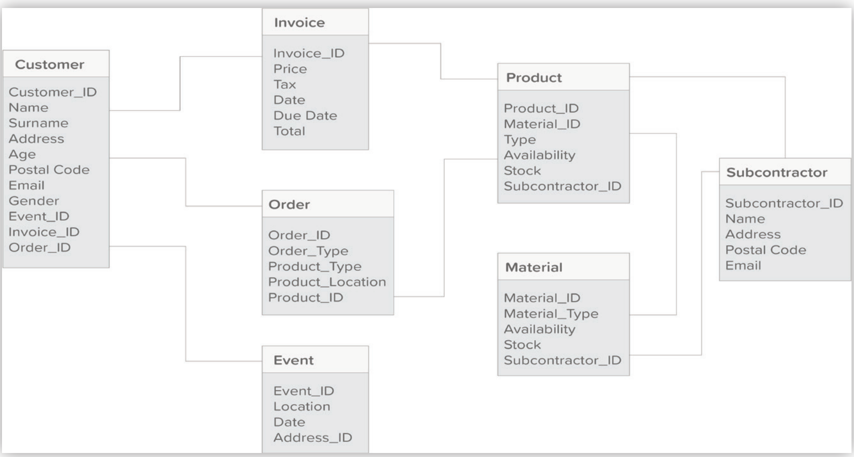
While batch processing was sufficient for certain types of transaction processing systems such as payroll processing, it did not work well for many other types of transaction processing systems such as bank account systems, because of the need to keep account balances up-to-date in real time.

Second generation TPS

Advancements in storage technologies (random access memory and magnetic disks) enabled second generation TPS to emerge. The invention of RAM and magnetic disk storage devices eliminated the bottlenecks of batch processing because data could be accessed more quickly and in real time. An excellent example of this type of TPS was the SABRE system, initially invented by American Airlines, but eventually used by almost all commercial airlines as an airline reservation system. Clerks at airline terminals and sales agents at travel agencies throughout the world could use remote terminals (in airports and travel agency offices) to input and update information about customers' airline reservations in real time.

In addition, new database management system technologies emerged that enabled the development of second-generation transaction processing systems. In 1970, a computer scientist at IBM (E.F. Codd) published a paper describing a new structural model for databases referred to as the **relational model of a database**. Soon afterward, both IBM and Oracle developed data management programs that were based on the relational model and that included a data manipulation language referred to as Standard Query Language (SQL). An important key difference between the relational model and previous structural models for storing large data sets was that with the relational model, the *logical* conception of data organization could be distinct and independent from the actual *physical* organization of stored data. More specifically, with the relational model, an end-user or application could conceive of the data as being stored as a collection of tables – with rows and columns – similar to a spreadsheet. This logical notion of data residing in tables was distinct from how the data is actually stored on physical mediums such as disks. This simplified the design of databases and allowed for more flexible methods of data retrieval.

Take a look at a logical model of a relational database below. As you can see, there is a separate table for each entity (e.g., product, employee, student, transaction). The attributes of the entities (first name, last name, address, etc.) are the column headings, and each row contains data about one entity instance. (Each box shows the column headings for each table.) Three of types of relationships may exist between entities: one-to-one (such one person may own one parking permit), one-to-many (such as one publisher may publish many books), and many-to-many (such as many students may enroll in many course sections). The lines drawn between the tables indicate these relationships.



Using the relational model for database design made it easier to manipulate and retrieve the data. Additionally, the database management system had the capability to join entire tables together on the fly so that data records could be summarized along multiple dimensions, simplifying data report generation. For example, a transaction processing system that stored millions of transactions records could match up transaction records to the corresponding customer detail and product record that participated in that transaction, and reports could easily be generated that summarized transactions by time-period, by location, by salesperson, by product category, etc. Two-dimensional tables could be produced using desktop applications such as Excel (referred to as PivotTables). Multi-dimensional tables or *cubes* could be generated using more powerful systems – such as Online-Analytical Processing Systems (OLAP systems).

Third Generation TPS

The proliferation of desktop computer systems ushered in the next era of TPS as well as a host of other types of application software systems. As desktop computers became commonplace in offices and other workplaces, *each functional area* of a business could purchase or develop their own function-specific software applications. Vendors such as WordPerfect Corporation, Microsoft, Oracle, Computer Associates, Lotus Corporation supplied many software packages that could be hosted on a single desktop computer or a collection of inter-connected desktop computers (referred to as a **local area network (LAN).**)

Hundreds of applications were developed to support specific functional areas since individual functional areas couldn't control and manipulate the enterprise systems. Although these applications automated processes and enabled businesses to realize increased efficiencies, each functional area was generating its own *silo* of data that were not integrated and shared with other functional areas.

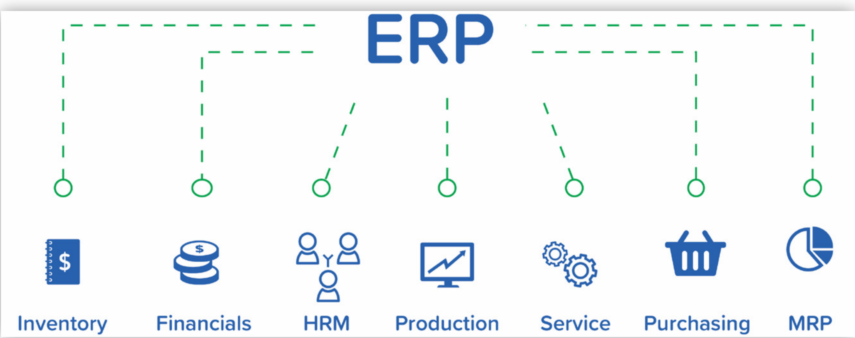
Consequently, there was a considerable amount of duplication and conflicts in the data stored. In the 1980's the term "islands of automation" was used to describe the collections of applications that functioned independently and were not achieving the benefits that would be realized by integrating into a larger system.

Fourth Generation TPS

To address this need to integrate disparate data sources and applications, cross-functional enterprise systems emerged in the late 1990s. Enterprise systems are collections of applications that could exchange and store data in one centralized data repository such as a large database that may be hosted in a centralized data center.

SAP, Oracle, Microsoft, SalesForce.com are the major vendors of enterprise solutions. Three of the most common types of enterprise systems are enterprise resource planning systems (ERPs), customer relationship management systems (CRM), and supply chain management systems (SCM).

Enterprise resource management (ERP) systems are cross-functional enterprise-wide systems that integrate and automate many of the internal business processes of a company. The ERP name includes the term "resource planning" because today's ERPs can trace their roots back to the materials requirement planning systems (MRP) of the 1970s and the manufacturing resource planning systems (MRP II) of the 1980s. MRPs were designed to identify purchase requirements (of supplies and equipment) from a master production schedule. MRP IIs expanded upon MRPs to include modules to support actual production (manufacturing) processes. During the 1990s, modules continued to be added to the suite that supported additional business processes in the areas of accounting, finance, marketing/sales, human resource, project management and a host of additional functional areas. ERPs are module systems, and organizations can pick and choose which functional modules to implement.



Some of the benefits of implement ERP systems include data sharing between functional areas, standardized business processes over multiple locations, and a simplified IT infrastructure by replacing several separate systems with one enterprise system.

ERP vendors offer off the shelf solutions that can be implemented throughout an organization as is or modules may be customized to support specific business process requirements. Customizing ERP modules can be very costly for business because code modification can require an entire team of the vendor's developers and consultants to modify the code so that it maintains interoperability with other modules throughout the system. To avoid the high cost of customization, many organizations choose to re-engineer their own business processes to align with the way the ERP system works rather than re-engineer the ERP software to fit the way the company performs its work processes. This can lead to dissension among workers who resent the idea of having to change their familiar work practices.

Today, ERPs are the core of the IT infrastructure in many organizations. Many vendors now offer what can be referred to as **extended ERPs**. Extended ERPs may include modules that had been traditionally included in other types of enterprise systems such as CRM and SCMs (which are described below).

According to a 2014 report by Allied Market Research entitled, "Global ERP Software Market - Size, Industry Analysis, Trends, Opportunities, Growth and Forecast, 2013-2020," global spending on ERP system is expected to be about $41 billion by 2020, with a CAGR of 7.2% during the forecast period 2014 - 2020.

Customer Relationship Management (CRM) systems are enterprise systems that automate and integrate the functions of sales, marketing and service in an organization. Similar to ERPs, CRMs have a modular design.

One important function of a CRM is capturing data about every contact a company has with a customer. Using this data, a profile of each customer can be built. The profile is used by marketing departments to match the company's products to the needs of each customer. It can also be used to discover cross-selling opportunities. First generation CRMs were called sales force automation systems (SFA). Initially, CRMs were designed to consolidate customer data and provide services that are associated with the selling process. Some of these processes included tracking and reviewing all information about a customer, placing orders for customers online (possibly at the customer's site using a PDA or laptop), tracking customer orders and shipments, providing customers and salespeople with the latest product and pricing information.

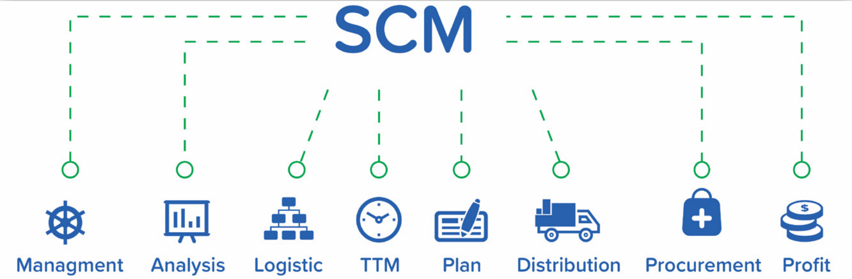
According to a 2017 report published by Grand View Research entitled, "Customer Relationship Management Market Worth $81.9 Billion By 2025," the global CRM system market size was valued at USD 23.14 billion in 2015, and is expected to reach USD 81.9 billion by 2025. Currently, top CRM system vendors include SalesForce.com, Oracle (NetSuite), SAP, Adobe, and Genesys.

Supply Chain Management (SCM) systems are systems of organizations, people, activities, information, and resources involved in moving a product or service from supplier to customer. Supply chain activities involve the transformation of natural resources, raw materials, and end components into a finished product that is then delivered to the customer.

SCM systems are enterprise system designed to facilitate the coordination of the various *flows* that must occur along the supply chain to get a product from the point of origin to its final destination. These flows include:

- **Material flows** – the ingredients must be produced and or processed to get from the field to the fork.
- **Financial flows** – suppliers, shippers, distributors, and retailers need to receive payment for their services or merchandise.
- **Information flows** – purchase orders, invoices, shipment notices, and return requests are documents that contain information that must be exchanged so that all parties can bill and get paid for their products and services.

Similar to ERP and CRM systems, SCM systems have a modular design.

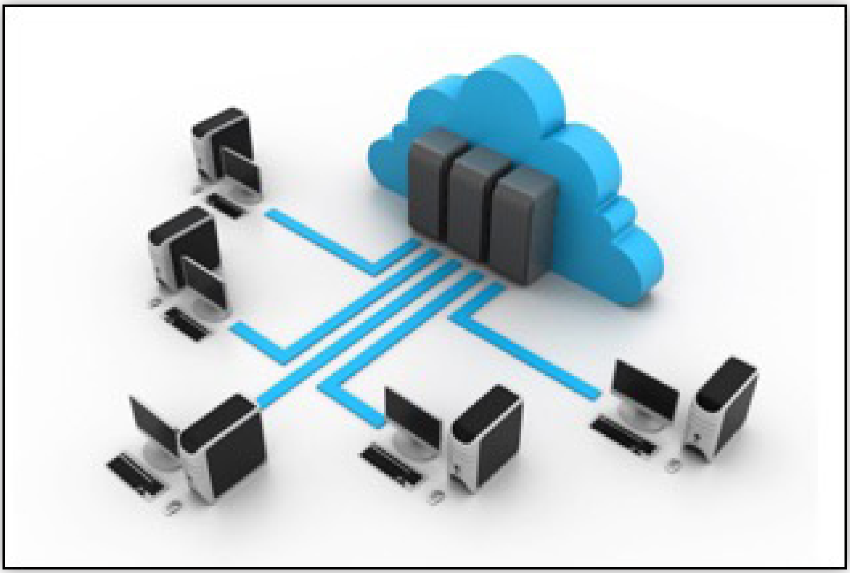


The benefits of SCM systems are reduced inventory carrying costs (by not over-stocking), increased sales (by preventing out-of-stock conditions) and improved coordination with suppliers, manufacturer, and distributors.

According to a 2017 Gartner report entitled, "Market Share: Supply Chain Management, Worldwide, 2016," the SCM software market grew 9.8 percent to $11.2 billion in 2016, up from $10.1 billion in 2015. Major suppliers of SCM systems are SAP, Oracle, JDA Software, and Infor Global Solutions.

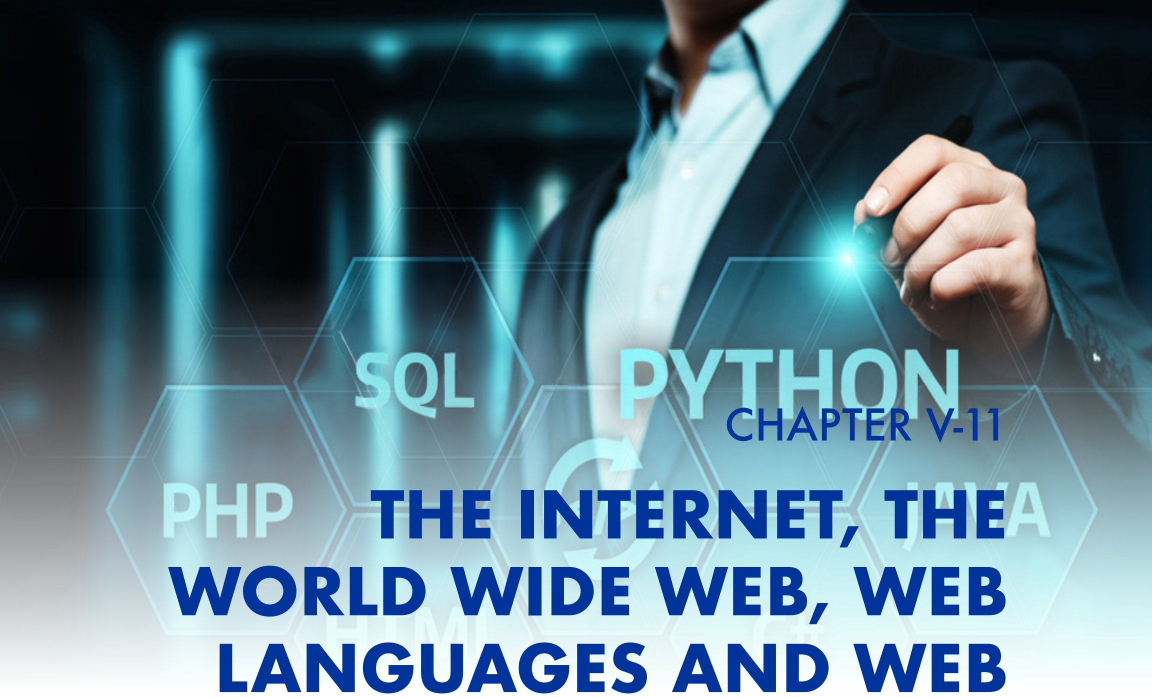
Fifth Generation TPS

The fifth (and current) generation of TPSs can be described as the cloud generation. As businesses continue to look for ways to reduce large IT investments, maintain agility, and reduce deployment times of new systems, many are adopting a **cloud-based delivery model**. Using a cloud-based delivery model means that computing resources and services – servers, storage, databases, networking, software, analytics, etc., are hosted by third parties and accessed over the internet. Companies offering these computing services are called cloud providers and typically charge for cloud computing services based on usage.



Enterprise systems are no exception to this growing trend in cloud-based hosting. In recent years, ERP vendors such as SAP, Oracle, Microsoft, and NetSuite have begun offering cloud versions of their enterprise systems. Whereas fourth generation enterprise system was installed on servers and hardware located on a company's premises, fifth generation enterprise systems are being hosted on third-party servers (such as Amazon Web Services and Microsoft Azure) that provide access to end-users as web services.

NetSuite, a leading provider of enterprise systems, was one of the first vendors to provide cloud-based enterprise systems. Recently NetSuite claims to have more than 30,000 organizations using their cloud-based systems, launching it ahead of vendors such as SAP and Oracle who were the top vendors in traditional, onsite-hosted systems. The growing interest in cloud-based solutions shows no sign of slowing down over the next few years. The cloud is where fifth generation transaction processing systems are likely to be hosted.



CHAPTER V-11

THE INTERNET, THE WORLD WIDE WEB, WEB LANGUAGES AND WEB SERVICES

The **Internet** is a global system of interconnected computer networks that consists of millions of private, public, academic, business, and government computers linked by a broad array of electronic and optical networking technologies. It started as the ARPANET, a computer network built for the U.S. Department of Defense to inter-connect regional military networks in the 1980s. In 1981, the ARPANET was expanded by the National Science Foundation to inter-connect supercomputers at universities and other research institutions. Today, the Internet has expanded well beyond its primarily research roots to include thousands of commercial organizations and millions of individual users throughout the world.

A major innovation that caused the popularity of the Internet to surge was the invention of the **World Wide Web (WWW)** in 1989 by English computer scientist Timothy Berners-Lee for the European

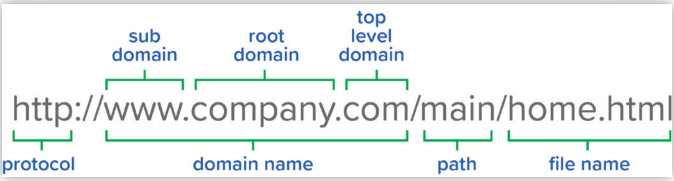
Organization for Nuclear Research (CERN). The World Wide Web is a software program that is hosted by the Internet. The significance of the WWW is that it provides end-users with a user-friendly graphical user interface called a browser that makes it easy for people of all ages and experience levels to access content hosted on the Internet such as web pages and other web resources. Today, there are many different types of content and applications that are accessible using web browsers such as email, file-sharing, telephony, video streaming, and many other information, communication, and e-commerce services.

The WWW is a **client-server software application**. A client-server application is divided into two modules of programming code: the front end or **client** module and the back end or **server** module. The client module runs on a client computer such as a desktop, laptop, tablet, or phone, and it enables users to request resources as *services* provided by the server. The server module is typically hosted on a more powerful computer that is configured to provide many users with services simultaneously. In the case of the WWW, the client module is the web browser running on end-user devices such as computers, tablets, and smartphones. End users use the web browser to request web pages and other resources hosted on a web server that may be owned by an individual, an organization, or a third-party web services provider.

Popular web **browsers** include Google Chrome, Microsoft Internet Explorer, Mozilla FireFox, Apple Safari, and Opera. Popular **web servers** (software) include the Apache Foundations' HTTP Server and Microsoft's Internet Information Server (IIS). Any computer that is running Apache or IIS can function as a web server.

Clients and servers communicate by exchanging request-response messages. The message format and communication procedures must follow a pre-defined set of rules called a **protocol.** The communication protocols used by the WWW are HTTP and HTTPS. ***HTTP*** is a hypertext transmission protocol, and ***HTTPS*** is hypertext transmission protocol with encryption services. HTTPS should always be used when transmitting web pages that contain confidential information such as a user's login credentials or bank account balance.

When end user uses a web browser to make an HTTP and HTTPS requests, the request must include a **URL (uniform resource locator)** which is the web page's fully-qualified file name. A URL includes both the file name and its location.



When the web server specified by the domain name receives a request with a URL, it searches its file system to find the requested page. If the web server is able to locate the page, it responds by sending that page to the web browser. If the web server is unable to find the requested page, it sends a page containing an error message (i.e., Error 404 – page not found).

You may have requested to go to a website without specifying a complete URL. For example, you may have requested www.memphis.edu to view the University of Memphis' website's home page. If the protocol and the file name are not specified in the URL, the browser will assume that the protocol is HTTP and that the file name is index.html.

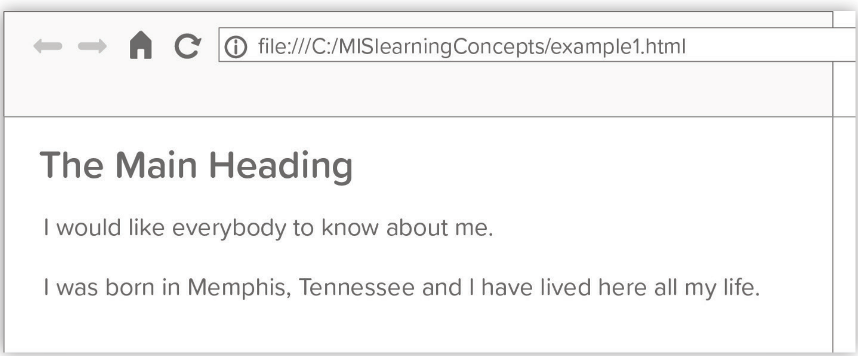
WEB PAGE DEVELOPMENT TOOLS AND LANGUAGES

HTML

When a web page is received by a browser, the browser *renders* the page in its browser window. To interpret how that page should be rendered, the browser depends on the *element tags* embedded in the page content. **HTML** or **hypertext markup language** specifies what element tags are valid. Tags usually come in pairs. For example, to specify that a collection of sentences is to be rendered as a paragraph, '<p>' is the opening tag to be placed at the beginning of the first sentence to indicate the beginning of the paragraph and '</p>' is the closing tag to be placed at the end of the last sentence to indicate the end of that paragraph. See the example below of a basic web page written in HTML. Notice that the page must start with the '<html>' tag and end with the '</html>' tag because the entire page is an HTML element. Within the '<html>' element, there is a '<head>' element and a '<body>' element. Within the '<head>' element, there is a '<title>' element, and within the '<body>' element, there is a level 1 heading element and two paragraph elements.

```
<html>
  <head>
    <title>My web page </title>
  </head>


  <body>
     <h1> The Main Heading </h1>
         <p> I would like everybody to know about me. </p>
         <p> I was born in Memphis, Tennessee and I have
         lived here all of my life.</p>

   </body>
</html>
```

When the web page file renders in the browser window, it will look like the web page below. Notice that the level one heading element appears in a larger size font. The paragraph elements have blank lines above and below them because that is the default style settings for those elements.



CSS (Cascading Style Sheet) Rules

If a web site designer wishes to *change the default styling* of HTML elements, they can use **CSS (cascading style sheet) rules** that will override the browser's default style settings. The exhibit below displays our HTML file with style rules applied to specific HTML elements.

```
<html>
  <head>
    <title>My web page </title>

  </head>

  <body>
     <h1 style=”font-size:200%;” > The Main Heading </h1>
         <p style=”color:red;”> I would like everybody to know about me. </p>
         <p style=”color:blue;”> I was born in Memphis, Tennessee and I have
         lived here all of my life.</p>

   </body>
</html>
```

When the web page file above renders in the browser window, it will look like the web page below.

The Main Heading

I would like everybody to know about me.

I was born in Memphis, Tennessee and I have lived here all my life.

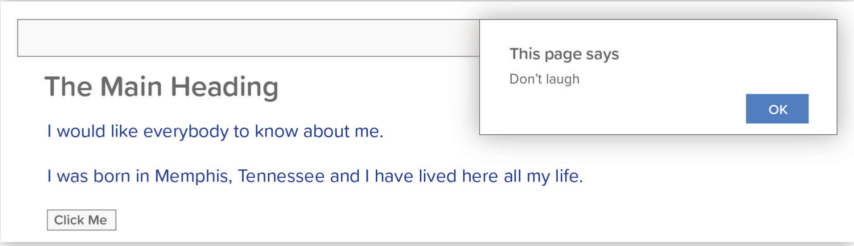
When designing web pages, the general rule is that HTML tags should be used to define the *elements* of a web page (paragraphs, lists, tables, images, links, etc.) and CSS rules should be used to define the *styling* of those elements such as text color, font styles, image size, and page layout.

JavaScript

JavaScript is an interpreted programming language invented by Brendan Eich in 1985. It is considered one of the three core technologies for web page design along with HTML and CSS. One purpose of JavaScript is to display popup windows that may include data entry errors or warnings. The exhibit below shows an example of JavaScript code on a web page that will cause a popup window to appear with a message when the site visitor clicks the “click me” button.

```
<html>
  <head>
    <title>My web page </title>
          <link rel=”stylesheet” href=”styles.css”>
  </head>

  <body>
      <h1> The Main Heading </h1>
          <p > I would like everybody to know about me. </p>
          <p > I was born in Memphis, Tennessee and I have lived here
                all of my life.</p>

<button onclick = “window.alert(’Don’t laugh’) >Click Me </button>

  </body>
</html>
```

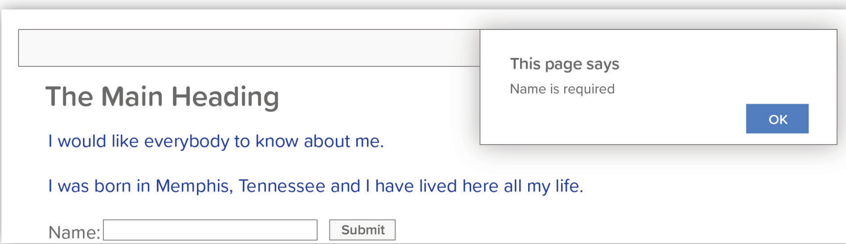
When the site visitor clicks the “click me” button, the browser window will look like the web page below.



The most common use of JavaScript in web pages is to validate (e.g., spell check) a site visitor’s entry form data before it is sent to the web server. The example below shows JavaScript code on a web page that is being used to validate the site visitor’s input in the [name] textbox.

```
<html>
  <head>
    <title>My web page </title>
      <script>
            function validateForm()
            {
            var x = document.forms[”myForm”][”fname”].value;
            if (x == ‘”) { alert(”Name is required”); return false;   }
            }
      </script>
  </head>

  <body>
    <h1> The Main Heading </h1>
          <p>I would like everybody to know about me. </p>
          <p>I was born in Memphis, Tennessee and I have lived here all my life.</p>

   <form name=”myForm” onsubmit=”return validateForm()” method=”post”>
        Name: <input type=”text” name=”fname”>
        <input type=”submit” value”Submit”>
   </form>
  </body>
<html>
```

When the web page file above renders in the browser window, and the site visitors click the “submit” button without having first entered any text into the [name] box, the browser window will look like the web page below.

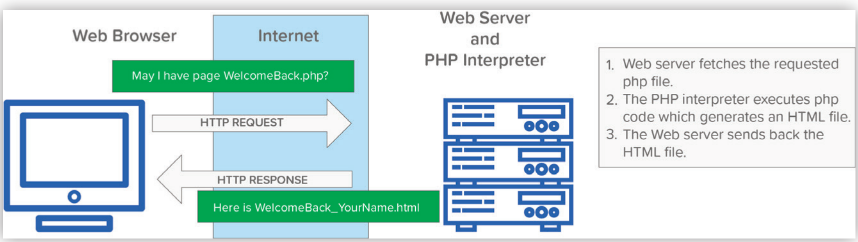


HTML tags, CSS style rules, and JavaScript code can be interpreted by web browsers. Therefore, any web browser can render a web pages’ elements, impose any CSS style rules and run any JavaScript code that is embedded in or linked to a web page file without the assistance of the web server.

Server-side Scripting Languages

The purpose of the web server is to host and "serve up" web pages to (many remote) web browsers upon request. **PHP, JSP or VB** languages are used to create **server-side scripts** or mini-programs that run when they are requested by web browsers. Server-side scripts are used to create dynamic web page content as opposed to HTML pages that can only contain static web page content.

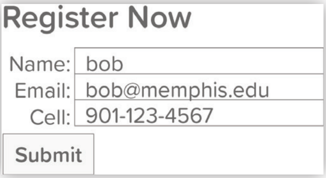
There is a difference between static and dynamic web pages. With static web pages, everybody sees the same content in the browser window. With dynamic web pages, everybody may see customized content in their browser window. A good example of dynamic content is what you see when you revisit an e-commerce site after you have already registered or purchased something from that site. When you revisit to site, you might see "welcome back, Bob!" (if your name is Bob, of course!) Your name is dynamic content that got added to an HTML page just before that page was "served" to you. Your initial request to go to that e-commerce site may have actually been a request for a PHP page rather than an HTML page. The PHP page contained a script, run on the server side that generated an HTML page on the fly When the PHP page request is received by the web server, the web server passes that page over to the PHP interpreter who interprets the script and generates an HTML page. The HTML page is then passed to the web server, and the web server sends the page to the web browser.



Here is a demonstration of how PHP scripting is often used. In this example, the HTML page contains a data entry form. Notice the "action" property in the form element tag. When a site visitor completes the form and clicks the [submit] button, the web browser sends the server a request to run a PHP script called REGISTER.PHP.

```
<html>
  <head>
    <title>Registration Form in HTML page </title>
  </head>

  <body>
     <h1> Register Now</h1>
     <form name="register" action="register.php" method="post">

        Name:<input type="text" name="fname">
        Email:<input type="email" name="email">
        Cell: <input type="tel" name="cell">

        <input type="submit" value="Submit">

     </form>
  </body>
</html>
```

The image below displays what this form looks like when rendered in a browser window. Let's assume that the site visitor has entered the values that you see here.



When Bob clicks the [submit] button, the web browser places the data entry values into a POST array and sends the POST array back to the server along with the request to run the REGISTER.PHP script file. The image below shows the REGISTER.PHP file. Notice that the PHP code block is embedded in an HTML file. The ECHO command is used to create a string that contains a complete HTML file. This HTML file will be a personalized message to Bob, thanking him for registering.

```
<html>
  <head>
    <title>register.php - the PHP script that generates an HTML page </title>
  </head>

  <body>
          <?php
            echo  "<html>";
            echo  "<head>";
            echo  "<title>Thank You</title>";
            echo  "</head>";
            echo  "<body>";
               echo  "<h3>Thank you $fname for Registering!</h3>";
               echo  "<p>This is the information you entered:";
               echo  "<br> email address: $email";
               echo  "<br> cell phone: $cell </p>";
            echo   "</body></html>";
 ?/
 </body>
</html>
```

And here is a display of how this newly-created HTML page will appear in Bob's browser window.

```
Thank you Bob for Registering!

This is the information you entered:
email address: bob@memphis.edu
cell phone: 901-123-4567
```

As a final note, the exhibit below shows that SQL (standard query language) code can also be included in a PHP file. Typically, web servers have interfaces to database management systems, and the SQL code in the PHP file will instruct the web server to send the entry data to a database management system, which in turn, stores the data in a database.

```
<html>
  <head>
    <title>register.php – may include SQL code </title>
  </head>

  <body>
    <?php
          $sql ="INSERT INTO RegistrationList VALUES(´$fname’, ´$email’, ´$cell’)”;

    ?>
  </body>
</html>
```

Java

Java is an object-oriented programming language maintained by Oracle Corporation. Java is often used in web development to write server-side scripts. Java is not considered a *scripting* language, however. Java is a *general-purpose* language, meaning that it can be used for many types of application development. The Java language is NOT the same as the JavaScript language. *JavaScript* was developed by Netscape, and it was intended to be used only for writing code embedded in web pages that could be interpreted by web browsers.

Web development frameworks

Microsoft's ASP has now evolved into ***ASP.NET,*** which is more than just a language; it is an entire **software framework**. **Ruby** (short for Ruby-on-Rails) is a *web application framework-and-scripting language* distributed under the MIT license. **ColdFusion** is a web application platform-and-scripting language developed by Adobe that is designed to make it easier to connect HTML pages to a database.

Other web development tools

To facilitate web site development, most popular web browsers have built-in tools that enable developers to see the front-end rendering of a web page in a browser window alongside the back-end code that generates the web page. Other popular web development tools are JavaScript libraries, which are collections of pre-written JavaScript code (e.g., jQuery), and package managers, which are used to automate site-building processes such as coding, debugging and testing (e.g., Gulp).

Website developer skill sets

Professional website developers must be familiar with several tools and technologies for web development. Because there are so many different tools, technologies, and skill sets that may be required, web developers may focus on one particular aspect of web development. Some may become specialized on either front-end development or back-end development. Front-end developers focus more on the aesthetic aspects of web pages, that require creative skills, and they are likely to use HTML, CSS, and JavaScript. Back-end developers focus more on the functionality of the web pages, that require technical skills, and they are likely to use server-side scripting languages (e.g., ASP and PHP), software frameworks (e.g., ASP.NET, Ruby and ColdFusion), standard query language (SQL), code libraries and package managers.

CHAPTER V-12

WEB SERVICES, CLOUD SERVICES AND VIRTUAL MACHINES

WEB SERVICES

Web services are software modules (i.e., mini-programs) that perform a specific task and are made available to other programs who need to include that task (along with other tasks). To imagine how web services work, consider a restaurant's website. Often there is a link to get directions to the restaurant. When clicked, a Google map appears displaying the location of the restaurant and providing you with directions from your current location to that restaurant. In this scenario, Google had played the role of the **web service provider**, and the restaurant was the **web service requestor** who obtained access to Google's map service through a **service broker**.

As another example, you may be a website developer creating an e-commerce site for a client. To build an e-commerce site, you need various *functionalities* such as shopping cart, a product catalog, payment services such as credit card verification service, and delivery service options. All these components are published as web services by their providers, and the website developer can request these services via a service broker.

These scenarios demonstrate the essence of web services. The IBM Services Architecture Team (2000) defines web services as "self-contained, modular applications that can be described, published, located, and invoked [by other applications] over a network, generally the World Wide Web." The general idea behind the term **service** is that software modules of code should be viewed as services that can be shared between applications.

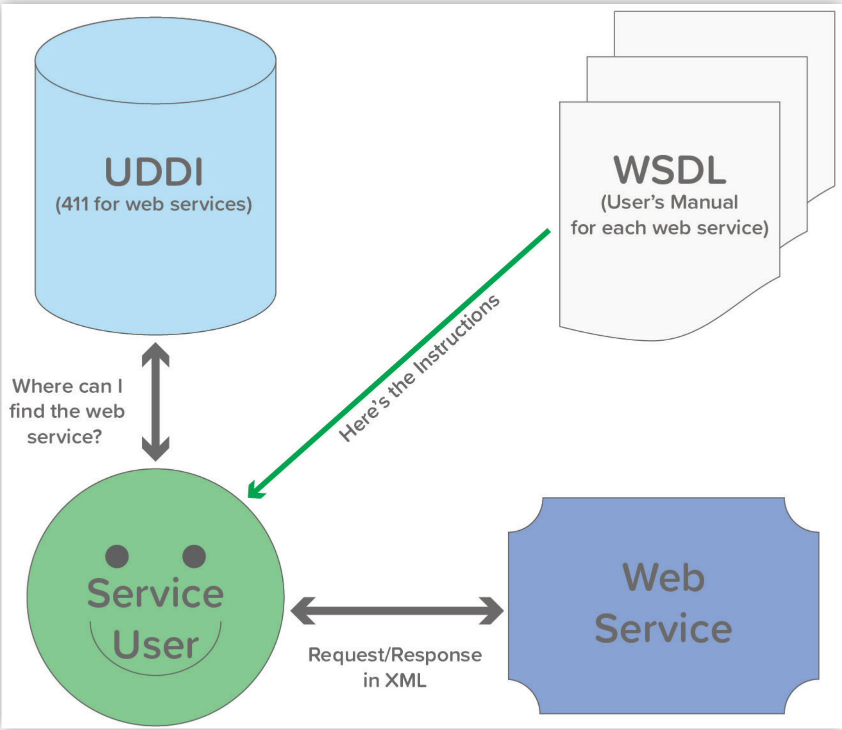
Web services are a logical evolution from object-oriented systems to service-oriented system. In an **object-oriented** system, the components are *objects* – that is, modules of code – that encapsulate *behaviors* (perform specific functions) that exchange messages with other objects. In a **service-oriented** system all the components of the system are *services* – similar to objects, they are modules of code that encapsulate behaviors (specific functionalities) but they are more loosely coupled (more autonomous) so that they can *bind* to just about any application, at run-time, and provide flawless inter-operability within that application regardless of what programming language or data format is used by that application.

There are three players in web services architecture service providers, brokers, and requesters. Service providers *publish* web services to a service broker. Service requesters *find* required service using a service broker.

Standards, Protocols and Mechanisms

To make collections of web services available to a wide range of service requesters, many standards, rules, and mechanisms need to be developed. To embark on this ambitious effort, the **WWW consortium** developed a **Web Service Description Language (WSDL)** to describe the web service, its instructions for use, rules, and protocols for communication. In addition, they created a universal directory of web services called the **Universal Description, Discovery and Integration**

(UDDI) directory. The UDDI is a universal list of web services that also specifies what and how each of these web services should be requested. When a web service is published, the provider will also publish its **API (application programming interface)** – which are the instructions that must be followed and the protocols that must be used to invoke the service, along with some additional documentation about the security mechanisms that are enforced. When the requestor application invokes the web service, the web service binds to the application at run-time, providing just-in-time integration of applications.



When an application has a need for a particular service, its first step is to go to the UDDI and find out if a service is available. Then it would initiate communication with that web service provider using whatever protocol is specified, which may be ***SOAP (Simple Object Access Protocol)*** – an XML-based *message transfer* protocol, or ***REST (Representational State Transfer)*** – an *architectural style* protocol. The service provider would first validate the request and then process the request using a messaging methodology and the appropriate protocols. The web service requester would also be provided with the instructions and technical specifications required to use that web service.

Benefits of Web Service Architecture

- Promotes interoperability between applications by providing more flexible mechanisms for exchanging services
- Enables interoperability of legacy applications
- Enables just-in-time integration
- Reduces complexity by encapsulation (In other words, web services can be treated as "black boxes" – it is not necessary for the web service user to have deep knowledge of the technical workings of a web service)

Web services and its related technologies are the basis of the next generation's e-business architectures. Its success thus far can be attributed in large part to the development and conformance to universal standards. One area of concern that remains, however, is the issue of security. The issue of who has the responsibility for implementing security controls and mechanisms for web services remains a concern for web service participants.

CLOUD COMPUTING

Cloud computing is the delivery of computing services – servers, storage, databases, networking, software, analytics, and more – the internet. Companies offering these computing services are called **cloud providers** and typically charge for cloud computing services based on usage.

The term cloud computing was popularized by Amazon when they released their Elastic Computer Cloud service in 2006. Prior to 2006, images of clouds were often used in schematic drawings of wide area networks to represent the part of the network infrastructure that belonged to telecommunications companies and therefore, its internal workings were immaterial to end-users.

To understand cloud computing, imagine that it is April of 2010 and you are getting ready to prepare your 2009 tax return required by the IRS. You have heard about a tax preparation software application called TurboTax® 2009, and you decide to use it. So, you go to an office supply store and purchase a (license to use a) copy of the program on a CD. You install the program on your computer, use it to prepare your tax return, print it, and mail it to the IRS. (Hopefully, you're getting a refund!).

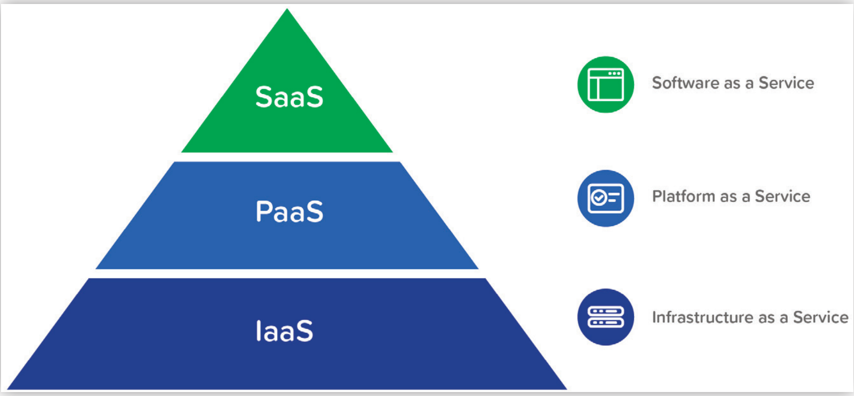
Now imagine that it is April of 2011 and you are getting ready to prepare your 2010 tax return. You decide to use TurboTax® 2010. But this time, you don't go to a store and buy a CD. Instead, you go to the TurboTax website, create an account, and use the online version of the software program to prepare your tax return. Because you are using the cloud version, you don't need to install anything on your computer, you don't need to save any files on your computer, and you don't need to print anything or mail anything for that matter. The software program is running "in the cloud" (that is, on a remote server). This means that your tax return file will be saved in the cloud (that is, on a remote drop box or a similar type of file repository); your tax return will be filed with the IRS *electronically* on your behalf by Intuit; and your refund will be credited or your tax payment will be debited automatically. All this is possible because the IRS system, TurboTax, and your bank's accounting system are able to coordinate the entire process by exchanging messages with each other using web services.

Major cloud service providers like **Amazon Web Services** (a subsidiary of Amazon.com), Microsoft (the ***Azure*** platform), and ***Google App Engine*** host thousands of virtual clusters of computers in huge server farms throughout the world. They provide on-demand hardware and software hosting services to individuals, companies, and governments on a paid subscription basis. The three main categories of cloud hosting services offered by cloud providers are infrastructure-as-a-service, platform-as-a-service, and software-as-a-service.

Infrastructure-as-a-service (IaaS) is the most basic category of cloud computing services. In the IaaS model, the cloud service provider delivers infrastructure components that would otherwise exist in an on-premises data center. These components could consist of servers, storage, and networking as well as the virtualization layer, which the IaaS provider hosts in its own data center. Cloud service providers may also complement their IaaS products with services such as monitoring, security, load balancing, and storage resiliency.

Platform as a service (PaaS) refers to cloud computing services that supply an on-demand environment for developing, testing, delivering, and managing software applications. PaaS vendors offer cloud infrastructure and services that users can access to perform various functions. PaaS products are commonly used in software development. In comparison to an IaaS provider, PaaS providers add more of the application stack, such as operating systems and middleware, to the underlying infrastructure.

Software as a service (SaaS) is a method for delivering software applications over the internet, on demand and typically on a subscription basis. SaaS vendors currently offer a wide array of business technologies, such as productivity suites, customer relationship management (CRM) software and human resources management (HRM) software, all of which the SaaS vendor hosts and provides over the internet.



Some Benefits for Subscribers of Cloud Computing

- Easy to add more computing power when needed
- Facilitates disaster recovery (provides automatic backup of systems and data)
- Eliminates the need for large capital investment in technology
- Lowers risk by transferring computer management to experts
- Easily scalable

Because of the above benefits of cloud services and costs that are commensurate to usage, the use of cloud computing services has increased substantially over the decade. The concern of security as data and proprietary information are hosted in remote locations is gradually being eliminated because of the emergence and implementation of well-defined security protocols and standards. Non-profit organizations such as the ***Cloud Security Alliance (CSA)*** are working to help cloud service providers develop industry-supported standards and practices that establish the trust that is needed for businesses and governments to increase their uses of cloud-hosting services.

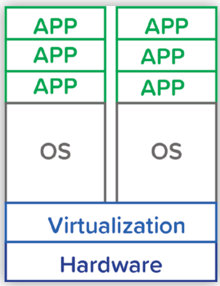
Such security concerns have resulted in "private clouds" coming into existence. Though not explicitly named "public clouds," the discussion up till now assumed that the term cloud meant "public cloud." While public clouds such as Apple iCloud, Google Drive and Dropbox for consumers and AWS, Microsoft's Azure and numerous others for business customers use the public internet, private clouds use their private networks.

Private clouds need not be hosted by the organization itself. It doesn't need to own or manage the hardware and software. Companies exist that host private clouds. And interestingly, public cloud providers can also be private cloud providers.

You guessed it right; one single organization might use both public and private cloud(s), leading to the notion of hybrid and mulitclouds!

VIRTUALIZATION

Virtualization in computing refers to the creation of a virtual resource such as a server, desktop, operating system, file, storage or network. To create a virtual resource, software is used to simulate hardware functionality. The most common type of virtualization is **hardware (aka platform) virtualization**. With hardware virtualization there is one *physical* computer that operates as if it were several computers. Each of these simulated computers is called a virtual machine. The physical computer is running its native operating system, but also it is running a hypervisor program that allows several virtual computers to co-exist – each running its own instance of an operating system (and applications) inside its own tightly-isolated software container.



As a simple example, with virtualization software installed (such as **VMware**), a desktop computer can be configured to run say three VMs. Each VM could be running a different operating system – say, Windows, IOS, and Ubuntu. When the computer is booted, a menu prompts a user to choose which platform to launch. This configuration enables a desktop user to install and run Windows-based, IOS or Linux applications on a single machine. It should be noted, however, that with this configuration only one platform may be launched at a time.

The primary reason for virtualization is cost savings on hardware. Before virtualization was possible, businesses had to buy racks and racks of computers to run their enterprise applications. Most of these computers' resources were under-utilized. CPUs would sit idle with no instructions to execute much of the time. RAM usage seldom reached maximum capacity. In short, the result was huge inefficiencies and wasted resources. With virtualization, several virtual machines can share hardware and other resources. VMs can take turns executing instructions on a single CPU, and RAM can be dynamically partitioned so that each VM is using only the amount of RAM that it needs to run the current application. In short, virtualization is the single most effective way to reduce IT expenses while boosting efficiency and agility for all size businesses.

In hardware virtualization, the **host** machine is the actual machine on which the virtualization takes place, and the **guest** machine is the virtual machine. The software that creates a virtual machine on the host hardware is called a **hypervisor** or **Virtual Machine Manager**.

The type of virtualization previously described is referred to as hardware or platform virtualization. Virtualization can be applied to other resources such as storage virtualization, network virtualization, and desktop virtualization. With **storage virtualization**, multiple physical storage devices are grouped together, which then appear as a single storage device. In **network virtualization**, multiple sub-networks can be created on the same physical network. Using **desktop virtualization**, the user's desktop is stored on a remote server, allowing the user to access his desktop (the graphical user interface) from any device or location.

Other Benefits of Virtualization:

Partitioning

- Ability to run multiple operating systems on one physical machine
- Divides system resources between virtual machines

Isolation

- Provides fault and security isolation at the hardware level
- Preserves performance with advanced resource controls

Encapsulation

- Saves the entire state of a virtual machine to files

- Ability to move and copy virtual machines as easily as moving and copying files

Hardware independence

- Ability to provision or migrate any virtual machine to any physical server
- Eliminates server sprawl and complexity

The major provider of virtualization software (e.g., hypervisors) is VMware. Other providers include Microsoft, Citrix, Oracle, and RedHat. Virtualization is used extensively by cloud service providers. The cost savings that can be achieved using virtualization will continue to motivate IT organizations to increase virtualization usage.

CHAPTER V-13

COMPUTER NETWORKS

A computer network is a group of computers and other hardware devices that are linked together through communication channels to facilitate communication and resource-sharing among users. Besides computers, other hardware devices included in a network may include cell phones, tablets, printers, routers, switches, and hubs. Communication channels may be guided (i.e., wired) or unguided (i.e., wireless).

There are several ways to categorize computer networks. Networks may be categorized by size (PAN, LAN, WAN, SAN), by architecture (client-server, peer-to-peer), by topology (bus, star, ring), by data transmission method (packet switched, circuit switched), or by protocol (Ethernet, TCP/IP). Each of these categorizations is described briefly below.

Size

There are four categories of computer networks by **size**.

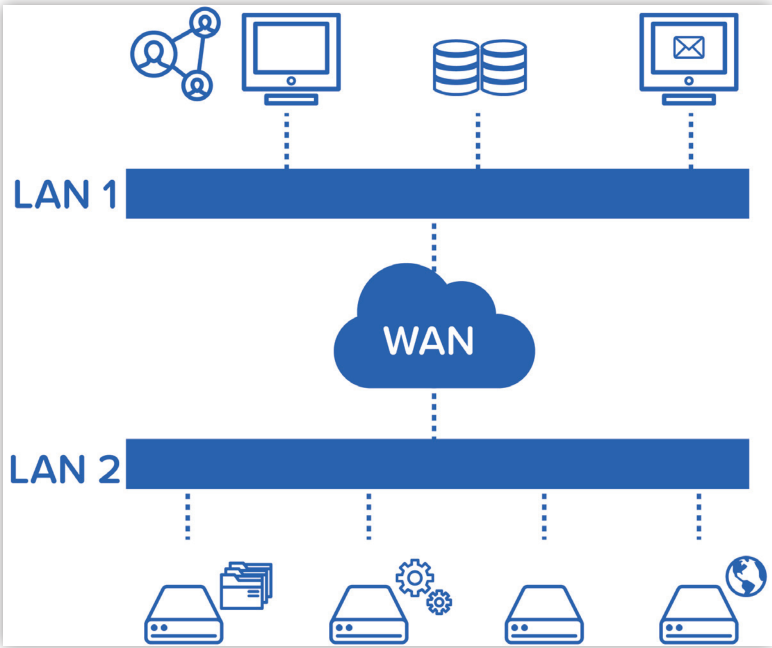
A **PAN (Personal Area Network)** interconnects devices owned by a single individual, such as a desktop or laptop computer, a tablet, cell phone, and printer.

A **LAN (Local Area Network)** interconnects devices within close proximity to each other such as within a functional area of a business, or within an office building or campus. In an office environment, LANs may be used so that employees can share files, printers, and other resources.

A **WAN (Wide Area Network)** interconnects devices (and LANs) that are not necessarily in close proximity. Telecommunications companies provide access to transmission media that enable devices to communicate across long distances. The internet is the largest WAN, connecting all computers together around the world.

The **SAN (Systems Area Network)** is a recent addition to this classification scheme. SANs are networks that provide high-speed connection in server-to-server applications (cluster environments), server farms, storage area networks, and processor-to-processor applications.

Typically, WANs are used to interconnect LANs.



Architecture

A network architecture describes the physical and logical arrangement of the hardware and software. There are two categories of computer networks ***by architecture***.

Client/server network architecture is a computing model in which the server hosts, delivers, and manages most of the resources and services to be consumed by the client. This type of architecture has one or more client computers connected to a central server over a local area network or internet connection. Desktop computers and other single-user devices are the clients. Larger, more powerful computers function as the servers, providing services to clients. Examples include web servers, file servers, mail servers, and application servers. Server devices often feature higher-powered central processors, more memory, and larger disk drives than clients. Client/server networking grew in popularity in the 1980s when desktop computer systems were widely adopted in business environments and end-users needed to use their desktop computers to access large files and resources that had to be hosted on more powerful computers such as mainframes. The internet is the world's largest client-server network.

The second group is **peer to peer networks (P2P)**. As the name implies, P2P networks have no central server. Each computer on the network provides open access to all other peers on the system. There's no central storage repository for files. All peers have access to all devices on the system, such as printers or fax machines. Peer-to-peer networks are appropriate only for very small businesses or for home use where there is no need to restrict access to any files or other resources.

Topology

Local area networks may be categorized by **topology**. A network *topology* is the arrangement of a network, including its nodes and connecting lines. Examples of LAN topologies include ring, bus, mesh, and star.

Data Transmission Method

Wide area networks may be categorized by **data transmission method**. There are two main data transmission methods for WANs.

A **Packet-switched network** takes a stream of data and breaks it into chunks called packets. A header is added to each packet that contains the address of its destination node (such as an IP address).

When the packets are transmitted, they hop from router to router until they reach their destination. Packets in a sequence may end up taking different paths to their destination because their next hop is determined dynamically by the routers depending upon traffic congestion and other factors. When all the packets within a sequence arrive at the destination node, they are arranged into a sequence to reconstruct the original message. The internet is the world's largest packet-switched network.

A **circuit switched network** sets up a dedicated point-to-point channel between the sending node and the destination node before transmission begins. The channel is reserved for the entire duration of the transmission. The original telephone system used the circuit-switched method. Nowadays, all types of data (voice, text, images, and video) may be transmitted via packet-switched networks.

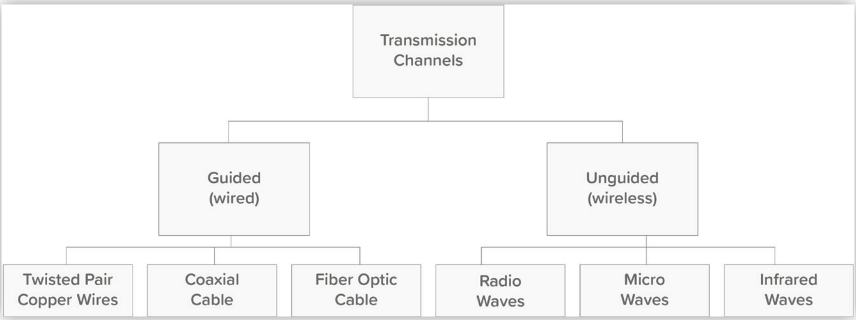
Protocol

Networks can also be categorized by the **protocols** that are used to enable communication. A network protocol defines rules and conventions for communication between network devices. Network protocols include mechanisms for devices to identify and make connections with each other, as well as formatting rules that specify how data is packaged into messages sent and received. Some protocols also support message acknowledgment and data compression designed for reliable and high-performance network communication.

Computer networks can implement many different protocols and many different protocol **stacks** (collections of protocols). One of the most commonly-used protocol stacks used by LANs is Ethernet. Another popular protocol stack that is used by the Internet is TCP/IP. Protocols will be discussed later in this section.

TRANSMISSION MEDIA

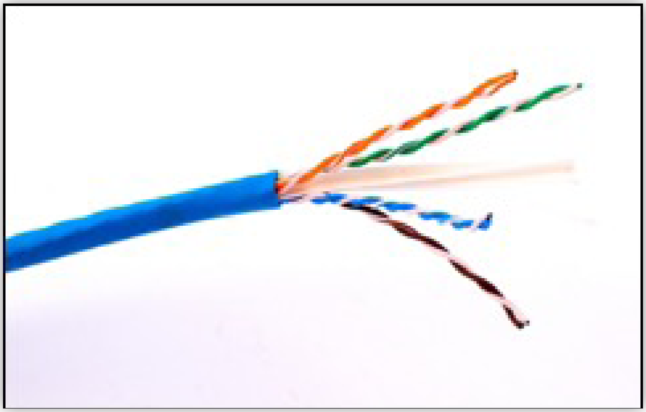
A **transmission medium** is the communication channels used to transmit data between nodes. In computer networks, data (binary digits) are transmitted through a medium in the form of **electromagnetic waves**. Electromagnetic signals can propagate through the air (referred to as unguided or wireless transmission) or through a guided medium (referred to as guided or wired transmission) such as a phone line or cable. The diagram below displays the most commonly-used transmission media for computer networks.



Guided media

Twisted-pair copper wire (aka phone wire) is the most commonly-used medium for telephone communications and local area networks. There are two types of twisted pair wire: unshielded (UTP) and shielded (STP). Of the two, UTP (such as Ethernet 10Base-T or 100Base-T) is by far the most popular medium for LANs because it is relatively inexpensive, lightweight, easily installed. UTP wire is categorized by grade, ranging from CAT1 to CAT6. Category 6 UTP can transmit data at high rates up speed, up to 1 GB per second. Most office buildings have UTP pre-installed.

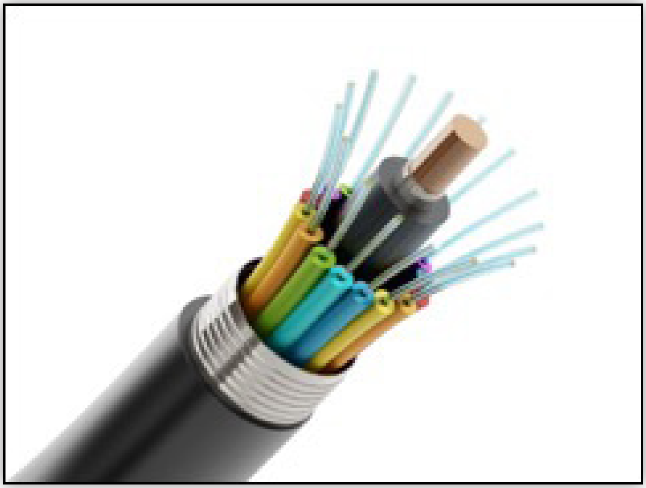
STP has an additional layer of insulation (shielding), which prevents interference better than UTP, but it is more expensive and difficult to install. In addition, the metallic shielding must be grounded at both ends. If it is improperly grounded, the shield acts like an antenna and picks up unwanted signals. Because of its cost and difficulty with termination, STP is rarely used in Ethernet networks. STP is primarily used in Europe.



A ***coaxial cable*** *used to be* the most popular medium for LANs. The original Ethernet standard specified coaxial cable for LANs. Nowadays, coax is used mostly by cable TV network providers.

Coaxial is called by this name because it contains two conductors that are parallel to each other. There are two types of coaxial cables: baseband and broadband**.** Baseband transmits a single signal at a time with very high speed. The major drawback is that it needs amplification after every 1000 feet. Broadband (which is used by cable TV networks) can transmit several signals simultaneously using different frequencies.

Fiber optic cable is made of glass or plastic fibers and uses light beams to propagate data signals through a channel. Fiber optic cable can transmit large amounts of data at very high speeds. Because it does not use an electrical signal, it has a much lower attenuation rate as compared to electrical *cables,* and it is not susceptible to wire-tapping (eavesdropping). It is often used for backbone lines in large telecommunication systems.



As you can see in the comparison table below, UTP is the least expensive type of communication media, but fiber optic provides the fastest data transmission rates.

	UTP	Co-Ax	Fiber Optic
Cost	Low	Medium	High
Installation	Easy	Medium	Difficult
Transmission Speed	10-100 Mbps	10 Mbps	100-1,000 Mbps
Security	Low	Low	High

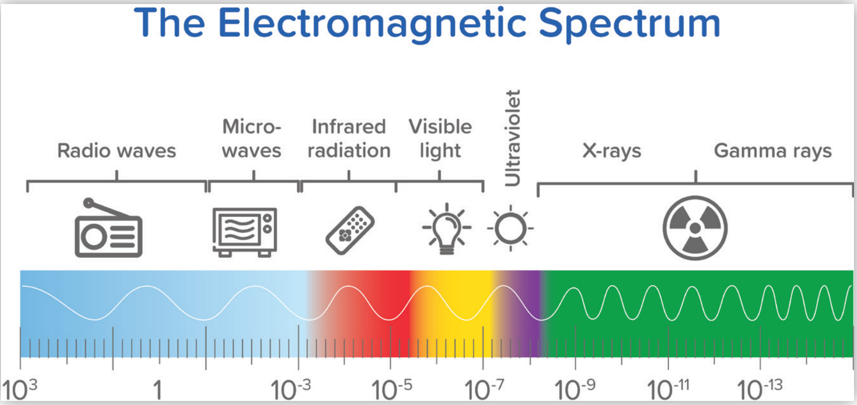
A comparison of three guided media for data transmission

Unguided Media

Unguided media (wireless) media transport data through the air via *electromagnetic* waves, similar to radio and TV broadcast media. Electromagnetic energy is natural energy released into space by stars such as the sun. But electromagnetic energy waves can also be generated using man-made devices for productive purposes such as for transmitting radio, TV and data signals.

Electromagnetic waves can be generated to propagate at different frequencies. The **electromagnetic spectrum** is a scale for categorizing waves into ranges of frequencies. At the low end of the spectrum are the low-frequency waves that are referred to as **radio waves** because these wave frequencies are used to transmit radio and TV signals. The next higher range of frequencies is referred to as **microwaves,** and these wave frequencies are used by microwave ovens to heat food. The next higher range is referred to as **infrared waves**. Infrared waves have very low attenuation rates (they can't travel very far), and therefore, these wave frequencies are used by remote control devices such as garage door openers.

Only waves in these three lowest frequency ranges are used to transmit data. Waves at the higher end of the spectrum are not used to transmit data because their energy is potentially harmful.

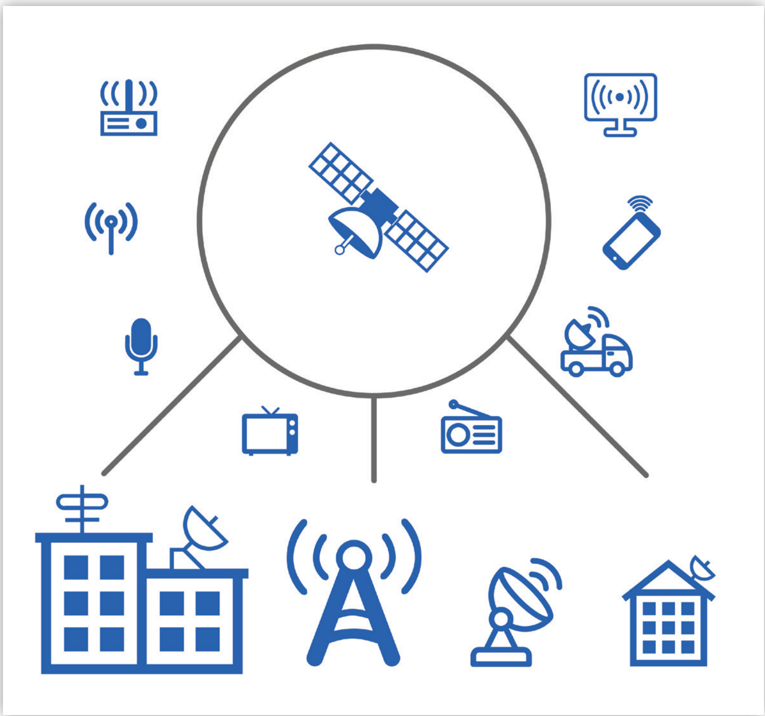


Characteristics and typical uses of each of these wave frequency ranges are described below:

Radio waves have frequencies between 3 KHz and 1 GHz. Radio waves are omnidirectional, which means that when an antenna transmits radio waves, they are propagated in all directions. The omnidirectional characteristics of radio waves make them useful for multicasting in which there is one sender but many receivers.

Microwaves have frequencies between 1 GHz and 300 GHz. Microwaves are unidirectional, which means that the sending and receiving antennas need to be within line of sight. Due to their unidirectional properties, microwaves are very useful when unicast (one-to-one) communication is needed between the sender and the receiver. They are used in cellular phones, satellite networks, and wireless LANs.

Microwaves are generated by satellite dishes. A signal can be sent from dish to dish or, if line-of-sight is not possible because the dishes are too far away from each other, a dish can send a signal to a satellite over the earth, that can regenerate the signal and send it down to the receiving dish. The satellite must be launched into geosynchronous orbit so that it stays in sync with the rotation of the earth. In other words, a satellite launched above New York will stay above New York as the earth rotates.



Infrared waves, with frequencies from 300 GHz to 400 THz, can be used for short-range communication. Infrared waves, having high frequencies, cannot penetrate walls. This advantageous characteristic prevents interference between one system and another, a short-range communication system in one room cannot be affected by another system in the next room.

When considering which type of communication media is best for a particular network or sub-net, the following factors should be taken into consideration: transmission rate, cost, and ease of installation, environmental conditions, and distance.

PROTOCOLS AND REFERENCE MODELS FOR DATA TRANSMISSION

In order for computers to communicate, there need to be predefined rules for how communication will take place. Both the sender and receiver have to understand and follow the agreed-upon rules for communication to occur. In the very early days of computing, many networks were built using various types of hardware and software. When an attempt was made to inter-connect these networks, it became apparent that all had to follow some standard rules of communication (that is, protocols) in order to combine disparate networks. Computer network reference models were developed for this purpose.

A **reference model** is a conceptual framework for understanding the stack of procedures and devices that are needed to build a computer network. A reference model defines design standards that manufacturers can follow when designing networking devices (such as network interface cards, modems, switches, and routers) so that their equipment will inter-operate with other manufacturers' devices on the network. In addition, a reference model defines what protocols should be used to implement various procedures needed for communication such as error checking, encryption, and acknowledging the receipt of a message.

There are two well-recognized reference models: the **ISO reference model** developed in 1984 by the International Organization for Standardization (ISO) and the **TCP/IP reference model** developed by the **ARPA (Advanced Research Project Agency)** within the U.S.

Department of Defense, who developed ARPANET, the predecessor of the internet.

The ISO reference model divided the entire set of communication processes into seven distinct groups of related functions, or layers, and specified a standard to be used at each layer. The lowest layer referred to as the physical layer, specified how devices needed to be physically connected to each other. The highest layer, the presentation layer, specifies how the object of communication (the message) would be presented to the receiver. The five layers in between specified other mechanisms and means for communication such as how synchronization, acknowledgment, and error checking would occur.

ARPA's reference model is referred to by the names of two of its protocols: transmission control protocol (TCP) and internet protocol (IP). TCP/IP is a four-layer model; it combines the three top layers of the ISO model into one layer and the bottom two into one layer. Both reference models specify what protocols can be used to implement each layer of the stack. The table below displays the layers of both reference models and some of the more well-known protocols that are used at each layer.

ISO Model	TCP/IP model	Purpose	Common Protocols
Application	Application	To allow access to network resources	HTTP, FTP, HTTPS, SMTP
Presentation		To translate, encrypt, and compress data	JPEG, MIDI, MPEG
Session		To establish, manage, and terminate sessions	NetBIOS, NFS
Transport	Transport	To provide reliable process-to-process mesage delivery and error recovery	TCP
Network	Network	To move packets from source to destination	IP, IPsec
Data Link	Physical/Link	To organize bits into frames	ARP, FrameRelay
Physical		To transmit bits over a medium	Ethernet, BlueTooth, WiFi

ISO and TCP/IP reference models, layer functions, and common protocols

Some of the most well-known protocols are described below.

Ethernet (Physical/Data Link Layers)

By far, the most common protocol used at the physical layer is Ethernet. The original Ethernet standard was developed in 1983 and had a maximum speed of 10 Mbps over coaxial cable. The Ethernet protocol allows for bus, star, or tree topologies, depending on the type of cables used and other factors. This heavy coaxial cabling was expensive to purchase, install and maintain; and very difficult to retrofit into existing facilities.

The current standards are now built around the use of twisted pair wire. Common twisted pair standards are 10BaseT, 100BaseT and 1000BaseT. The number (10, 100, 1000) indicate the speed of transmission (10/100/1000 megabits per second); the "Base" stands for "baseband" meaning it has full control of the wire on a single frequency, and the "T" stands for "twisted pair" cable. Fiber cable can also be used at this level in 10BaseFL.

Newer standards include the ***Fast Ethernet protocol,*** which supports transmission speeds up to 100 Mbps, and ***Gigabit Ethernet protocol,*** which supports transmission speed of 1 Gbps (1000 Mbps). Both of these protocols can be used with either category 5 twisted pair or fiber optic cable.

Older Network Protocols

Several popular network protocols commonly used in the 90s have now largely fallen into disuse. While you may hear terms from time to time, such as "LocalTalk" (Apple) or "Token Ring" (IBM), you will rarely find these systems still in operation. Although they played an important role in the evolution of networking, their performance and capacity limitations have relegated them to the past, in the wake of the standardization of Ethernet driven by the success of the Internet.

IP (Internet Protocol)

The most common protocol to be used at the network layer is IP (Internet Protocol). The IP protocol uses a device's MAC (Media Access Control) address to route frames (sequences of bits) from one hop to the next. A MAC address, also called a physical address, is embedded (by the device manufacturer) into every network device (such as network interface cards and printers) when it is made. The IP protocol uses a lookup table (called an ARP table) to look up the

MAC address of the destination device. It appends the destination device's MAC address onto each sequence of bits to be transmitted (to create a data frame) and sends that frame on its way.

TCP (Transport Control Protocol)

The most common protocol to be used at the transport layer is TCP (Transmission Control Protocol). The TCP protocol uses a devices IP (Internet Protocol) address to route packets to their final destination device. An IP address is assigned to each device when it connects to a network. Some IP address may be dynamically assigned at login, and some devices (such as a printer) need a more permanent (static) IP that is going to persist as long as that device is in operation. The TCP protocol will also use a lookup table to find the IP address of the destination device. If the destination is not a local device, then the router's IP address is automatically assigned as the destination address. When the router receives packets, it will readdress that packet with an external IP address and send it on its way.

When the data packets are sent over a network, they may or may not take the same route – it doesn't matter. At the receiving end, the data packets are re-assembled into the proper order. After all, packets are received, a message goes back to the originating network. If a packet does not arrive, a message to re-send is sent back to the originating network. These steps are performed by protocols that are associated with higher layers in the stack.

HTTP, FTP, SMTP and DNS (Session/ Presentation/Application Layers)

Several protocols overlap the session, presentation, and application layers of networks. The protocols listed below are a few of the more well-known:

- DNS – Domain Name System – translates network address (such as IP address – 192.168.0.1) into domain names (such as www.school.edu) and vice-versa.

- DHCP – Dynamic Host Configuration Protocol – automatically assigns IP addresses to devices when they connect to a network.
- FTP – File Transfer Protocol – used to transfer files on the internet
- HTTP – HyperText Transfer Protocol – used to request and send resources (e. g., web pages) on a web server
- IMAP – Internet Message Access Protocol – used to send e-mail messages on the internet
- IRC – Internet Relay Chat – used for internet chat and other communications
- POP3 – Post Office Protocol Version 3 – used by e-mail clients to retrieve messages from remote servers to local devices
- SMTP – Simple Mail Transfer Protocol – used to send e-mail messages on the internet

Wireless Network Protocols

Two commonly-used wireless network protocols (that operate at the physical layer) are BlueTooth and WiFi. The table below provides a comparison.

	BlueTooth	WiFi
Frequency	2.4 GHz (Radio waves)	
Range	10 M	100 M
Data Transfer Rate	800 Kbps	11 Mbps
Power Consumption	Low	Medium
Common usage	PANs	LANs

A comparison of BlueTooth and WiFi wireless protocols

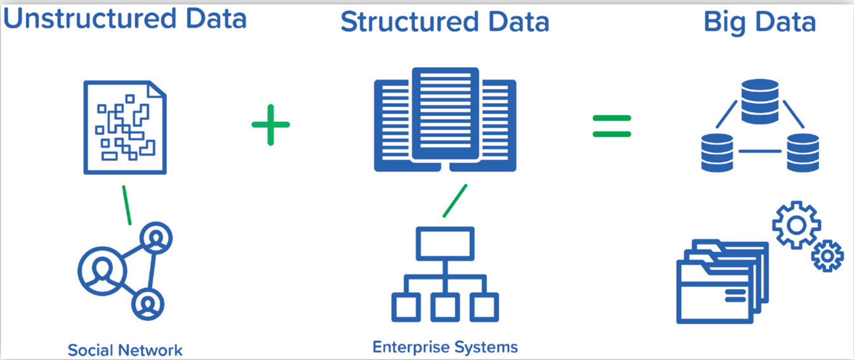
CHAPTER V-14

BIG DATA AND BIG DATA STORAGE TECHNOLOGIES

What is Big Data?

Big data is the term used to describe the vast amount of data that are now being accumulated by businesses and other organizations. The defacto definition of big data is datasets that are too large or complex to be processed by traditional data processing applications. The big data phenomenon began in the 2000s as new technologies emerged that were able to capture, store, and process unprecedented amounts of diverse data.

Big data is diverse because it includes both structured and unstructured data. Prior to the emergence of the big data phenomena, data that was captured and stored by most businesses was usually **structured**, meaning it was alphanumeric data (such as customer names, product names and prices, and transaction dates) that could be neatly arranged into database tables or spreadsheets. Nowadays, businesses are capturing and storing data generated by social media sites such as Facebook, Twitter, and TripAdvisor.com, which consists of flowing text strings (such as blog posts and tweets) and non-textual data such as video and sound clips. This type of data is mostly **unstructured** because much of it cannot be neatly arranged into database tables and spreadsheets.



Consumer-initiated data generated by social media sites has become an important source of marketing intelligence for businesses because it reflects consumer sentiments and preferences that can have a significant impact on revenue growth and other business success factors.

In addition to data generated by social media, another web-based source of big data is generated by a business's own e-commerce site. Businesses are monitoring and analyzing data that tracks how their customers are interacting with their sites. Web logs are used to capture website page views, click-through rates, and traversal patterns that businesses may use to guide web site structure and design decisions.

Another important source of big data for businesses is **machine-generated data**. Machine generated data is created by sensors, RFID tags, cameras, cash registers, and monitoring systems. In fact, the majority of big data that is captured nowadays is machine generated. Machine-generated data may be used by monitoring and control systems that automatically adjust to environmental conditions without human intervention. An example would be a smart thermostat.

One way of describing big data is by using the three V's:

Volume – big data refers to very, very large datasets, that used to be too large to store and process on a single computer.

Velocity – data that may be streamed in, in real time, continuous input as opposed to the old way of batch processing data.

Variety – data that may be unstructured, semi-structured, or unstructured.

The onslaught of big data creates the need for new technologies to capture and store data and make it available for analysis. Some of the most popular big-data storage and retrieval technologies are described below.

Big Data Storage Technologies

Server Farms

A server farm (or server cluster) is a group of interconnected computer servers that handle the storage and processing needs of big data applications. The server farms can be maintained by an enterprise itself or can be hosted in a public cloud such as Amazon Web Services or Microsoft's Azure. Server farms will generally have thousands of servers to handle current operations, backup storage, and load balancing. In addition, server farms will have hundreds of networking devices such as switches and routers, which enable communication between the different parts of the cluster and the users of the cluster. **Google, for example,** has numerous server farms all over the world (the exact number is undisclosed). In 2016, Gartner estimated that Google had approximately 2.5 million servers in their server farms/data centers throughout the world, hosting over 50 billion web pages.

Hadoop and MapReduce

Hadoop and its collection of open source software utilities enable massive-size files and file collections to be stored and processed across multiple nodes (hardware devices such as servers). Hadoop is supported by **the Apache Foundation**, a non-profit organization consisting mainly of a community of volunteers who contribute to its open source software development projects.

Hadoop has two main components: **Hadoop's Distributed File System (HDFS)** and **MapReduce**. HDFS stores extremely large files that won't fit on any one storage device across several storage devices. MapReduce orchestrates whatever processing must be done to these files. The unique aspect of MapReduce is that instead of sending data to applications to be processed, it replicates the application code and sends it to each of the nodes that is hosting the data (the *mapping* process). The application code runs on each node and generates output, and then combines all the individual outputs into one aggregate output (the *reduce* process).

For example, if processing involves calculating a grand total of millions of sales transactions, instead of adding all the transaction amounts together sequentially, the programming code to add transaction amounts is replicated and sent to each node that is hosting some of this transaction data. Each node computes a total for the transactions it is hosting (a subtotal), and then all the subtotals are added together to get a grand total. The nodes conduct their processing in parallel (at the same time), which substantially reduces the processing time for this task.

Hadoop is a platform that is offered as a cloud-based service (PaaS, Platform as a Service) by all the major cloud service providers, of which Amazon Web Services (AWS) is the largest. AWS's service is called Elastic Map Reduce (EMR), and it includes Hadoop, MapReduce, and additional tools for analyzing and reporting big data. Other vendors offering the Hadoop platform as a cloud-based service are IBM, Microsoft, Cloudera, and others. Hadoop can also be hosted locally by organizations using their collections of servers and other storage devices. The majority of Fortune 1000 companies are using the Hadoop platform to host their enterprise applications.

NoSQL Databases

In the Application Software section, the concepts of relational database and structured query language (SQL) were introduced. To briefly review, the relational model used the concept of a table – with rows and columns – as the logical structure of the database. The concept of a table was much easier for programmers and end-users to understand as compared to a hierarchy or a network of linked records. Along with the relational model, a language was developed for interacting with the data, called standard query language (SQL). SQL is a data manipulation language that includes a fairly straight-forward set of commands such as the "CREATE TABLE" command for creating data tables, the "SELECT" command for querying databases, and the "JOIN" command for merging whole tables of data together, which would be necessary if data from multiple tables is needed to produce a report or run a query. Since its inception, the relational model has been used by almost all enterprise database management systems such as Oracle's DB*x*, IBM's DB2, Microsoft's SQL server, and open source MySQL.

The relational model was designed to efficiently access and store structured data. With the emergence of big data; however, new models were needed that could efficiently store and access/retrieve both structured and non-structured data. The new models that emerged to handle big data are referred to as NoSQL databases. The "No" refers to "not only" as in "not only SQL databases." Examples of NoSQL databases are MongoDB, Cassandra, HBase, and Neo4j.

NoSQL is not one model; there are several types of models implemented by NoSQL databases. Here the four most common types of models used by NoSQL databases:

Key-value model stores each attribute with a unique key-value, effectively storing each attribute as a separate record. For example, instead of storing a customer's name, address, and phone number as a single record, it would create a separate record for each attribute: name, address, and phone number. The advantage of this model is that attributes can easily be added as a business decides to capture new attributes (such as email address, FaceBook page, LinkedIn page, Twitter handle) about its customers.

Document model is best for storing large collections of documents. A "document" may be a something like a web page or a Word file, but it may also be a collection of key-value pairs.

Graph model stores large collections of interconnected data records such as the FaceBook friends' network. This model is also used by Amazon's recommendation engine.

Wide column model is an application for storing data across tables that have very large numbers of columns such as Google's search engine index which may need thousands of columns to store the thousands of URLs associated with a particular search term.

In addition to their features described above, most NoSQL databases offer other advantages. For example, most NoSQL databases can be stored across multiple storage devices by using Hadoop. The process of extending the *physical* storage area of the database across multiple file servers is called **sharding**. Most NoSQL databases support auto-sharding or automatically extending horizontally across multiple storage devices when additional storage capacity is needed. Most NoSQL databases also support automatic database replication to maintain availability in the event of outages or planned maintenance events. Some also support interactive caching, which can greatly reduce latency or delays in data access times.

CHAPTER V-15

DATA VISUALIZATION

The phrase "A picture is worth a thousand words" refers to the notion that it is often easier to show something in a picture than to describe it with words. This is the core concept of data visualization. **Data visualization** is about creating charts, graphs, and other types of visual objects that display numeric data in a way that communicates useful information. Graphical depictions of data can reveal new trends, patterns, and relationships in data that may have been previously undetected. Discovering new information that leads to new insights or ideas for actions that add value to a business organization is the ultimate goal of data visualization.

Depicting data visually can be a very effective way of conveying concepts and revealing patterns in data sets because of the way the human brain works. Less encoding effort is required for humans to process images than numeric or tabular data.

The use of visualization to display tabular data is not a recent phenomenon in the business world. When spreadsheet program Lotus 1-2-3 became a popular desktop computer software application in the early 1980s, it included plotting tools that were frequently used to create basic line, bar, and pie charts. Lotus 1-2-3 is now discontinued, and Microsoft Excel is the predominate spreadsheet program used today.

Current versions of Excel can be used to create a wide variety of charts, including scatter plots, 3D charts, surface, radar, and treemaps.

Developed in the late 1980s, **business intelligence (BI)** is a collection of strategies and technologies used by businesses to analyze business information. Forrester Research defined BI as "a set of methodologies, processes, architectures, and technologies that transform raw data into meaningful and useful information used to enable more effective strategic, tactical and operational insights and decision-making."

Core components of BI technologies include OLAP (online analytical processing) and business reporting tools that can handle very large data sets. **OLAP tools** are interactive tools to analyze multidimensional data about business operations – similar to Excel pivot tables. **Data mining tools** use machine learning and statistics to discover patterns, trends, and relationships in large numeric data sets. **Text mining** and **natural language processing methods** unearth patterns in text data, while **speech and audio recognition** and **image and facial recognition systems** work on audio and visual data, respectively. **Business reporting tools** are applications that can create summarized reports of business operations and include data visualization.

As previously discussed, the emergence of big data technologies like server farms, cloud computing, and virtualized computing, increased the amount of data that organizations can capture and store by orders of magnitude. These large data sets include not only (traditionally) structured data such as data in database tables and spreadsheets, but also may include massive amounts of unstructured data (such as email messages, blog posts, tweets, images, videos, etc.). With the growth of these types of data sets, the ability to derive useful information from that data is considered to be essential for businesses to achieve competitive advantage. Data visualization tools offer a viable means of making sense out of big data that is or has been converted into numeric data. Data visualization has to have the following characteristics:

Comprehensive – it should present the big picture of the data set in one look. The reader should be able to get the story, which the visualization is trying to communicate, within a few seconds of looking at it. For example, if you want to tell the story that the sales of hamburger is going down in three regions and going up in in the other two while the sales of the veggie burger are going up in all but one region, the reader should be able to get this message with a glance on the visualization.

Interactive – the user should be able to scroll over different parts of the visualization and explore the data further. As in the previous example, if the user wants to explore when and why sales are going down in a particular region, he or she should be able to click on that region and explore the data further across different dimensions (by month, by time, by customer subset, etc.).

Aesthetic – it should be pleasing to the eye. Proper combination and placement of charts will make for an easier read. The combination of colors used in the visualization should also be appealing.

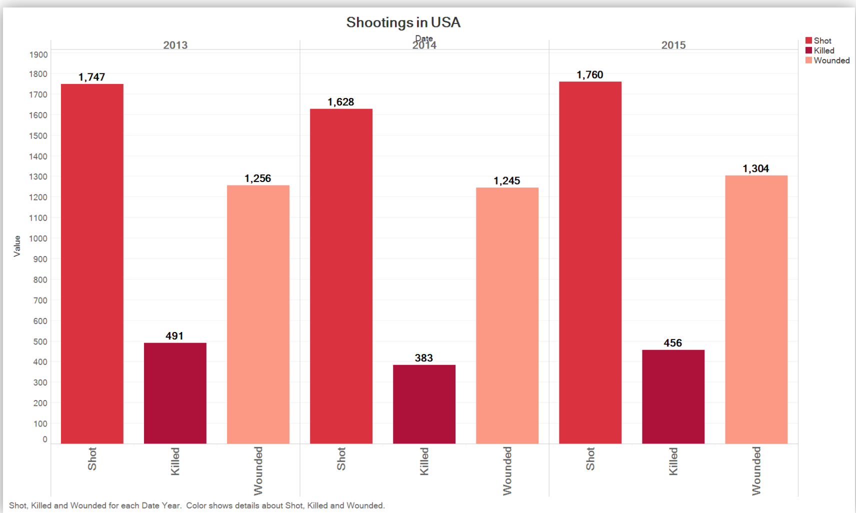
Stimulating – the visualization should stimulate the readers' imagination by providing an experience that keeps him/her engaged from beginning to end. Instead of overwhelming the reader with visuals, it should present a big picture first and entice the reader to explore the data further to gain more understanding.

Speedy – because the underlying data sets are large and diverse, the visualization should be generated quickly and updated regularly. Even when interacting with the visualization and exploring parts of it, the user should be able to get the relevant data quickly. To facilitate this, the software that visualizes these data sets is built on top of a distributed computational infrastructure like Hadoop. Despite all the advances in computational infrastructure, speed still remains a challenge for most big data visualizations.

Empowering -- visualization should make it easy for the user to perform complex tasks. In other words, it should empower the user to solve big problems. This might include budgeting, hiring, and growth considerations. For example, software packages like Tableau, Excel, and Qlikview provide suggestions for the type of chart that can be used given a combination of variables in the data set. They also provide suggestions on the right combination of colors and shades for the visualization. This relieves the user of the burden of choosing the right type of chart and lets her focus on the bigger problem she is trying to solve, rather than being burdened by the technical complexity of the software.

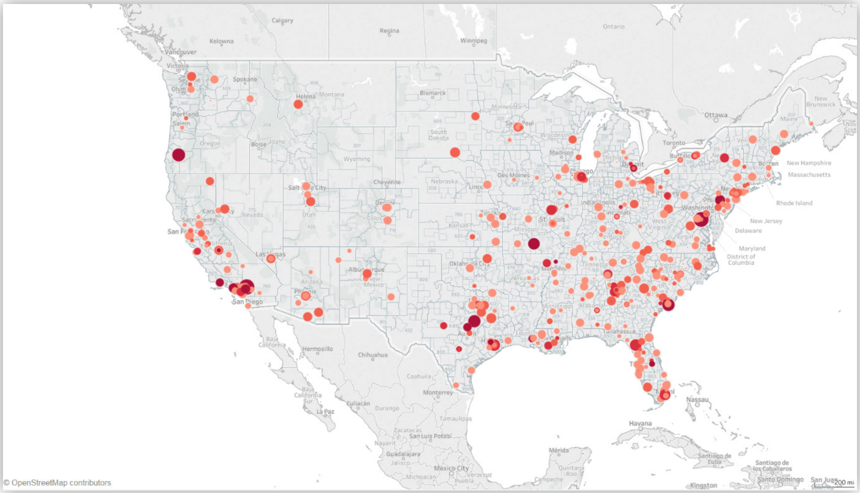
Accessible (Code-Free) – the creator of the visualization should be able to make it without additional programming. Several of the recent application software packages (horizontal market applications) on the market (like Tableau) have a simple drag-and-drop feature that empowers the creator with even minimum technical knowledge of the software to easily experiment with various combinations of variables and come up with the best visualization.

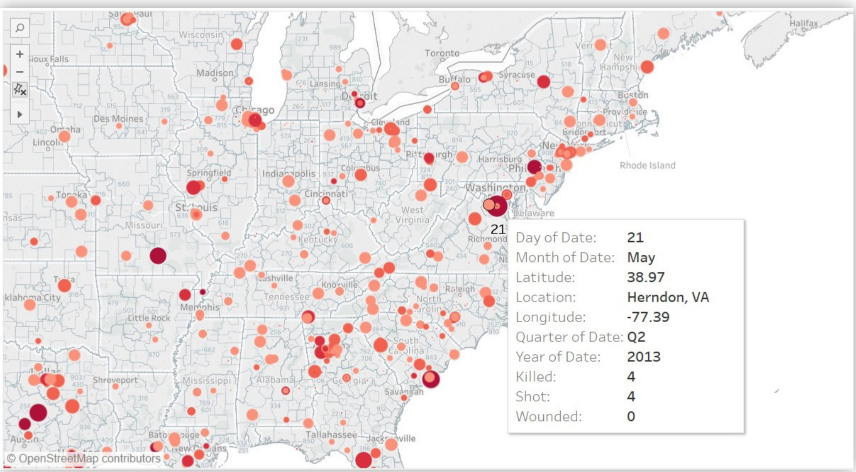
The example below shows a sample data visualization created in Tableau. This is a small data set of the number of people shot, killed, and wounded in various shooting incidents across the US for the three-year period (2013-2015). The underlying high-level programming language that generates these visualizations is C++.



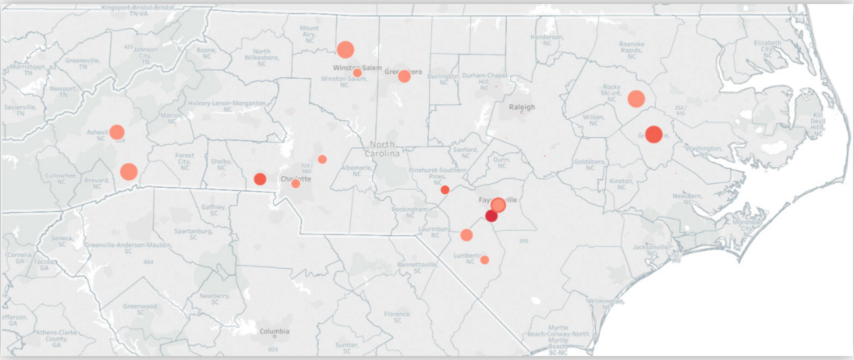
This is a simple bar graph that gives a comprehensive picture of shooting incidents in the country. However, upon looking at the visualization, the reader may have additional questions: Which state had more shootings? What was the pattern of these incidents across different quarters/months of the year? Are there certain geographic areas where these shootings occur? To answer these questions, more data and visualizations are needed.

The visualization below maps this data on top of a map of the United States. The size of the circle represents the number of people killed in shooting-related incidents in that area (the larger the circle, the larger the number) while the color represents the number of people shot (the darker the color, the larger the number). In addition, when you move the cursor of the mouse over a certain circle, it additional details (date of the incident, the latitude, and longitude).

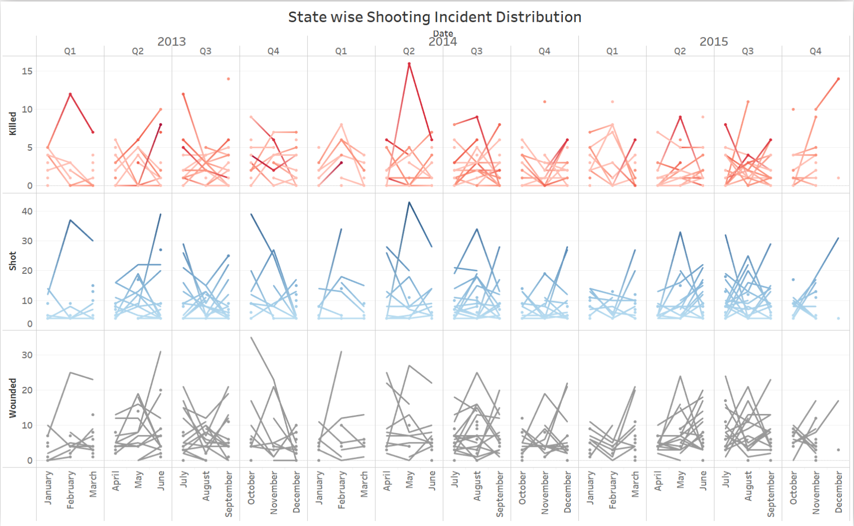




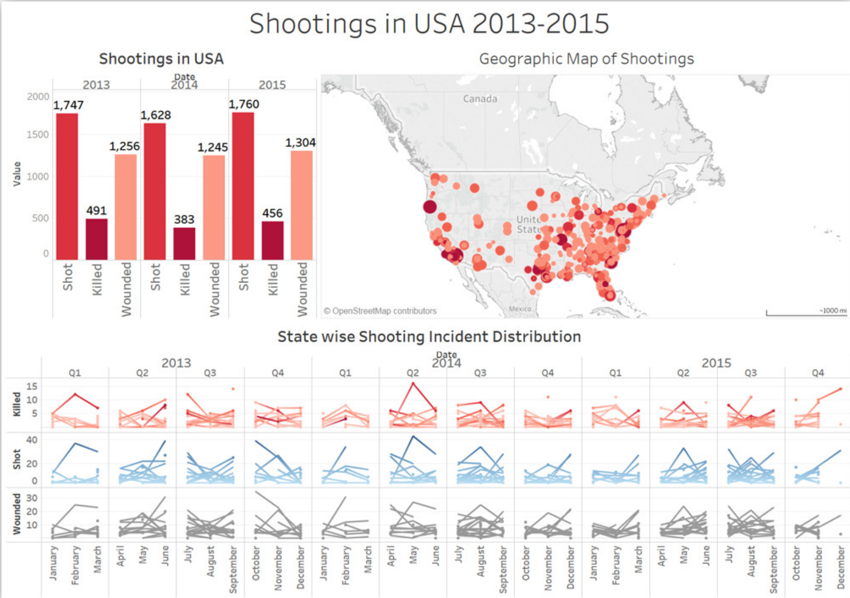
The visualization also has the option of filtering the data by state. Below is the visualization for the state of North Carolina.



A similar visualization using line charts for each of the different states is shown below. Each line represents a state. Just as with the previous chart, moving the cursor on a line gives you many more details about the underlying data points.



When we combine all these three visualizations together, we can create a **dashboard,** as shown below, that provides all the information collectively.



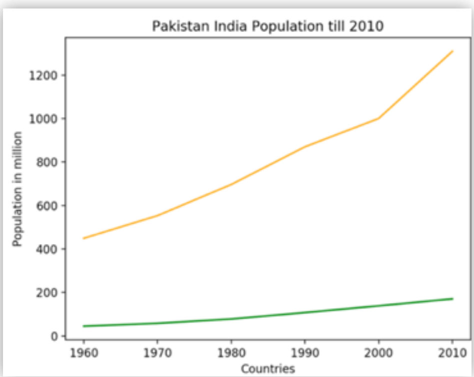
Some businesses have digital dashboards that display a collection of metrics that measure current performance – referred to as **key performance indicators (KPIs).** An example of a KPI could be a digital display for the number of days elapsed with no accidents or injuries. Sales revenue, market share, and customer turnover are other examples of KPIs. Shown below is a hypothetical dashboard that illustrates the kind of images a data visualization package can generate rather easily just by dragging and dropping variables.

Two other BI/data visualization software applications that are similar to Tableau and that are also very popular with business organizations worldwide are Olikview (developed by QlikTech in 1993) and FusionCharts (developed by InfoSoft Global, Ltd.).

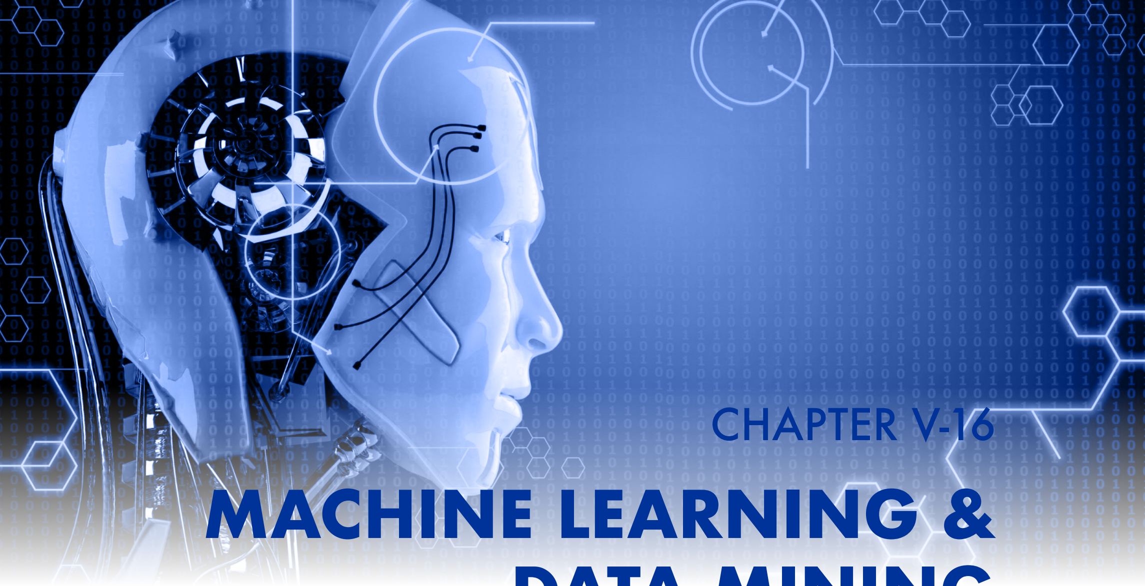
Another collection of tools that are commonly used for creating data visualizations are **scripting languages** like Python, R, and JavaScript. Scripting languages are used to write software programs that are not compiled (translated into machine language) until run-time. This contrasts with a (pre-) compiled language (such as Java or C++) that is used to write programs that are compiled in advance (usually, when the program is completed by a developer). Scripting languages are used when the program's data or final configuration settings can't be known until the last minute (when the program is about to run). These three particular scripting languages are often used to create data visualizations because they all have extensive ***libraries*** (collections of pre-written programming modules that can be embedded in or linked to by another program) for creating elaborate data visualization objects (charts, tables, etc.). Some of the most popular data visualization add-in libraries include D3.js written in JavaScript, mathplotlib written in Python, and ggPlot written in R. Nowadays, there are libraries written on top of other libraries to make it even easier for a developer to write programming code that renders customized visualizations. For example, SeaBorn and pandas are *wrappers* over mathplotlib (Python) – meaning that they are collections of scripts that call upon methods in the original mathplotlib library, making it even easier for developers to write programs that render data visualizations from large or small data sets.

The exhibit below displays a short program written in Python that renders the population chart shown next. Notice that on line 1 of the program, the matplotlib library is imported into the programming code.

```
import matplotlib.pyplot as plt

year = [1960, 1970, 1980, 1990, 2000, 2010]
pop_pakistan = [44.91, 58.09, 78.07, 107.7, 138.5, 170.6]
pop_india = [449.48, 553.57, 696.783, 870.133, 1000.4, 1309.1]

plt.plot(year, pop_pakistan, color='g')
plt.plot(year, pop_india, color='orange')

plt.xlabel('Countries')
plt.ylabel('Population in million')
plt.title('Pakistan India Population till 2010')

plt.show()
```



Currently, data visualization tools are a very popular big data technology. The usage and development of data visualization tools is expected to increase as more organizations look for new ways to get more valuable information from their vast collections of big data.



CHAPTER V-16

MACHINE LEARNING & DATA MINING

Machine learning is the science of developing algorithms that can discover patterns in (usually very large) data sets and expressing those patterns as mathematical models and rule sets. Machine learning is a type of artificial intelligence. **Artificial intelligence** is the theory and development of computer systems able to perform tasks that normally require human intelligence such as visual perception, speech recognition, learning, reasoning, and decision-making.

The term “machine” originally referred to a computer, but nowadays, certain types of machine learning algorithms are used to train robots, automated vehicles and some types of equipment used in industrial automation.

Generally speaking, ML algorithms learn in two stages. First, by discovering patterns in a data set. The pattern may be expressed as a function that maps a set of input variables to an output variable. The function is then used as a model to make predictions about future outcomes. When used this way, the function will have a certain degree of accuracy, which is expressed as the percentage of times the prediction turned out to be correct. As data continues to be generated and added to the data set over time, the ML algorithm can be run iteratively, using the additional historical data to adjust and refine the prediction model. It may add new variables to the model, eliminate variables, and adjust the weights assigned to the variables. The second phase of learning is said to have occurred when the algorithm improves the accuracy of the prediction model.

Due in part to the emergence of big data and big data technologies, machine learning algorithms have become a popular method of conducting **data mining**. Data mining is the process of discovering previously unknown, interesting patterns in large data sets. Data mining techniques are an essential component of **knowledge discovery systems** for business. As the core technology of these knowledge discovery systems, machine learning algorithms are enabling businesses to derive new knowledge that can spark ideas for strategic initiatives that achieve competitive advantages. In fact, the knowledge derived from these systems can be useful in many different ways, from identifying new customers and emerging customer preferences to developing targeted promotional programs, to predicting customer spending and reducing customer churn.

MACHINE LEARNING ALGORITHMS FOR DATA MINING

Many of the machine learning algorithms use a **brute force** approach. A brute force approach means an exhaustive search approach. In other words, a machine learning algorithm may test every possible combination of variables in a data set to see if any relationship exists between any two or more variables. For some types of analyses and for some types of data sets, the brute force approach may be cost and time prohibitive. The addition of each new variable into a data set may increase the algorithm's workload exponentially.

In the past, when computers were more expensive and less powerful, the brute force approach was often cost and time prohibitive for large data sets. In recent years, however, new technologies have emerged that enable computers to process huge amounts of data at very high processing speeds, helping this become a viable strategy for conducting machine learning on large data sets that may include both structured and unstructured data.

When used in data mining, machine learning algorithms use many of the same statistical techniques that statisticians use. Regression, classification, and clustering analysis are utilized to discover patterns amongst variables in a data set. Although the techniques are the same, the ways they are applied are different. The following scenarios will help explain these differences.

A researcher wishes to conduct an empirical analysis of a recently-emerged theory. Using the theory for guidance, he will collect sample data for input variables X1, X2, X3, and output variable Y, and then run a regression analysis. Because he is testing a theory, he collects data about only these four variables. Because he is using sample data, he has a relatively small number of cases, and therefore, there are several assumptions that must be met regarding the data. For regression analysis, some of those include linear relationship, multivariate normality, no multicollinearity, no auto-correction, and homoscedasticity. He runs regression analysis and generates a mathematical model that expresses the relationship between the input variables and the output variable (or he discovers that there is no significant linear relationship between the input and output variables). He uses that model to make **inferences** about a population and to draw conclusions about whether the theory is supported or not.

A banker wishes to develop a prediction model that can be used to predict which loan applicants are most likely to pay back their debt in full on a timely basis. He will use data mining to see if he can discover any new and interesting relationships between an applicant's key attributes and their loan repayment behavior. He collects data about one thousand past loan customers, and that include dozens of attributes about each borrower (X1, X2, X3…Xn) and their loan repayment outcome (Y = Paid in full or Defaulted). He is not testing the theory, and his sample size is not small. He runs (logit) regression analysis and generates a mathematical model that expresses a relationship between the *most significant combination of input variables* and the outcome variable. He uses that model to make predictions about which applicants are most likely to repay their loan, and that information becomes the basis for making future lending decisions. As new loan cases are created over time, the regression analysis will be repeated periodically using larger data sets. When new cases added to the data set, the prediction model generated by the algorithm increases in accuracy. (In other words, the machine *learns* over time.)

So, the key differences between data mining and statistical testing are (1) the goals of the analysis, (2) the number and type of assumptions (restrictions) that are required of the data set, (3) the size of the data set, and most importantly, (4) the number of variables that are considered for input into the final model.

The algorithms used in data mining can be broadly divided into two types: supervised and unsupervised. **Supervised learning** is used when a data set has one or more input variables and a single output variable, and the goal is to discover the significant input variables that should be included in the prediction model. **Unsupervised learning** is used when the data set has no output variables, and the goal is to discover any pattern, trend, or relationship between variables. The third type of machine learning referred to as **reinforcement learning** or **deep learning,** is used to train robots, self-driving cars, and other autonomous machines and is not discussed here. Several of the data mining algorithms are described below.

Regression Analysis

Regression analysis has already been discussed in the data analytics LC. To recap, regression is a supervised learning technique that creates a mathematical model that describes the relationship between input variables and the output variable. The regression model reveals what input variables have the greatest impact on the outcome variable, and it can be used to predict future outcomes. Regression analysis may be used by businesses to predict numeric outcomes such as forecasts of revenue growth. Regression analysis has many applications in finance, marketing, and many other functional areas of a business.

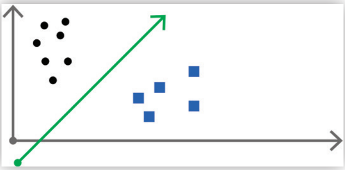
When used in big data (versus a traditional statistical setting), regression will have the following differences 1) there will be no notion of statistical testing (because with very large numbers all variables could be significant, 2) the number of independent variables will be very large, 3) all the variable selection processes (e.g., forward selection, backward elimination) will be automated and, 4) also automated would be the search for nonlinear influence of the input variables.

Classification Analysis

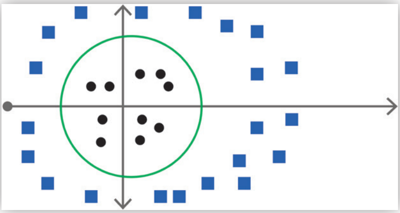
Classification analysis is another supervised learning technique that is similar to a regression, but it is used to predict outcome variables that are categorical (non-numeric). Similar to regression analysis, classification analysis may be used to reveal which input variables have the greatest impact on the outcome variable, and it can be used to predict future outcomes. For example, classification analysis may be used by insurance companies to predict whether an auto insurance applicant should be considered a high or low-risk driver. It may be used by banks to predict whether a loan applicant will default or pay back a loan. This information can be used as a basis for lending decisions. Classification analysis is also used by **spam blockers** to formulate rules as to what email messages should be considered spam. When those rules are applied, spam messages will be sent to a junk folder instead of landing in your email's inbox.

Anomaly detection is another type of classification analysis. Credit card companies use anomaly detection to flag suspicious credit card transactions. You may have received a call or a text from your credit card company when you attempted to use your credit card while on vacation. The transaction may have been classified as an anomaly, and therefore potentially fraudulent activity (since you were out of town) and the credit card company may be calling to verify your identity as the cardholder.

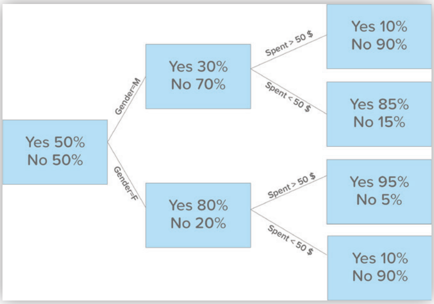
The figure below shows a straight line (linear function) that separates the 2 classes of an output variable.



A linear function may be used to discriminate between 2 classes of the outcome variable may not be accurate enough for the purposes of the application. In the example below, the discriminating function is a circle.



One of the most common approaches used by data miners to conduct classification analysis is **decision tree modeling**. The decision tree approach splits the data set into subsets based upon its most distinguishing attribute to create the first *fork* in the decision tree. It then splits the subsets into sub-subsets based upon the next most distinguishing attribute to create the second fork in the tree. It continues this splitting process until there are no more distinguishing attributes between the subsets. This process is called recursive partitioning. The distinguishing attributes in the decision tree are used to create a prediction model. The exhibit below shows an example of a decision tree for predicting whether a customer will visit a restaurant again the following week based on their gender and how much he/she spend last week.



From this exhibit, you can see that on an average, 50% of customers who visit during a week come back the following week (and 50% don't). However, if you split your customers by gender, only 30% of males revisit while the number is 80% for females. This tells us that females are more likely to visit the restaurant than males. If you further split your data set by how much they spent last week, you can observe that 85% of males who spend less than $50 are likely to visit the restaurant the following week while only 10% of those who spend more than $50 are likely to revisit. On the other hand, females who spend more than $50 are almost sure to revisit (95% chance) while those who spend less than $50 are unlikely to revisit (only 10% chance). Overall, this tree tells us that the groups of customers who are most likely to revisit your restaurant are males who spend less than $50 per week and females who spend more than $50 per week. This decision tree can be used to target these customers with specialized offers so that they will become more loyal visitors to the restaurant.

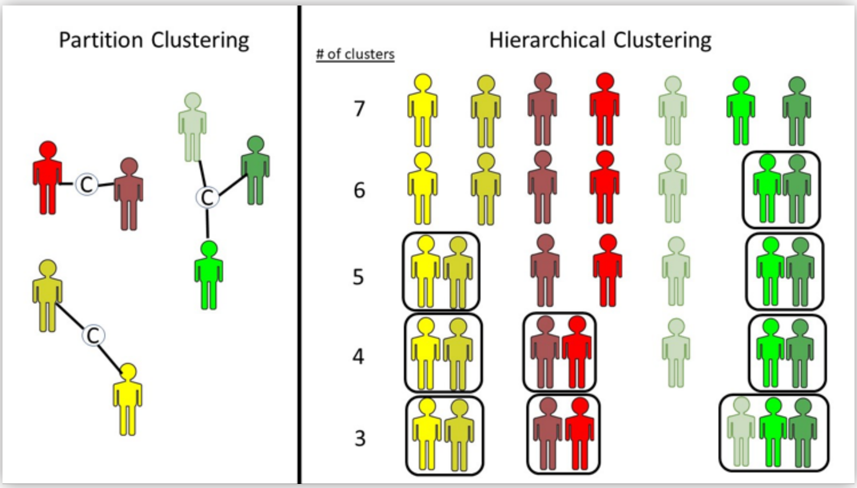
Cluster Analysis

Cluster analysis is an unsupervised learning technique that is used to discover whether cases in a data set fall into distinct groupings. Clustering may be used by any customer-focused business such as a retail store or a bank to conduct **segmentation analysis** of its customer population. Customers may be clustered by demographic, psychographic, behavioral, or geographic characteristics. For example, a grocery store chain may discover that its shoppers fall into four distinct groups: health nuts, junk food junkies, value conscience, and gourmet lovers. The grocery store can then design promotional campaigns to target each distinct customer segment.

Cluster analysis groups a set of objects in such a way that objects in the same group (called a cluster) are more similar (in some sense or another) to each other than to those in other groups (clusters). There are two general approaches to conducting cluster analysis: the **partitioning method** and the **hierarchical method**.

The most common partitioning method is called **K-means**. The K-means method attempts to find the center point (centroid) of each of the K clusters on an N-dimensional chart (where K=the number of clusters you've selected and N= number of variables in the data set). Each data point is then assigned to the cluster with the closest centroid.

Using the hierarchical method, we start with every data point as its own cluster of one (so, initially, the number of clusters is equal to the number of data points). The distance between every two data points is calculated, and the two points that are closest together are combined into one cluster. The coordinates of that datapoint become the averages of the two points individual coordinates. This process is repeated until we only have K clusters. The exhibit below displays a visual comparison of the two approaches.



Association Rule Mining

Association rule mining is an unsupervised learning technique that is used to find what combinations of variables occur together frequently. Association rule mining may be used by a grocery store chain to identify which products are purchased frequently together, a process called **market basket analysis**.

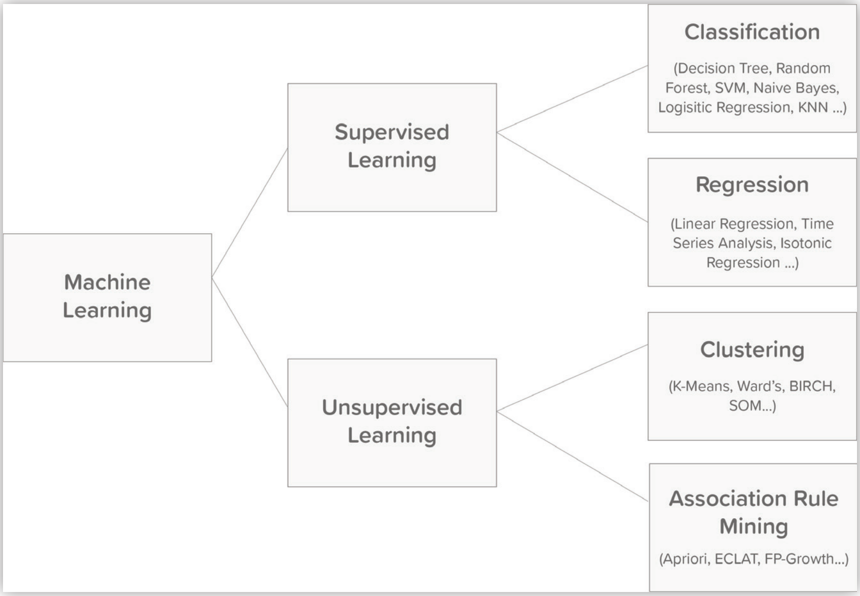
Using ARA to conduct market basket analysis generates a set of rules.

{cereal, milk} ---> {school supplies}

This rule indicates that customers who buy cereal and milk are likely to also purchase school supplies. Some combinations of items may be somewhat obvious such as peanut butter and jelly, or cereal and milk, or chips and dip. But association rule mining algorithms may also discover previously undetected purchase item combinations such as beer and diapers. This information can be used to design promotional programs and make floor-plan layout decisions (e.g., put beer and baby products in adjacent isles).

Association rule mining algorithms are also used by **recommendation engines** to recommend products to their customers. For example, on Netflix, you may have seen recommendations based on your past movie choices.

The exhibit below displays a categorization of machine learning algorithms. Within each type of learning, there are hundreds of different algorithms.



The potential benefits of data mining are not limited to business organizations. All types of organizations – including for-profit, non-profit, and government agencies – are using data mining to inform their decision making and strategic planning. For example, data mining is used extensively in the healthcare industry to identify and eliminate inefficiencies in health care services and to discover best practices that improve quality of care and reduce costs. In the education industry, researchers in schools, government agencies, and other educational-focused organizations are using data mining to predict students' learning behaviors based upon their personal characteristics and to discover which pedagogical approaches most effectively engage learners and to identify factors that improve learning outcomes. Data mining will continue to be an effective tool for all sorts of decision makers.

CHAPTER V-17

NATURAL LANGUAGE PROCESSING

Natural language processing (NLP) is a branch of data science that consists of systematic processes for analyzing, understanding and deriving information from data that is either written or spoken by humans. Two major sub-categories of NLP are text mining and speech recognition.

TEXT MINING

Text mining is a type of natural language processing that is used to extract useful information from textual data. Basic text mining tasks may include categorization, clustering and summarization of documents such as journal and newspaper articles.

In recent years, due to the emergence of big data and big data technologies, text mining has become a popular method for businesses to derive new and useful information from their vast collections of big data, much of which is text-based. One type of text mining application in particular that is growing in usage is sentiment analysis. **Sentiment analysis** involves extracting and analyzing comments, reviews and other expressions of sentiment posted on social media sites such as

Facebook and Twitter, and consumer review sites such as TripAdvisor.com. Thoughts expressed by contributors on these sites with regard to a business's products, services or anything else that relates to that business have become an important source of business intelligence that can be used to guide marketing efforts and strategic planning.

To automate the process of extracting sentiment data posted on web sites, several tools are available. One type of tool which is widely used for this purpose is a web scraper. **Web scrapers** are software programs that can extract all of the text on a web page and store it in a structured format such as an Excel file. DataMiner for example, is a web scraper tool available on a subscription basis. There are also several open source scraping tools available including Lynx. Amazon AWS and Google provide cloud-hosted scraper tools.

Web scrapers are a type of **API (application programming interface)** that can extract data posted on any website. Some social media sites such as Twitter provide their own API that software developers can use to extract collections of tweets based on selected parameters (such as by account holder or by hashtag). Scrapy is an open source framework written in Python that can be used by developers to create their own APIs to extract data from any site. Node.js is a library (collections of program modules) written in JavaScript that can be used to develop web scraping APIs.

Once the data is extracted from web sites, it can be mined (that is, analyzed and summarized) to discover re-current themes and to assess customer sentiment. Machine learning algorithms may also be used to develop classification models to automate the process of categorizing social media postings by their polarity, that is, as either positive or negative.

The following is a demonstration of how sentiment analysis may be conducted. Let's say that a hotel owner has scraped hundreds of customer reviews of his hotel from the company's web site and intends to develop a classification model that will automate the process of classifying reviews as either positive or negative sentiment. Here are the steps involved:

1. Create a training set. Several hundreds or thousands of reviews may be extracted from a web site. A sample of the reviews are selected to create the training set that will be used by a machine learning algorithm to develop the classification model. The reviews in the training set must be manually labeled, or assigned a polarity rating of either positive or negative.

Polarity	Review
P	The rooms were awesome!
P	The rooms were very clean.
P	The beds were comfortable.
N	The carpet was dirty in my room!
N	The housekeeping staff were slow.
N	The check-in staff were so slow.

2. Extract a word list. The initial word list (called the **bag of words**) is a complete list of all words used in the reviews in the training set. To create the initial word list, each review is parsed into separate words, the words are arranged into a list, and duplicates are removed.
3. Data clean-up. Neutral words that do not convey sentiment or meaning (and, the, is, as) are removed in a process called stop word removal. Root words are extracted from key words and combined (playing, played and plays would be combined into play) in a process called normalization. Then, colloquial slang words, acronyms, and some other words may be reworded or clarified in a process called standardization.
4. Feature extraction. Features are words that are significantly correlated with one polarity (say, positive) and are not correlated with the other polarity (say, negative). Multiple correlation analyses are conducted to identify the words that correlate to one polarity (and not the other). This feature list is used to create a word vector for each review. See the sample of word vectors for each review below. As you can see, the feature words

are the column headings for the word vectors. The numeric amounts in the vectors include the number of times each feature word occurred in a review.

	Word Vectors for each Review											
Polarity	Review	awesome	bed	carpet	check-in	clean	comfortable	dirty	room	slow	staff	house-keeping
P	The rooms were awesome!	1	0	0	0	0	0	0	1	0	0	0
P	The rooms were very clean.	0	0	0	0	1	0	0	1	0	0	0
P	The beds were comfortable.	0	1	0	0	0	1	0	0	0	0	0
N	The carpet was dirty in my room!	0	0	1	0	0	0	1	1	0	0	0
N	The housekeeping staff were slow.	0	0	0	0	0	0	0	0	1	1	1
N	The check-in staff were so slow.	0	0	0	1	0	0	0	0	1	1	0

5. Develop feature word frequency table. The next step is to summarize the frequency of each feature word's occurrence by polarity.

Total Word Frequencies by Polarity												
Reviews	Total	awesome	bed	carpet	check-in	clean	comfortable	dirty	room	slow	staff	House-keeping
Positive Count	215	22	18	7	2	42	27	0	25	2	10	14
Negative Count	215	3	25	11	35	13	9	36	30	31	20	37
Total	430	24	43	18	37	55	36	36	55	33	30	51

6. Visual inspection. Upon looking over the word frequencies, this hotel owner may discover that the words *slow, check-in process, housekeeping staff,* and *dirty* occur often in the negative reviews and the words *comfortable, bed, spacious*, and *beautiful* occur often in positive reviews. This may indicate some things that the hotel manager was not aware of. For example, it may be that customers are primarily displeased with the housekeeping staff and the slow check-in process.
7. Generate classification model for predicting the polarity of future reviews. The classification model may use an approach based upon various statistical techniques such as Naïve Bayes, k-NN (nearest-neighbor) classification or logit regression. All three approaches may be used to see which yields a prediction model with the greatest accuracy. In this example, Naïve Bayes will be used. Naïve Bayes is a statistical process based on conditional probability. It calculates the probability that a review is positive given its word vector, and it calculates the probability that the review is negative given its word vector. It compares

the two probabilities and classifies the review based on whichever probability is higher.

Let's take the following review: "The bed was comfortable, but the carpet was really dirty!" The table below shows how this review would be classified using Naïve Bayes. In this example, the feature words in its word vector are *bed, comfortable, carpet,* and *dirty*. The probability that this review is positive, given that it includes these four words is written as Prob (POS | bed, comfortable, carpet, dirty).

Prob (POS | bed, comfortable, carpet, dirty) is calculated as the probability that a review includes the word "bed" given that it's a positive review (Prob (bed | POS)) times Prob (comfortable | POS) times Prob (carpet | POS) times Prob (dirty | POS) times the percentage of reviews that are positive in the data set (215 / 430 or 50%).

The Prob (bed | POS) is simply the frequency of the word "bed" in a positive review. From the word frequency counts displayed 3, we can see that the word occurred 18 times in 215 positive reviews so the prob (bed | POS) is 18 / 215.

Using the same formula, the probability that the review is negative is calculated. The two probabilities are compared, and whichever probability is higher is how the review is classified. In this data set, the word "dirty" occurred 0 times in a positive review, and therefore Prob (bed | POS) = 0. Therefore, the probability that this entire review is positive is also 0. Therefore, the review is classified as negative.

How will this review be labeled?

The <u>bed</u> was <u>comfortable</u> but the <u>carpet</u> was really <u>dirty</u>!

Prob (POS | bed, comfortable, carpet, dirty)

= Prob (bed | POS)	*	Prob (comfortable | POS)	*	Prob (carpet | POS)	*	Prob (dirty | POS)	*	(% of POS ratings)
= (18 / 215)	*	(27 / 215)	*	(7 / 215)	*	(0 / 215)	*	(50%)
= .0837	*	.1256	*	.0326	*	0	*	.5
= 0								

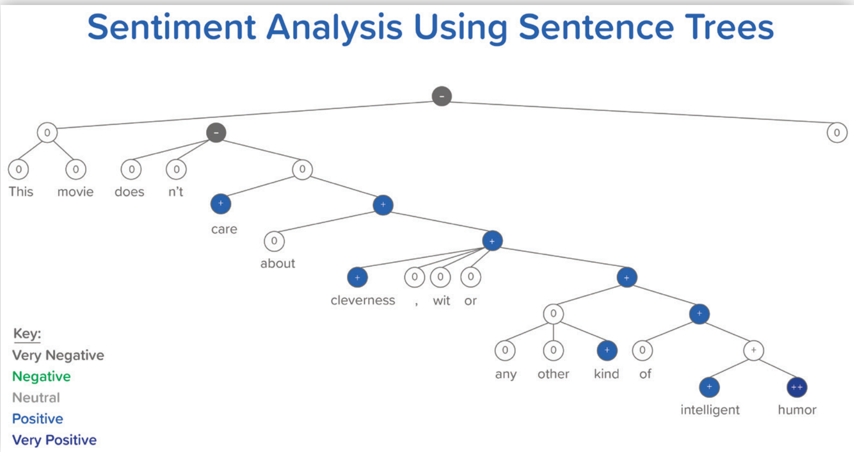
Prob (NEG | bed, comfortable, carpet, dirty)

= Prob (bed | NEG)	*	Prob (comfortable | NEG)	*	Prob (carpet | NEG)	*	Prob (dirty | NEG)	*	(% of NEG ratings)
= (25 / 215)	*	(9 / 215)	*	(11 / 215)	*	(36 / 215)	*	(50%)
= .1163	*	.0419	*	.0512	*	.1674	*	.5
= .0000209								

.0000209 > 0 ----> RATING IS NEGATIVE

This approach to sentiment analysis is referred to as a "bag of words" technique because it treats each review as a set of words without consideration of the order or combinations of the words. In practice, this approach is too simplistic and not likely to yield a highly accurate prediction model.

More sophisticated methods of conducting sentiment analysis exist that can more accurately interpret the semantic meaning of entire phrases, although they are considerably more complex. For example, researchers at Stanford University developed a sentiment analysis model for predicting the polarity of movie reviews that uses parts-of-speech (noun, verb, etc.) tagging and rules of grammar to map each review to a sentence tree. The polarity is evaluated at the *phrase* level, rated and ratings are combined to arrive at an overall polarity score.



As you can see, even though there are positive-sounding words in the sentence, the overall polarity is negative because the meaning of the *full sentence* is evaluated, and the word "doesn't" ahead of the positive words changes its sentiment to negative.

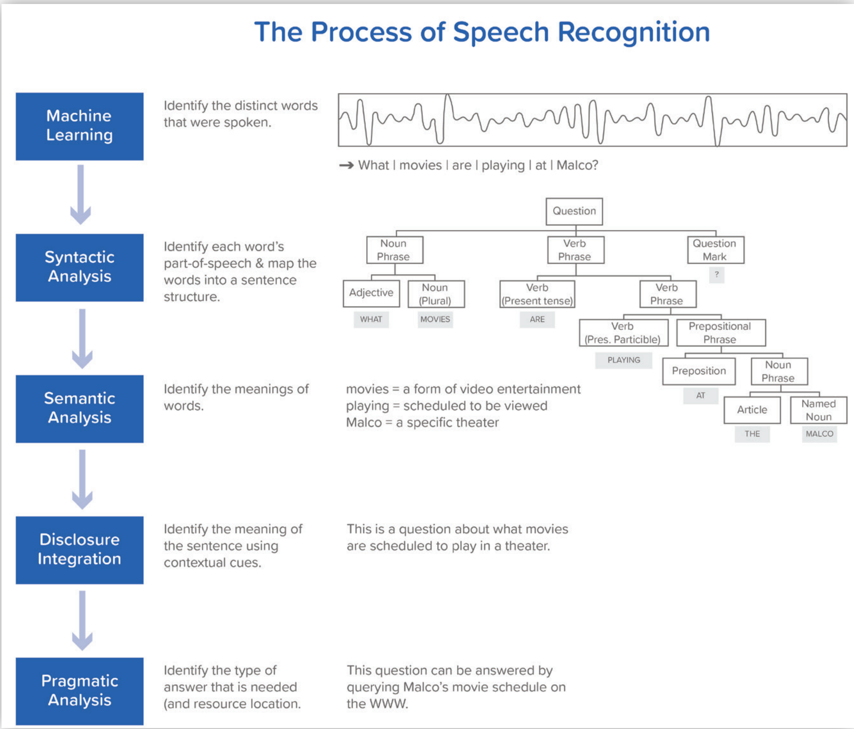
To develop this classification model, a training data set of 215,154 phrases that were typically found in movie reviews was used. To improve the model's prediction accuracy, they derived 11,855 unique sentences from the phrases and diagrammed their sentence trees manually, instead of relying on an algorithm to do it. This additional work was necessary because despite the massive size of the training data set, the number of ways a movie review may be expressed is infinite. Therefore, the prediction model that was generated did not have a particularly high rate of accuracy when applied to a testing data set. Reviews that contain colloquialism and/or sarcastic statements are particular difficult for the model to interpret correctly. Examples include expressions such as "I was on the edge of my seat" to describe an exciting movie and "they couldn't pay me to see this movie again" to describe a bad movie.

The authors claim that this model predicts with an 85% accuracy rate, exceeding the 80% accuracy rate achieved by most sentiment analysis models that evaluate on a word-by-word level.

SPEECH RECOGNITION

Speech recognition systems are a collection of methodologies and technologies that enable the recognition and translation of spoken language into text by computers. Examples of speech recognition applications that have become ubiquitous over the past few years include voice response systems (such as OnStar), call routing systems, question-and-answer systems (such as Microsoft's Cortana and Amazon's Alexa), and speech-to-text processing systems.

From a practical standpoint, the general steps involved in speech recognition are presented below. Other than the first step, the process is essentially the same as that used for text mining. The example assumes that a user has asked Alexa, "What movies are playing at the Malco?"



Step 1: Lexical Analysis

The speech recognition process begins when words are spoken such as "Alexa, what movies are playing at the Malco?" A sound wave is generated and received by the input device (microphone). The input device measures the frequency of the sound wave approximately 100 times a second. The pauses in the sound wave are used to chunk the sound bit measurements into words. The sound wave of each word is compared to all the sound waves in the *sound wave code book* to determine what words were spoken.

Step 2: Syntactic Analysis

Each word is "tagged" by its part-of-speech (noun, verb, adjective, preposition, etc.) The words are grouped into sentences and each sentence is mapped to a sentence diagram (aka tree structure).

Step 3: Semantic Analysis

The meaning of each word is identified. For example, the word "movies" is defined as a form of video entertainment.

Step 4: Disclosure Integration

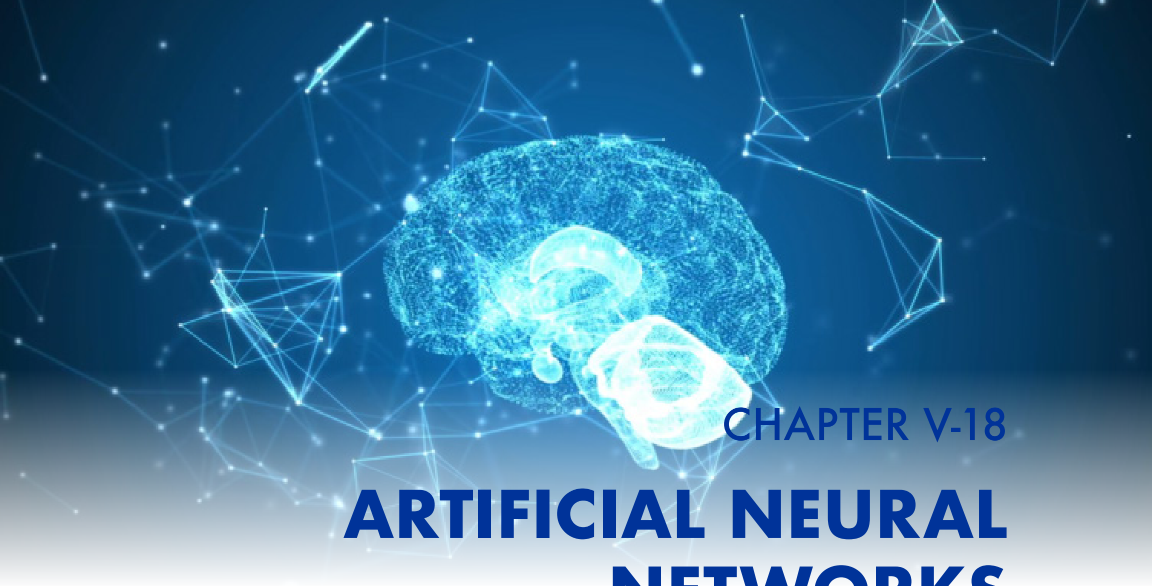
The meaning of the question is identified using contextual cues and/or a pre-existing question-base. In this example, it is determined that this is a question about what movies are scheduled to play in a specific theater.

Step 5: Pragmatic Analysis

The question is expressed as a query in structured query language and can then be processed by a database management system, to retrieve the correct response.

Summary

Because it must deal with grammatical and semantic structure to interpret semantic meaning of spoken phrases, sentences and questions; natural language processing is very complex. Huge training sets are often needed to develop classification models because of the infinite number of ways that people may express their thoughts and questions. NLP systems that are becoming widely popular with consumers (such as Siri on iPhones and Alexa from Amazon) would not be feasible without the growing availability and declining cost of big data technologies. As the techniques and technologies used in NLP systems continue to improve, we can expect that more applications will be developed that employ these capabilities.



CHAPTER V-18

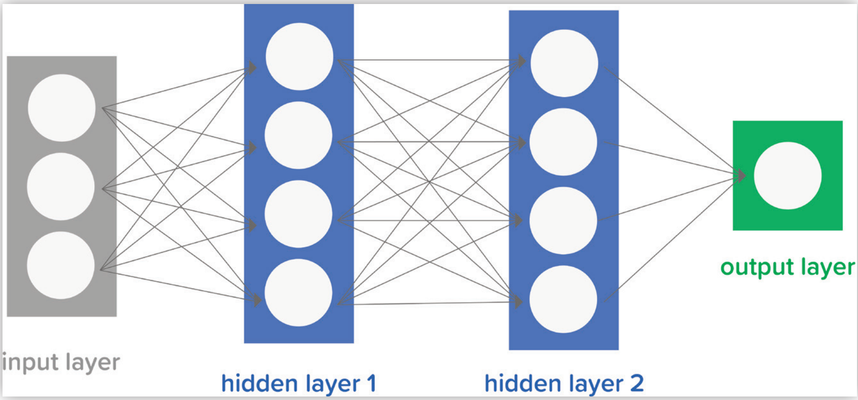
ARTIFICIAL NEURAL NETWORKS

ARTIFICIAL NEURAL NETWORK

An **artificial neural network (ANN)** is a framework for many different machine learning algorithms to work together to process complex data. ANN systems are typically used to detect patterns in unstructured data like images and sound. The patterns that it detects can be expressed as mathematical models that are then used to identify, decipher, and classify newly-generated data.

Because of advances in technologies (e.g., big data technologies), the number and types of business applications that use ANN-based systems have increased significantly in recent years. Examples of business applications that use ANNs are image recognition systems, fraud detection systems, recommendation engines, and voice recognition systems.

The term **neural network** is used because these systems are similar in structure to the biological neural networks in the human brain. An ANN system is structured as a collection of interconnected computing nodes similar to brain neurons interconnected by synapses. Just as neurons in the human brain receive sensory input and fire signals to other neurons, in an ANN, the nodes receive inputs and perform computations to produce outputs that become inputs to other nodes. In an ANN, however, the nodes are arranged into tiers. An ANN has an input tier, an output tier, and in between, there are one or more hidden tiers of nodes. Because of their multi-tiered structure, ANNs are referred to as **deep learning systems**.



ANN systems detect patterns in data sets using machine learning algorithms that generate classification models. The following example explains how an ANN system may be used to generate a classification model that performs character recognition.

Let's say that we would like to develop an ANN-based classification model that can identify hand-written digits. First, we would need thousands of images of hand-written digits. We can obtain this data from the National Institute of Standards and Technology (NIST) that has a collection of 60,000 images of hand-written digits that can be downloaded from their website. To create a training data set, the images would be scanned, and each pixel in the image would be labeled as either 0 for white or 1 for black to create a pixel vector for each image. Each pixel vector would be labeled by their hand-written values (0, 1, 2, 3, etc.) to build the training data set. The data set would be input into the ANN system, which would use machine learning algorithms to detect the typical pixel pattern of each digit, 0 to 9. For example, it may conclude that an image with one column of black pixels down the middle is likely to be the image of the number 1.

This pattern information is used to build the ANN-based classification model. The input layer would have as many nodes as there are pixels in an image (say 30 by 30 would be 900 input nodes). Each node in the input layer would receive the binary code indicating the color of its pixel. The nodes that contain black pixels would fire this output to all the nodes in the next layer, and this second layer would determine whether other black pixels are adjacent to this pixel forming a partial edge of a digit and if so, it fires this output to the nodes at layer three. The third layer would determine the overall formation of the black pixels by combining the partial patterns from the previous layer. This formation would be compared to the predetermined patterns of the 10 digits to determine which pattern is the closest match. The output layer, consisting of 10 nodes, would receive input in exactly one node indicating the predicted value of the digit in the image (such as {0,0,0,0,0,1,0,0,0,0} for the value 5). ANN systems can use this same basic process to identify more complex images such as faces in photographs. The following section provides an overview of facial recognition systems.

Facial Recognition Systems (FRS)

A **facial recognition system (FRS)** is an application that uses an ANN system to identify a person from a digital image or video frame. Facial recognition technology was first developed in the 1970s for identity verification systems. Since their inception in the 1970s, many new techniques and statistical approaches have been developed to improve the speed and accuracy of these systems. In recent years, advances in technology (i.e., big data technologies) have enabled these systems to greatly increase their accuracy rates, processing speeds, and image storage capacities. Nowadays, FR systems are being used in a wide variety of applications; not only for identity verification but also for marketing and entertainment purposes. For example, Facebook uses facial recognition technologies to enable its site users to easily tag friends in images posted on its site. Apple uses Face ID technology on its iPhones to let users unlock their phones with a faceprint mapped by the phone's camera. Face ID can also be used to authenticate purchases with Apple Pay. Amazon's Rekognition system and Google's Cloud Vision are cloud-hosted image analysis services that can be used by software developers to include FR services in customized software applications. For example, social media companies use Amazon's Rekognition System to weed out fake followers ("robots" who follow a person on Twitter or Instagram to make them seem popular). One reason why a person would want to seem popular on social media sites is that some businesses will pay them to be *micro-influencers* (non-celebrities who are paid to promote brands).

Software developers who prefer not to use cloud-based FR systems (possibly for security reasons) have the option of using open source FR technologies such as OpenFace, created by Brandon Amos at Carnegie Mellon or Dlib, created by Davis King. FR systems can also be developed using programming languages such as Python or R, which include libraries (collections of modules of code) for processing and identifying images.

The facial encoding requires a sequence of processes and a variety of techniques. Typically, an FRS will digitize faces by identifying facial landmarks and measuring distances between these landmarks to calculate facial attributes such as eye widths and nose length. Once a face is digitized, it is compared to other digitized faces in a database to find a match. One of the most complex (and accurate) systems is DeepFace, developed by researchers at Facebook using a nine-layer neural network and a training data set consisting of over four million images uploaded by Facebook users. A **nine-layer neural network** for image processing is a sequence of nine calculation-intensive processes for feature extraction and transformation where each successive process uses the output from the previous process as input.

An Overview of How Facial Recognition Systems Work

Here is an overview of the sequence of processes required for (1) face detection and then (2) person identification.

1. Face detection

Face detection is used to identify where faces exist in an image. There are two general steps to face detection: generate a face detection model and then scan an image to determine whether and how many faces appear in that image.

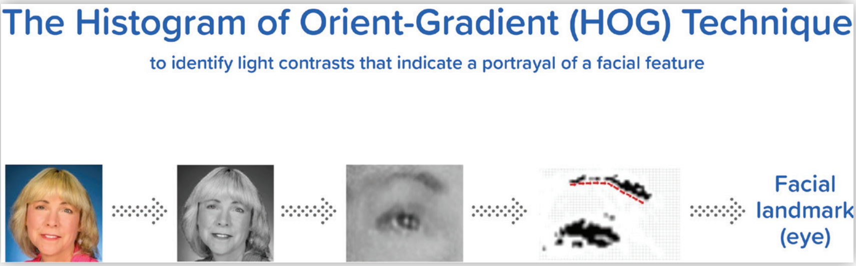
Step one is to create a face detection model. A **face detection model** is a computer program that can detect faces in images because it has learned the pixel pattern of a face. To create a face detection model, a large data set of images is collected and labeled as either "face" or "not face." This is called the **training set**. A sequence of machine learning algorithms (referred to as a neural network) may be used to analyze the pixel patterns of the images to detect what patterns of pixels distinguish a face (from a non-face) in an image. In other words, the algorithm "learns" (that is, *determines*) what patterns of pixels portray faces.

Several approaches can be used to do this. One approach is called the **histogram of oriented gradient (HOG) algorithm**. Using the HOG technique, the first step is to convert the image to shades of black and white pixels. Next, it scans through the pixels in the image measuring the light contrasts between pixels. It learns the pattern of light contrasts that represent the borderlines of facial features such as an eye or a nose, and then it learns the patterns of facial features (two eyes, a nose, and a mouth) that represent an entire face. It generates a face-pattern detection model.

Let's say we have this image that appears as below. Let's see how the HOG technique can be used to identify these two.

Using the HOG technique, the image would be converted to shades of black and white pixels. Next, the pixelized image would be scanned, measuring the light contrast from pixel to pixel. If the light contrast is above a certain threshold, this may indicate that it has encountered the borderline of a facial feature. Adjacent pixels are examined to determine if they also contain contrasts that may indicate the existence of a facial feature borderline. If so, it will expand the perimeter of the search space to determine if it can detect the complete borderline of a facial feature such as an eye or nose. If so, it will search for other facial features in the vicinity. Combining these facial landmark patterns into composite patterns, it determines whether an image is a face.

The exhibit below demonstrates how the HOG algorithm takes a pixelized image of a face. Arrows are used to indicate where the light contrasts exist that form a facial landmark borderline.

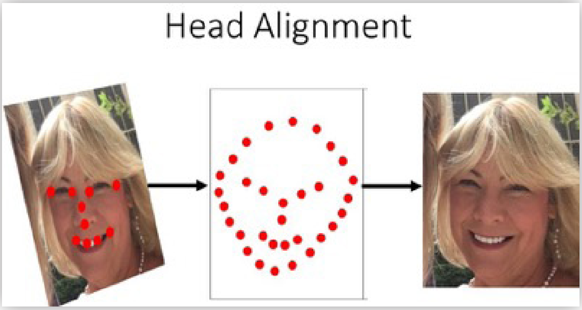


To scan an image for faces, a **sliding window** is used to scroll through the image looking for faces. The scrolling window starts by focusing on a portion of the image in the top left corner. It analyzes the pixels in that window to see if it matches the pattern of a face. If so, it extracts the image, records its coordinates, and increments its face-counter. Then it continues to search by shifting one column of pixels to the right and repeating the pattern-seeking process. It proceeds along a winding path through the image, each time shifting one column of pixels to the right, and then one row of pixels down when it gets to the right edge until it gets to the bottom right corner portion of the image. Each face that it finds is extracted, its coordinates are recorded, and the face-counter is incremented. You may have seen evidence of how this works when you used your cell camera to take pictures of friends and family. When you point your camera lens at people, you may see a rectangle appear around each face. Cameras will use this information to adjust the focus of the lens to the people's faces in the photograph.

2. Face identification

The next process is to identify WHO that person is. This is a three-step process of (1) adjusting the head position, (2) digitizing the face, and (3) matching the face to a pre-existing image.

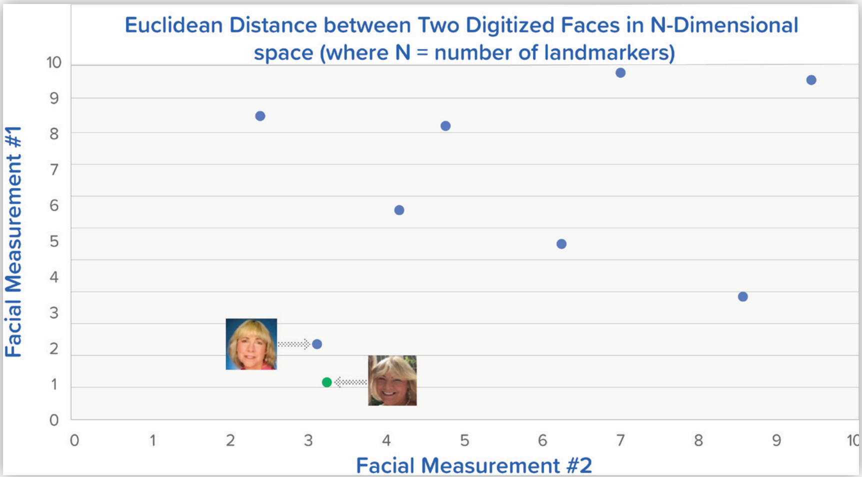
To identify who a face belongs to, the first step is **head alignment**. That is, adjust the head positioning so that it is facing forward. To do this, it must first be determined how the person's head was turned or posed when the photo was taken by using facial landmarks (such as the tip of the nose and the perimeter of an eye). Once facial landmarks are located, their locations are compared to the landmark positions of a forward-facing template. The image is then *morphed* (or adjusted) into a forward-looking face by making a best attempt to shift the positioning of the facial landmarks to align with the position of the landmarks on the template.



The next step is to represent the face as a vector of digits or **digitize the face**. Measurements are taken of the relative positions and lengths of the facial landmarks. For example, the length of the nose and the width of the eyes, chin or head may be measured and stored as a vector of measurements. In the example below, five measurements have been selected to be used to represent a face: eye width, eye distance (that is, the distance between eyes), nose length, nose width, and jaw width. In reality, often machine learning algorithms are used to determine what measurements provide the best set of attributes to distinguish one face from another, and dozens of measurements may be used.

The final step is to **identify the person** in a photo by comparing its measurement vector to all the other measurement vectors of faces in our database to seek a match.

To accomplish this step, the n-measurements in this person's face vector is plotted in n-dimensional space, and the Euclidean distance is measured between this person's data point and all other facial vector data points. There may not be an exact match in the database because people's face can vary over time somewhat, and lighting may distort images. But to match a face with a name, we find the data point that is closest to this person's data point in Euclidean space, and they are presumed to be the same person.



Summary

Facial recognition systems have become very accurate, and they continue to be used in numerous applications. There is some concern about the violation of privacy with FRS.

The usage of FR technologies has increased considerably over the past few years, and its diffusion can be expected to continue as more applications employ them. For example, several hotel chains have announced plans to use FRS to identify and possibly interact with guests, several school systems have indicated interest in using these technologies to identify people approaching school buildings, and healthcare-related industries such as senior living facilities may use FR technologies to alert caregivers if a dementia patient attempts to wander off.

Despite its potential to improve customer service and provide additional security, some special interest groups such as the ACLU have voiced concerns over the potential of these systems to invade people's right to privacy. Some are calling for more government regulation to limit the usage of these systems in public areas where people may be tracked and monitored without their explicit consent. As with all technologies, the possibility of misuse exists. This is a factor to consider when deploying FR systems.

CHAPTER V-19

SUPPLY CHAINS

Globalization has been a trend for more than four decades and has effected large and small enterprises. While some firms were capable of leveraging this trend, others were reduced to dust. Though the sentiments for and against globalization ebbs and flows, an understanding of how to manage this phenomenon is the subject of the next 6 chapters. The first of these is on global supply chains. A supply chain is an ecosystem which consists of all stakeholders involved in fulfilling, directly or indirectly, a customer order/request. A supply chain can include manufacturer, transportation and warehousing partners, suppliers, distributors, retailers, and customers. There is a dynamic and constant flow of information, products, and funds among all the different parties within a supply chain.

Today, because 1) customers and suppliers are worldwide, 2) transportation (container shipping) and inventory management options are sophisticated and 3) individualized customer demand for tailored products is the norm, supply chains have become complex. Supply chains are really supply *networks* wherein multiple companies interact with one another simultaneously. Suppliers talk to one another to see how their components fit with the manufacturing; distributors talk with retailers and manufacturer; and suppliers, distributors, retailers, and the manufacturer all talk to final customers. Additionally, new products are developed by teams consisting of representatives from all parties in a supply network.

The primary goal of every supply chain network is to minimize costs given the constraints of optimal customer satisfaction. These total costs can be minimized by properly designing and planning the supply chain and then streamlining its operations.

Designing and Planning

Designing and planning supply chain decisions are made for the very long term. Supply chains are very difficult to change in the short term and are always very expensive to alter. Hence, these decisions are made by high-level executives of the company. Factors that are considered in the designing and planning phase include marketing strategy for the product, uncertainty in demand, exchange rates, competition, stability of suppliers and transportation systems and stability of nations.

Designing and planning involve the selection of suppliers, parts, processes, and transportation modes at each stage in a supply chain. The selection decisions made by the company executives are based on cost, lead time, and dependability of the quality and delivery. Supply chain design decisions include 1) whether to outsource or perform a supply chain function in-house; 2) location and capacities of production and warehousing facilities; 3) products to be manufactured or stored at various locations; 4) which markets will be supplied from which locations; 5) inventory policies, timing and size of marketing and price promotion strategies as these impact inventory, logistics, and production; 6)modes of transportation to be made along different shipping legs; and 7) type of information system to be utilized.

Operations

Cost optimization is additionally realized by the efficient execution of the design and plan by the operating professionals. The activities in supply chain operations include: allocate inventory or production to individual orders, set a date that an order is to be filled, generate pick lists at a warehouse, allocate an order to a particular shipping mode and shipment, set delivery schedules of trucks and place replenishment orders.

To help in optimally managing the flow of information, products, and funds required to generate, receive, and fulfill a customer order, three software packages are commonly used. These packages interact with one another in that an output from one is an input for another.

Customer relationship management (CRM) is focused on the interface between the firm and its customers. CRM refers to all activities, strategies, and processes that are used to manage and analyze customer information and interactions throughout the customer lifecycle. CRM aims to *generate* customer demand and facilitate the *placement and tracking* of orders.

Internal supply chain management (ISCM) includes all processes that are internal to the firm. Planning of internal production and storage capacity and preparation of demand and supply chains are within the purview of ISCM.

Processes that focus on the interface between the firm and its suppliers such as evaluation and selection of suppliers, negotiation of supply terms and communication regarding new products fall in the domain of **supplier relationship management (SRM)**.

Demand/Sales Forecasting

One of the most important functions in supply chains is **demand forecasting**. Demand forecasting in the supply chain is the prediction of sales during a specified future period based on the company's approved marketing plan and the assumptions regarding and competitions' plans and the environment. Sales prediction can then be translated into predictions for other products and services required within the supply chain. For example, the amount of finished goods at various geographical locations at different points of time, as well as raw materials and work-in-process in the manufacturing plants can both be calculated based on the sales forecast. Sales forecasting is important because its accuracy will not only determine whether there is enough product available for customers when they want it but also determine whether there is too much money tied into unused inventory.

Forecasts are often wrong, and errors should be expected. Hence, forecasts should include both the expected value of the forecast and a measure of forecast error (demand uncertainty). Long term forecasts are usually less accurate than short term forecasts. In general, the farther up (farther away from the customer) the supply chain a company is, the greater the distortion of information it receives. As a result, the farther up the supply chain a company is, the larger is the forecast error (this is called the bullwhip effect).

Customer demand is influenced by a variety of factors. In general, the most critical factors that influence future demand are past demand, planned marketing efforts, state of the economy/industry, competitors in the industry, and their activities.

Forecasting Methods

Numerous forecasting techniques are available for use. A company may find it difficult to decide which method is most appropriate for its purpose. In general, using multiple forecasting methods to create a combined forecast is more effective than using any one method alone. Additionally, forecasting may be more accurate at the individual product and customer segment level than at the aggregated level.

Qualitative forecasting methods are primarily subjective and rely on human judgment. They are most appropriate when little historical data is available or when experts have market intelligence that may affect the forecast. Such methods may also be necessary to forecast demand several years into the future in a new industry.

Time-series forecasting methods use historical demand to make a forecast. They are based on the assumption that past demand history is a good indicator of future demand. These methods are most appropriate when the basic demand pattern does not vary significantly from one year to the next. These are the simplest methods to implement and can serve as a good starting point for a demand forecast.

Causal forecasting methods assume that the demand forecast is highly correlated with certain factors in the environment (the state of the economy, interest rates, etc.) and with marketing variables (price, promotion, etc.). Causal forecasting methods find this correlation between demand and environmental and marketing factors. They use estimates of the environmental factors and use planned numbers from the marketing department to forecast future demand.

Simulation forecasting methods imitate the consumer choices that give rise to demand to arrive at a forecast. Using simulation, a firm can combine time-series and causal methods to help determine the impact of a price promotion or a competitor store opening. Airlines simulate customer buying behavior to forecast demand for higher-fare seats when there are no seats available at the lower fares.

Inventory Management

Another important function in the supply chain is **inventory management**. Inventory refers to the stock of any item that flows through the supply chain between different players - for example, raw materials from suppliers to the manufacturer or finished goods from manufacturer to market. Inventory management is defined as the planning and controlling of inventories in order to meet the competitive priorities, profitability, product availability, faster time to market, of the firm. Effective inventory management is essential for realizing the full potential of any supply chain.

The basic purpose of inventory analysis, whether in manufacturing, distribution, or retail, is to specify when to order items and how many to order.

The above two questions are critical because of the conflicting effects of large inventory and the costs of holding inventory. A large inventory is good customer satisfaction, but then the costs of holding inventory are also high. The positives of customer satisfaction might be negated by the costs of holding inventory.

Additionally, since demand and delivery times can fluctuate, inventory management should allow for:

Variation in product demand – A safety or buffer stock must be maintained to mitigate the risk of stock outs.

Flexibility in production scheduling – a stock of inventory relieves the pressure on the production system; this allows for smoother flow and lower-cost operation through larger lot-size production.

Variation in raw material delivery time – when material is ordered from a supplier, delays can occur for a variety of reasons, e.g., shipping delays, a shortage of material at the supplier's plant causing backlogs, an unexpected strike at the supplier's plant, a lost order or a shipment of incorrect or defective material.

Taking advantage of economic purchase order size – there are various costs associated with inventory. Some costs decrease with the size of the order, others increase. Hence, optimizing the order size is one of the goals of inventory management. Costs that decrease with the size of the order are ordering costs, set-up costs, and shortage costs. *Ordering costs* include managerial and clerical costs to prepare the purchase order, track orders and verify the deliveries. The larger each order is, the fewer the orders that need be written. Also, shipping costs favor larger orders – the larger the shipment, the lower the per-unit cost. *Setup costs* are the costs of changing over a machine to produce a different item. The larger the lots produced at one time the fewer the changing over of machines. *Shortage costs* occur when the stock of an item is depleted, an order for that item can be canceled or there might be delay penalties. The loss in profits comprise shortage costs. While the above three costs decrease with a larger order size, holding (or carrying) costs that include the costs for storage facilities, handling, insurance, pilferage, breakage, obsolescence, depreciation, taxes and the opportunity cost of the capital increase with order size. This balance is sometimes difficult to obtain because it may not be possible to estimate these costs with certainty.

Evaluation of Strategic Suppliers

The supply chain department also performs the tasks of approving important suppliers. Suppliers or contractors need to be *qualified* or *approved* to see if they can meet the requirements to provide goods or services to the buying company. Here is a general list of criteria used to qualify a supplier:

Financial

- What is its position in the market? (For instance: market share)
- Who are its customers?
- How profitable is it, and what are the profit trends?
- What is its financial health? (balance sheet trends, recovery from debts and obligations, ownership)
- Are there are any legal proceedings currently active?
- Are the key materials and labor it uses volatile or single/sole sourced?
- What is its pricing structure? Does it vary by product or market?
- In what country is it located?

Marketing and Distribution

- What are the age and geographical location of the supplier's facilities?
- What is the age of its equipment, and long is its expected life span?
- What share of its production volume and capacity does the product line we use require?
- Is the product (or service) we intend to purchase a central core competency for this supplier?
- What are its lead times compared with others in the industry?
- How are its products distributed? Do they employ direct sales or sales through a wholesaler/distributor?
- Are its distribution points strategically located on a domestic or global basis?

Governance/Organization

- Are decisions made centrally, or are they delegated to operating personnel in business units?

- How long is the chain of command?
- Is it clearly in compliance with its country's governmental regulations?
- Are there any significant legal or regulatory violations, and are they still outstanding?
- Is the workforce unionized?
- If so, what is its work history?
- Are there any workforce grievances?
- Is it on good terms with the unions?

To summarize, suppliers need to be evaluated for their ability to have low-cost operations, flexibility, and to deliver on time with the right and consistent quality. Whether the supplier uses make-to-order, or assemble-to-order, or make-to-stock, or some combination of each is something a supplier has to weigh out on their own, taking into consideration all the nuances of specific supply chain issues.

Materials Handling and Transportation

The last piece in understanding the roles of supply chains is materials handling and transportation.

Materials handling is the process of loading, unloading and moving goods into, within and out of warehouses and other locations; and management of the selection, operation, and maintenance of appropriate product handling equipment. **Packaging** is a critical feature that effects materials handling. Packaging is the design and development of containers that facilitate the storage, transportation and protection of the interior product. Unlike consumer packaging that is designed primarily for customers and promotion purposes, industrial packaging is focused on the logistics, specifically, the storage, handling, and transportation of the product. These containers can either be master cartons containing retail packages, or industrial product packaging. They must be designed to withstand the rigors of warehouse storage and handling, as well as transportation to their destination. Master cartons also display product codes, bar codes, and other information that will facilitate the use of scanners or other handling technology in the warehouse. Other industrial cartons are designed to provide maximum protection for the products they contain. The most common causes of product damage in the system are impact, compression, and puncture; and to the extent possible, cartons should be designed to protect against these hazards.

Transportation is the movement of raw materials, supplies, or finished products by rail, motor, air, or water. **Logistics** is a more overarching term than transportation, and it encompasses flow and *placing* of inventory. Hence many of the concepts discussed earlier, e.g., inventory management can be considered part of term logistics. Logistics can be classified into three categories:

Inbound logistics refers to the storage and transportation of goods moving into a manufacturing facility or distribution center, or to a final consumer destination. These goods may consist of raw materials and supplies for the manufacturing plant or finished goods moving into a distribution center or to a final customer.

Outbound logistics refers to the storage, handling, and transportation of goods moving out of their origins to the receiving locations. These destinations could be plants, distribution centers, or customers.

Reverse logistics is the process of planning, implementing and controlling the efficient, cost-effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal. It refers to the return of goods from their destination back to their origin. These movements can be a result of damage or shipping errors, recycling initiatives, product recalls, customer dissatisfaction, or any other condition requiring the return of goods. Besides the return transportation and subsequent storage, the reverse logistics function includes returns management, repair or possible re-manufacture, re-marketing, recycling, or disposal. Reverse logistics has become particularly important with the growth in electronic commerce. Online purchases are made without visibility to the actual product, increasing the chance that returns will be necessary. Due to the volume of product returns, many firms have found it advantageous to outsource the returns function to logistics service providers that specialize in reverse logistics and have installed state of the art systems for doing so. These firms handle any necessary activities from the management of the returns to remanufacturing, remarketing, recycling, and customer credit for returns.

Last Mile Deliveries have recently come into supply chain usage and can be defined as the movement of products from a distribution point to a final destination, often a consumer's home. It is somewhat of a misnomer since the "last mile" may be one mile or it may be 50 miles. It is simply the last leg of delivery, whatever the distance. As electronic commerce has increased, last mile service has become more problematic. Shipments are smaller, and since many of them go to urban destinations, shippers have begun to use a broader range of carriers, including FedEx, UPS, and the U.S. postal service. Often packages are delivered to homes or small businesses that are unattended, increasing the risk of damage or theft. For many firms, the last mile problem is yet to be resolved. Retailers are constantly searching for better delivery schemes, e.g., Amazon has tested drone deliveries and lockers in urban locations.

Notwithstanding their constant flow of new ideas, Amazon depends on a broad network of distribution centers that put them closer to the markets and enable them, in some cases, to accommodate same day or next day delivery requests. This is an expensive option, however, and many competitors simply do not have the resources to invest in brick and mortar. Some have turned to logistics service providers to serve their customers in various cities. A number of retailers have begun to ship orders to their stores or allow store pickup of products ordered online. Others are experimenting with having their employees drop packages off to buyers on their way home from work. Some are using services such as Uber or Lyft. It is difficult for the traditional carriers to function in this environment, as well. They continue to try to build the local route densities necessary to handle last mile business profitably. Both UPS and FedEx have formed alliances with USPS in an attempt to increase route density.

Incoterms

In international shipping, one of the major concerns is likely to be the delivery arrangements – in particular, the potential for confusion regarding who is responsible for freight, insurance, damage in transit, duties, and taxes. To simplify matters, the International Chamber of Commerce has published a set of standard terms for sale known as the International Commercial Terms or **Incoterms**. While not government regulations, these internationally recognized terms clearly define both the buyers' and sellers' obligations in many common transactions. They are designed to cut down on uncertainty arising from differing interpretations of terms of sale from one country to another. A clear understanding of these terms is necessary for the logistics manager to determine which party is responsible for the various costs and fees.

Incoterms are sometimes divided into two groups based on whether they apply to all modes of transportation or are specific to ocean and inland waterway transport. They are further divided into four different sections. The **E** term (there is just one) covers transactions in which the seller simply turns the goods over to the buyer at the seller's premises. The **F** terms, by contrast, are used in cases where the seller will deliver the goods to a carrier of the buyer's choosing. The **C** terms apply to cases where the seller arranges for transportation and assumes responsibility for the goods until they reach the destination port. The **D** terms cover arrangements in which the seller bears the costs and risks of delivering goods beyond that destination port. Here are two examples:

CFR (Cost and Freight) deals with the cost of the merchandise as well as the freight costs. The seller is responsible for the product and the transportation costs to the destination port.

DDP (Delivered Duty Paid) is the maximum obligation that can be assumed by a seller. The seller is responsible for all risk and charges up to the consignor's door, including freight, insurance, and customs duties.

CHAPTER V-20

INTERNATIONAL ECONOMICS

International Economics is a field that studies the economic exchanges between different countries. A country may buy a product from another country because that country can make the product at a lower cost than the purchasing country, or because the buying country is incapable of producing the product, period.

When determining what potential products or services a country and their residents will make, they must consider the costs at which they can be produced in their home country as compared to the price at which they can buy the products and services from other countries. (Of course, the costs and prices have to be brought to the same unit or currency.)

For example, climate differences make Vietnam a bigger producer of shrimp than the United States. Furthermore, it is easier to produce high tech goods in the United States than in Vietnam due to the availability of skilled labor. Therefore, the United States will use more of its resources to produce high tech goods instead of shrimp and import shrimp from Vietnam. Likewise, Vietnam will use more of its resources to produce shrimp and import high tech goods from the United States.

These economic exchanges occur through the import and export of goods and services, foreign investments in capital funds or business interests located within other countries, multinational companies who own subsidiaries in foreign countries.

COMPARATIVE ADVANTAGE

A country is deemed to have a **comparative advantage** in producing a good or service if the cost of producing that good or service is lower compared to other countries. Countries should produce and export goods in which they have a comparative advantage and import goods in which they do not have a comparative advantage. Comparative advantages come from three main sources, **climate, factors of production** (land, labor, and capital), and **technology**.

The first advantage is the **climate**. Tropical countries have a comparative advantage in producing goods such as coffee, sugar, bananas, and shrimp. Countries with a temperate climate have a comparative advantage in producing goods such as wheat and corn.

Differences between countries located in different hemispheres allow for comparative advantages between seasons. For example, Chile, in the Southern Hemisphere, is able to grow grapes during winters of the Northern Hemisphere. This gives them a comparative advantage during that time.

A country that has a vast supply of a specific **factor of production** will have a comparative advantage in producing goods that rely upon consumption of that specific resource.

For example, Canada is a major exporter of lumber and products made from lumber because they have a much larger forested area compared to many other countries. India is a major exporter of information technology products because it has a vast supply of well-educated individuals (and, hence, commanding lower wages than their European and US colleagues.)

Technology differences are based on knowledge accumulated through experience, sometimes resulting from innovation that occurs in one country and not in others.

For example: in the 1980s and 1990s Japan was the largest exporter of automobiles because they had superior production techniques which allowed them to produce more automobiles with less labor and capital as compared to American and European automobile manufacturers.

INTERNATIONAL TRADE

Trade results in mutual benefits for all countries involved due to the fact that they are liberated from self-sufficiency – the need to consume only the same goods that they produce. A country will theoretically not pay the price for imports that is greater than the cost of creating the good themselves.

When a customer (business or government) from one country buys from another country, the buyers and sellers decide on the currency in which the price will be determined and in which the transaction will be completed. Since two currencies are involved, the concept of exchange rate comes into play. The exchange rate is the rate at which one currency will be exchanged for another. For example, 1 US $ = .95 Euro.

A country's **balance of payments** is the net of all economic transactions (imports and exports) that occur between a country and all other countries. (Of course, there is one balance amount for each trading partner.) The balance of payments might result in a **trade surplus** if the value of goods and services sold abroad exceed the value of goods and services bought from the rest of the world, or a **trade deficit** if the value of goods and services imported exceed the value of goods and services exported.

Tariffs, Quotas, Embargos

Political factors also play a large role in international trading; a country may use taxes or other legal restrictions to limit imported goods; examples of these include:

- **Tariff** – an excise tax that is levied on imported goods.
- **Import quota** – a legal limit on the quantity of a good or service that can be imported.

- **Embargo** – a total ban on a specific good or trade with a specific country.
- **Subsidies** – a form of financial compensation offered by governments to encourage exports.

Opportunities

There are several opportunities offered by international trade. Companies can achieve levels of growth not possible from only domestic trading, due to foreign demand for the company's products and services. It is also less risky compared to strictly domestic trade, as a natural or economic disaster occurring within the country will have a reduced effect on a company who also conducts business in foreign countries. They may be able to avoid strong domestic competition by conducting business in a foreign country, where competition may be less strong. Companies may hire additional personnel to handle overseas operations, resulting in more jobs. And imports may lead to reduced costs of products and services for consumers, giving them a wider variety of goods and services to purchase.

Challenges

International trade also presents its share of challenges. These include exchange rate risk, which may affect the value of assets or liabilities denominated in foreign currency; and political risk, in which a country's government could discriminatorily change laws, regulations, or contracts regarding international trading in order to extract government profits through regulatory control or taxation.

A company can also fail to take into consideration cultural differences, that could require unanticipated changes ranging from marketing techniques to appropriate protocol by which they must abide, both of which can lead to costly mistakes.

Also, both outsourcing operations (contracting with a foreign entity to perform a business operation on a company's behalf) and relying on imported goods and services will decrease the availability of domestic jobs.

Finally, payment collections for international sales are often less reliable or involve more complications than domestic sales.

INTERNATIONAL MONETARY SYSTEMS AND TRADE

The **International Monetary System (IMF)** is a collection of rules and procedures which govern the foreign exchange market. The IMF is responsible for the creation and maintenance of the international monetary system, by which international payments between countries take place. By acting as a central bank for all the central banks of the member nations, the IMF strives to promote world trade, correct problems resulting from a country's balance of payments and assist member nations in managing and stabilizing their exchange rates. The IMF is headquartered in Washington, D.C. and consists of 184 member nations.

The **World Trade Organization (WTO)** is an organization that regulates international trade and provides a framework for negotiating trade agreements and dispute resolutions between participating countries. The WTO is headquartered in Geneva, Switzerland and consists of 164 member nations.

The **Organization for Economic Co-operation and Development (OECD)** is an organization comprising high-income economies and developed countries, founded in order to stimulate economic progress and world trade. The OECD is headquartered in Paris, France, and consists of 35 member nations.

The **World Bank** is an international financial institution that provides loans to developing countries to provide them with economic growth and reduction of poverty to promote international trade.

FOREIGN INVESTMENTS

Foreign investments occur when a company or individual from one country invests in a company located in another country.

There are four primary types of foreign investments: commercial loans, official flows, foreign portfolio investments (FPI), and foreign direct investments (FDI).

Commercial Loans are essentially loans issued to foreign businesses or governments by a domestic government or financial institution. They may take the form of bonds, notes, or treasury bills. T-bills are short-term obligations issued with a term of one year or less. They are sold at a discount and, hence, don't pay interest. Notes and bonds pay interest until maturity. They are issued for much longer terms, e.g., 2, 3, 5 or 10 years. Up until the 1980s, commercial loans represented the largest source of foreign investments; however, since that time, lending has remained relatively the same while levels of FDI and FPI have dramatically increased.

Official Flows are development assistance that developed countries give to developing countries in order to promote economic development. They may take the form of grants, trade credits, or various other forms of funding to promote development.

Foreign Portfolio Investments (FPI) consists of stocks, bonds, and other financial assets purchased in foreign companies. The investor receives investment returns in the form of interest payments or dividends or increase in asset value. These investments are relatively liquid and can easily be sold. The investor's goal is generally to create a quick return on invested money.

Foreign Direct Investments (FDI) is an investment in which the investor obtains a long-term interest in a foreign company.

These investments make take several forms, including:

- Physical investments and purchases made by a company, typically by buying buildings, machines, or equipment in a foreign country.
- Acquiring a 10% or greater ownership of the stock of a foreign company, which is generally recognized as being the necessary amount of ownership required in order to have influence over a company's decisions and operations.
- Opening a subsidiary in a foreign country.
- Merging with a foreign company.

Unlike FPI, the investor has either substantial influence or a controlling interest in the property or the operations of the foreign company instead of only having a passive interest. Since these types of investments represent a long-term interest, they are riskier compared to FPI. The investor's goal is to establish either substantial influence or a controlling interest over the decisions of the foreign business.

EXCHANGE RATES

Goods, services, and assets produced in a country must be paid for in that country's currency. For example, American products must be paid for in dollars, and Japanese products must be paid for in yen. So, international transactions are processed through the foreign exchange market, where currencies can be exchanged for each other.

This market determines **exchange rates**, which are the prices at which currencies trade, or how the price of a good produced in one country translates into the price paid by a buyer in another country. Movements in exchange rates affect the relative prices of goods, services, and assets in different countries. There are a variety of exchange rate systems that countries may employ. All of these systems are based on the two major exchange rate systems.

In a **fixed rate exchange system,** the exchange rate is officially fixed by the country's government and is not reliant on the market. The rate is set firmly in comparison to a foreign currency (usually a major world currency such as the U.S. dollar, euro or yen, or a basket of variance currencies). A country will maintain the local exchange rate by buying and selling its own currency in exchange for the currency to which the local currency is compared to.

In a **floating rate exchange system,** the exchange rate is determined by the private market through supply and demand for the country's currency. A floating exchange rate is constantly fluctuating due to changes in supply and demand for the currency.

These exchange rate systems sometimes prove to be unreliable when a country engages in **currency manipulation,** which occurs when a country buys or sells the country's own currency in the foreign exchange market in order to influence its value. This practice is used to keep the value of a domestic currency lower compared to foreign currency. Therefore, exports will be less expensive to foreigners, who as a result, will purchase more exports from the country and drive the country's economic growth.

Exchange Fluctuations

When a country's exchange rate increases, that country's currency is deemed to have appreciated in value. This results in foreign goods becoming cheaper for that country and domestic goods becoming more expensive for foreign countries, resulting in imports exceeding exports. These results have the opposite effect when a country's exchange rate decreases.

The **market exchange rate** is the prevailing rate used in international trading. This rate is constantly changing based on the supply and demand for a country's currency, which reflects changes in imports and exports of traded goods and services and foreign investments. Market exchange rate movements are often news driven and affected by interest rate changes and changes in perceptions of the country's economic growth.

The **purchasing power parity (PPP)** is an economic theory that offers a simple view of exchange rates. PPP calculates the exchange rate as the point at which a "basket of goods" would cost the same amount in each of the two countries. This method accounts for the differences in the relative cost of living and inflation rates in different countries.

PPP is calculated as follows:

$$\text{Exchange Rate} = \left(\frac{\text{Cost of "basket of goods" in currency 1}}{\text{Cost of "basket of goods" in currency 2}}\right)$$

A common test used by economists is conducted by evaluating the differences between the price of a McDonald's Big Mac in one country compared to another country. If a Big Mac is \$4.00 in the United States and 2.5 pounds in Britain, the exchange rate would be 1.60 (4/2.5).

Impact of Fiscal Policy on Exchange Rates

Recall that a country's **fiscal policy** relates to changes in government spending and tax collection. A government increases or decreases spending and taxes to influence the country's economy by influencing levels of inflation and unemployment.

By *decreasing* tax levels or *increasing* government spending, a country gives more money to consumers to spend. This increases consumer demand and results in inflation. Inflation devalues the country's money relative to other currencies. This makes imports more expensive and, therefore, decreases the amount of imports; and makes exports less expensive and, therefore, increases the amount of exports.

By *increasing* tax levels or *decreasing* government spending, the opposite of the above happens. The economy slows, consumer demand decreases and ultimately results in an increase in the value of money relative to other currencies. This makes imports cheaper and exports more expensive.

Impact of Monetary Policy on Exchange Rates

A country's **monetary policy** refers to changes in the money supply, by the country's central bank, in order to stabilize the economy.

Monetary policy is affected by three primary actions:

Open market operations are the purchase and sale of government securities (such as treasury bills or savings bonds) in order to affect the country's money supply. When the country's central bank purchases government securities, they put money into circulation; and when the country's central bank sells government securities, they take money out circulation.

Changes in the interest rate at which the country's central bank lends funds to domestic financial institutions will affect the cost of borrowing, and in turn, affect the country's money supply. Lowering the interest rate will encourage borrowing and increase the money supply, and raising the interest rate will discourage borrowing and decrease the money supply.

The third action that affects monetary policy is **changes in the required reserve**. Governments may mandate domestic banks keep a specific portion of their money in the bank's reserves, unavailable for consumer lending. Lowering the required reserve will increase the money supply, and raising the required reserve will decrease the money supply.

Expansionary monetary policy will use these actions to increase the money supply, which will increase consumer spending, an increase in business operations, a decrease in unemployment, and in turn an increase in inflation due to rising prices. An increase in inflation decreases the value of money of the home country, making imports more expensive and lesser and exports less expensive and more. Contractionary Monetary Policy is exactly the opposite.

Foreign Exchange Rate Risk

Foreign exchange risk is the financial risk that exists when a financial transaction is denominated in a foreign currency. If money is converted into a foreign currency, then any changes that occur to the currency's exchange rate will expose the investment's value to either increase or decrease when the investment is sold or converted back into domestic currency. Three types of foreign exchange risks are susceptible to this exposure.

Transaction exposure is the risk that the value of receivables or payables will be affected by currency exchange rates. This type of exposure is typically short to medium-term in nature. For example, if the foreign currency appreciates, then payables would increase. This is bad for the domestic company as it would require them to pay more money in the future. However, receivables would also increase, which is good for the domestic company, as it would allow them to collect more money in the future.

Translation exposure is the risk associated with currency fluctuations when a company's subsidiary is located in a foreign country. This type of exposure is medium to long-term in nature. For example, if a company's foreign subsidiary is located in a country with a declining exchange rate, the parent company's net worth will decrease.

Economic exposure results from fluctuations of a company's *future* cash flows and market value due to unexpected currency fluctuations. This type of exposure is long term in nature. For example, if a company sells a significant amount of its goods in foreign countries and the domestic exchange rate increases, the foreign countries will buy less of the company's products.

Foreign Risk Exposure

Foreign exchange risk exposure can be managed in numerous ways.

Currency diversification is a technique in which an entity invests in multiple countries' currencies, resulting in less risk than if all the entity's investments were in a single foreign currency.

A **forward exchange contract** enables an entity to protect itself from exchange rate movements by agreeing to purchase or sell a number of currency units at an agreed upon exchange rate at a specified date.

For example, a U.S. company enters into a contract to sell equipment to a German company. The terms of the contract require that the German company pay six million euro in nine months. Over the nine-month period, the dollar value of the euro will rise or fall based on exchange rate fluctuations. To mitigate uncertainty regarding the exchange rate, the U.S. company may enter into a forward exchange contract with currency brokers to lock in the rate at which they will sell the euros and buy dollars in nine months.

A **currency option contract** gives an entity the right, but not the obligation, to purchase or sell foreign currency at a specified rate and date. If adverse exchange rate movements occur, the entity will be allowed to exchange for the foreign currency at the agreed upon price. However, if an adverse exchange rate movement does not occur, the company will only lose the relatively small premium paid for the option.

For example, if the same U.S. company in the previous example enters into the agreement to sell equipment to the German company, instead of purchasing a forward contract, they may enter into a currency option contract, in which they will only sell the euros for the locked in rate if the exchange rate of the euro falls below the locked in rate. However, if the euro does not fall below the locked in rate, or even rises, the U.S. company will not be obligated to sell the euro for that price and will instead sell the euros at the market exchange rate.

A **parallel loan** between two entities is a contract that they will swap currencies and agree to re-exchange or re-purchase them at a later date.

For example, a U.S. company wishes to borrow 100 million euro to expand its subsidiary in the United Kingdom, while a British company wishes to borrow 150 million U.S. dollars to expand its subsidiary in New York. These companies agree to loan each other the needed amounts in their respected currencies and agree to repay the amount in ten years, allowing them to bypass exchange rate fluctuations.

Leading or **lagging** methods occur when transactions for foreign currencies occur in advance or late in order to achieve favorable exchange rates.

For example, an American is planning on taking a trip to Spain in six months. He plans to spend two thousand dollars during the trip. If he believes the exchange rate for the euro will increase, he may use a leading method and purchase the euros now. If he believes the exchange rate for the euro will decrease, he may use a lagging method and wait until the last possible day to purchase the euros.

INTERNATIONAL TAXATION

International business operations result in taxable income being acquired from various countries, each having different tax laws and regulations.

When income is derived from multiple countries, there is an exposure to double-taxation. Double taxation occurs when the same income is taxed twice, once in the country in which the income is earned, and then again in the home country of the taxpayer.

Taxes will always be placed on income by the country in which the income derives. The tax laws of the home country of the taxpayer will determine the effects of double taxation. Some governments may limit taxes to be placed only on income that is derived within their country. However, other governments, including the U.S., will also tax income derived in foreign countries.

When governments place taxes on foreign source income, they typically allow for an offset for foreign taxes paid against the taxable income. For example, the U.S. tax law allows for a deduction, or a credit, for foreign taxes paid during the year in order to minimize the effect of double taxation.

The U.S. foreign tax credit is used to limit the amount of foreign taxes to the amount the U.S. would have imposed on the foreign income. The credit is for the lesser of:

- Actual foreign taxes paid, or
- (Foreign Taxable Income / Worldwide Taxable Income) x U.S. Tax on Worldwide Income

For example, a U.S. company has $15 million of sales within the U.S. and $5 million of sales in India. The company owes $5 million in taxes to the United States (which includes taxes placed on both American and Indian income), and $1 million in taxes to India. The company may reduce the $5 million due to the United States by the lesser of:

- The $1 million in foreign taxes paid, or
- ($5 million of foreign taxable income / $20 million worldwide income) x $5 million U.S. Tax on Worldwide Income = $1.25 million
- The company would, therefore, deduct the $1 million from U.S. taxes due, resulting in only $4 million in U.S. tax after the foreign tax credit.

Multinational companies who operate subsidiaries in foreign countries often shift income or operations, resulting in income to subsidiaries that operate in countries with lower tax rates. For example, the United States has one of the highest corporate tax rates in the world at 35%, while Canada only has a 15% corporate income tax. An American company may conduct more of its operations in Canada to avoid the excess tax.

CHAPTER V-21

GLOBAL ORGANIZATIONS AND TRADE

International management is a process of accomplishing the global objectives of a firm by effectively coordinating across national boundaries the procurement, allocation, and utilization of human, financial, physical and intellectual resources. There has been an increase in international firms due to significant growth in international trade and commerce. Economic, political, and cultural landscapes of nations have become increasingly homogeneous. This is due, in large part, to interconnectedness promoted by innovation in information technology and transportation (rapidly falling freight costs) and by the globalization of financial markets.

Compared to domestic enterprises, international management is complicated by differences in currencies, political and legal systems, and cultures (including religions). A multinational corporation (MNC) or a multinational enterprise (MNE) may have partially or wholly-owned subsidiaries/affiliates or other kinds of relationships (e.g., franchising) but for it to be multinational or global, it must have a common global strategy. Such firms have offices and factories in different countries but usually, are headquartered where they can coordinate global management. Although many MNCs/MNEs are either American, Japanese or Western European, including Nike, Coca-Cola, Wal-Mart, AOL, Toshiba, Honda, and BMW, other firms such as Samsung and Hyundai (South Korea), Tata Motor/Tata Group(India), and others are located in other areas across the globe.

Motives to Enter International Markets

There are various motives that drive a firm to seek overseas markets:

Market-seeking motive – Firms seek foreign markets to increase their sales revenues, period. Some firms may seek foreign markets when a product has been standardized and reaches the maturity stage in the domestic market; others when the domestic market is *not large enough* to gain economies of scale for cost efficiencies. However, many firms will tailor their products to serve a foreign market.

Cost reduction motive – Some firms will venture overseas to lower costs (through lower wages) in manufacturing. Sometimes, in order to attract new firms, the host country may offer inducements/incentives such as reduced taxes, free land, or lower interest loans. For instance, IKEA, a Swedish company, was granted a $9.5 million property tax cut for locating a retail outlet in Memphis, Tennessee.

Supply-chain motive – A firm may seek vertical integration to capture a supply source. Once a firm has decided to expand into foreign markets, it must consider possible modes of entry and choose the one which is strategically the best fit.

Modes of Market Entry

Exporting is the process of sending a firm's product or service overseas. It is the least risky of all methods of entering foreign markets. *Indirect exporting* involves firm shipping products or services through a third party, such as a manufacturers' agent. Indirect exporting can also involve selling to an intermediary who in turn sells the product to customers or wholesalers. *Direct exporting* occurs when the firm performs its own export function and takes responsibility for selling a product to an importer or buyer.

Countertrading is an import/export relationship between nations or large companies in which goods or services are exchanged for goods and services instead of money. *Countertrading is a* complicated mode of entry as it may involve uncertainty as to the value of goods being traded and the quality of the goods. An example of countertrading is US-based Pepsico, Inc. swapping soft drink concentrate for vodka and merchant ships from Russia.

Contract manufacturing is a contractual agreement between a firm and a foreign producer in which the foreign producer manufactures the firm's product. In this mode, the firm retains responsibility for promotion and distribution and is able to limit economically and politically-imposed risks. Nike, for example, uses contract manufacturers in South East Asia to produce their sporting goods.

Licensing occurs when an international firm agrees to make available to another company abroad the use of its patents, trademarks, manufacturing processes, know-how, trade secrets, and manufacturing and trade services. In order for the licensing agreement to be successful, the quality of the licensee must be thoroughly vetted by the licensor firm, and the licensee must have enough managerial and financial strength for the agreement to be sustainable. Firms such as Calvin Klein, IBM, and Walt Disney have licensing agreements worldwide for their products.

Franchising is a form of licensing which is defined by the transfer of business systems, technology, brand names, trademarks, and other property rights of a franchisor to an independent company or person. In this relationship, the franchisee is obligated to adhere to procedures and methods of operation. Franchising is a relatively fast, easy, and inexpensive way to exploit foreign markets. This mode of entry has little-to-no political risk, with the risk of failure and cost being borne by the franchisee. Because there is a lack of a traditional management-employee relationship, one drawback of franchising is the risk of a firm's reputation being damaged when the franchisee does not uphold standards. Many U.S. companies have franchises operating overseas, including McDonald's, Burger King, and Kentucky Fried Chicken.

Equity-based ventures through foreign direct investment entry mode is when an international firm has equity ownership through direct investment in a foreign venture. Foreign direct investment (FDI) is a long-term equity investment in a foreign affiliate or subsidiary which gives the parent company varying degrees of control over foreign operations, including the establishment of facilities including buildings and equipment. FDI allows the firm to manage, market, and finance a firm's foreign operations. For an FDI to be successful, the firm must understand differences in political, cultural, economic, and financial environments. **Equity international joint venture** is a separate legal entity which represents the partial holdings of two or more parent firms in which the headquarters of at least one is located outside the country of the operations of the joint venture. The joint venture is subjected to joint control of each parent firm while each parent firm is legally and economically independent of each other. One advantage of this mode is that it may lower the government's and society's hostility against a foreign firm when nationalism is high.

International strategic alliance is an association between companies without an offshoot company being formed. This mode of entry may be used to penetrate new foreign markets to create synergies in marketing, operations, R & D, etc. This type of alliance allows partnering firms to launch counterattacks against competitors, pool resources, and learn from their partners. An example of a successful international strategic alliance involved Toshiba (Japan) partnering with IBM (US), Apple (US), Microsoft (US) and Siemens (Germany) in producing multimedia products. Two risks that are associated with this mode of entry are *relational risks*, which can occur when a partner firm has a lack of commitment to the alliance; and *performance risks*, which can occur when complex multinational external environmental factors impede the attainment of the alliance's objectives. These alliances may also fail due to a clash of corporate cultures, unrealized partner expectations, and surrender of sovereignty.

When choosing to engage in international business, a firm has to determine *where* it wants to do business, *why* it desires to enter into a foreign market, and *how* to enter that market. Let's discuss the factors that influence how to enter a foreign market.

Determinants of Foreign Market Entry Modes

Firm size – smaller firms have limited financial and human resources. They are, therefore, exposed to more risks which can lead to insolvency. Larger firms have greater productive resources, greater market power, greater knowledge, and economies of scale. The equity mode of entry is preferred for larger firms. Such firms may also have the advantage of having experience in dealing with their direct investment or joint venture partners.

International experience – firms with experience and knowledge of dealing with local economic and environmental conditions are better able to gauge market demand and assess customer needs. Those with less experience perceive greater uncertainty, are likely to underestimate risks and may tend to commit greater resources to the foreign market. An equity mode of entry is preferred for firms with greater international experiences.

Technological capacity – firms which have high R&D capability face a greater risk of leaking proprietary technology to rivals. To prevent dissemination of technical know-how, firms with greater technologies will prefer equity modes of entry.

Cultural distance – the greater the cultural distance between the home and host country, the greater the uncertainty and cost of collecting information and communication. When the cultural distance is large, a firm should choose a mode of entry that commits fewer resources; thus equity modes of entry are usually avoided.

Market size and growth – the larger the size of the market, the greater the potential for growth. So firms will commit greater resources for its development. In smaller markets, firms tend to commit fewer resources and choose to opt for a non-equity mode of entry.

Country risks – unstable and unpredictable economic and political environments can influence the attractiveness of a country. When these risks are high, firms may adopt a mode of entry which requires lesser resource commitment. Conversely, countries that are politically stable and have free market mechanisms will induce firms to choose an equity entry mode.

ECONOMIC INTEGRATION

While planning to enter into a foreign market, a firm must consider trade treaties between countries. Trade treaties happen when each country has enough firms selling to customers in other countries. Governments then make it easy for firms to buy and sell by lowering barriers to trade, such as duties and inspections. In general, **economic integration** is an agreement among countries in a geographic region to reduce and ultimately remove tariff and non-tariff barriers to the free flow of goods or services and factors of production. Participating countries agree to coordinate their trade, fiscal and monetary policies. Economic integration can occur at various levels.

Free trade areas (FTA) have proved to be one of the best ways to open up foreign markets to exporters from all member countries. Trade agreements reduce barriers to exports, protect countries' economic interests, and enhance the rule of law in the FTA partner countries. Examples are the North American Free Trade Agreement (NAFTA) and the European Free Trade Association (EFTA).

Customs union is an agreement among member countries that eliminates duties and establishes a common *external position* regarding trade with non-bloc members. Examples would be the Eurasian Customs Union and the Arab Customs Union.

Common market is a customs union that additionally allows free movement resources such as capital or labor. Examples of common markets are the Southern Common Market (MERCOSUR) – a South American trade bloc, East Africa Common Market and West Africa Common Market.

Economic union is a common market in which union members harmonize monetary and fiscal policies, environmental regulation, health and safety measures, agricultural policies, and technical standards. In an economic union, economic sovereignty is transferred to supranational institutions such as the European Union (E.U.)

Political Union is the ultimate form of integration which coordinates government and social policy. When a trading bloc adds a political dimension to its economic dimension, a political union is formed. An example of a political union is the former Union of Soviet Socialist Republic (USSR) which was originally a set of independent states which evolved into a centralized dictatorship (the USSR was dissolved in 1991).

Trade Blocs

A trade bloc is a group of countries which engage in international trade with each other. Trade blocs are usually a result of an FTA Almost every country belongs to at least one trade bloc. Most of the world's trade is conducted within three regional free-trade blocs/FTAs: Western Europe, the Americas, and Asia. Trade blocs can be expanded into neighboring areas directly or by a separate agreement. The basis for creating regional trade blocs include geographic proximity, sharing of a border, common political and economic interests, as well as similar ethnic and cultural backgrounds. Countries entering into trade blocs usually have comparable levels of economic development and share similar views on the mutual benefits of free trade. Here are some of the major regional free-trade blocs.

European Union (EU) is a political and economic union comprising 28 countries which have unified to set up a borderless market. The EU market is approximately 500 million people with multiple cultures and languages. A majority of countries in the continent of Europe are members with the exception of Switzerland and Norway. The Euro is the common currency in most countries with the exception of the U.K., Sweden, Denmark, Poland, and newer members from Eastern Europe. The EU has resulted in the elimination of internal tariffs, customs, financial, and business barriers. Though the union has facilitated business, it has not eroded national pride or national culture. Countries still honor their traditions, customs, national holidays, language, and cultural identities. A major challenge currently facing the EU is making strategic decisions regarding whether or not to adopt a pan-European business strategy for the entry into markets or to consider formulating a strategy on a country-by-country basis. Another change for the EU is the impending withdrawal of the United Kingdom from the European Union (Brexit).

Association of Southeast Asian Nations (ASEAN) has its own free trade area, which is composed of 13 countries and facilitates trade throughout Asia. The purpose of ASEAN is to accelerate economic growth, social prosperity, and cultural development and adopts a spirit of prosperity and peace across the region. Within this FTA, the Four Tigers (Singapore, Hong Kong, Taiwan, and South Korea) have provided most of the capital and expertise for developing countries throughout the region. China is not a member, but it does negotiate business with individual ASEAN member countries. The Oceana countries (Australia, New Zealand, and other Pacific Rim islands) are not members of ASEAN, but they do conduct trade with ASEAN member countries.

South Asia Association of Regional Cooperation (SAARC) is a trade pact among eight Southeast Asian nations (India, Bangladesh, Bhutan, The Maldives, Nepal, Pakistan, Sri Lanka, and Afghanistan) that was established in 1985. The market is more than 1.5 billion people (a third of whom live in poverty). The intent of SAARC was to lower tariffs to 25% the first year and to eliminate tariffs over seven years. However, this has not been accomplished as planned. This may be attributed to political instability and terrorism associated with this region.

North American Free Trade Agreement (NAFTA) is an agreement among the US, Canada, and Mexico which was created to accelerate growth, more jobs, better working conditions and cleaner environment with the intent of facilitating increased imports and exports. The NAFTA market has in excess of 470 million consumers. Of note, the Mexican economic cycles are highly dependent on the US economy, but Mexico has entered into 12 trade agreements with 43 nations (90% of its trade under free trade area regulation).

Mercado Comun del Sur (MERCOSUR) is an economic and political bloc comprising Brazil, Argentina, and Uruguay (Venezuela was expelled in 2016). It is the fourth largest trade bloc in the world, with its largest trading partner being the EU. Interestingly, Brazil is Latin America's largest economy. Its economy has been bolstered by the export of raw materials to China and other countries, and strong domestic demand because of its growing middle class.

Central America Free Trade Agreement (CAFTA) is the first free trade agreement between the US, Costa Rica, El Salvador, Guatemala, Nicaragua, and the Dominican Republic. Trade between the US and CAFTA has increased by 71% since its inception.

CHAPTER V-22

POLITICAL, LEGAL AND CULTURAL ENVIRONMENTS

The decision to enter a country should be based on the political, legal, and cultural environment of the country. Economic policies are essentially what a multinational firm is concerned about. These policies are shaped by political concerns. Politics also influence legal policies which, in turn, determine the economic climate. Economic, political, and legal environments are intertwined and collectively influenced by the culture and history of the country.

Political Environment

Political uncertainty and risk are significant factors to consider in assessing the political environment. **Political uncertainties** may include war, revolution, coup d'état, or changes in government. **Political risk** is the *likelihood or probability* that such political events will affect opportunities and operations of the firm. The higher the risk, the lesser the attractiveness of the country.

There are different types of political risks associated with international business. **Transfer risk** is the change in the degree of difficulty (or ease) experienced in the transfer of capital, goods, technology, and people into and out of a country. **Operation risks** occur when governments change regulations in a way that impacts the operations of the firm, e.g., pollution control. **Ownership risk** involves a change in equity owned by the parent firm in a foreign subsidiary. A foreign government might pass laws requiring international firms to hold a different percentage of the subsidiary firm.

The scope of political risk can be evaluated at several levels. **Macro risk** affects the full spectrum of businesses operating in the host country. Macro risk can occur, for example, when all private enterprise is confiscated or nationalized (i.e., Cuba under communist control). Examples of macro risks include the possibilities that a nation could raise taxes, fall into civil war, or devalue its currency. **Micro risk** occurs when there is a specific action against a specific company, group, or industry. For example, if a country enacts new strict environmental regulations on factories, it would affect industrial operations in the country, but it might not affect other industries such as services and restaurants.

Assessing a host country's political risk begins with an exhaustive study of the country's political system as well as the political process. This evaluation includes identifying the relative power of the dominant groups in the society and being aware of their ideologies, understanding the governmental decision-making process, and studying the relative strength and bargaining power of the political parties in the legislative branch. A firm must have an understanding of the decision-making process in the executive branch as well and be aware of key decision-makers. The firm must take a historical look at the path the government in power has taken relative to its economic, social and foreign policies and should consider the potential impact which may result from the future political decision(s) of the government.

There are a number of factors that may change in the host country government and may result in political uncertainty. A change in party leadership can trigger political and economic change and subsequent risk. Religious leaders may assert greater influence in the government

– the greater the religious influence on the political process, the greater the political risk in these countries. Civil strife resulting from opposing parties within a country resorting to arms to settle a conflict can hinder a firm from being successful. However, if the government is powerful and legitimate, and if the country's social or cultural conditions promote civil settlement of differences, the magnitude of risk and scope of uncertainty is reduced.

Assessment of the political environment is an arduous but necessary task which results in a firm having a better understanding of potential risks and political uncertainties associated with a country or region. Once the risks have been identified, there are some ways to manage them.

Direct proactive hedges method involves entering a country in a way that minimizes exposure in the first place. These modes of entry include licensing agreements and joint ventures. With licensing the exposure is minimal as this mode of entry doesn't involve much capital outlay. A joint venture, on the other hand, shares the associated risks with other firms in the venture. Thus, the impact of risk is diluted for each member. This is magnified if the joint venture is with the government of the host country. Finally, promoting the goals of the host country can also minimize exposure to risk because the host country gains by the multinational, helping it achieve its goals.

Indirect proactive hedges mitigate risks and may include lobbying home and host country governments and demonstrating good corporate citizenship in the host country.

Besides proactive strategies, risk can be averted by employing *reactive* hedges such as buying risk insurance, diversifying, taking legal action, and having the home country exert pressure on the host country.

Whatever the method of managing risks, proactive or reactive, a firm must have a contingency plan in place to deal with political risk and uncertainty.

Legal Environment

Political systems and legal systems are interwoven. They work together to impact the economic environment. The host country's legal institutions are part of the governmental infrastructure in which international firms are obliged to operate. Laws of the nation states are designed to govern the behavior of its citizens and the firms conducting business within their borders. Outside of their borders, laws governing regional trade blocs usually address agriculture, competition, consumer protection, education and training, environmental protection, food safety, fraud, internet marketing, public health, research and innovation, and taxation.

The basis of law in various countries will vary across the globe. For instance, US law is primarily based on **English common law** with the exception of Louisiana, which is based on Napoleonic law. English common law is rooted in the Anglo-Saxon tradition in which previous decisions (i.e., precedents) can be used for interpreting a new law or case before a judge or jury. English common law is the foundation for legal systems in the US and the Commonwealth (UK, Canada, New Zealand, Australia). In contrast, **civil law** is based on written law, as is the case of Napoleonic law and German civil code – that is, laws are written and enforced *as they are written*, without need for interpretation or precedent. Civil law is the foundation on which legal systems of countries of continental Europe were built. Germany was considered to be a world power in the late 1800s and had a significant presence in Asia. Because of this, the German civil code was highly influential and was used as a basis for Asian legal systems, particularly Japan and South Korea. China's legal system is a hybrid of civil law and Confucian principles. While many countries find their legal systems based on civil law, others may be founded on **socialist law** which is based on communist principles (i.e., Cuba, North Korea, Vietnam, China) and **Islamic law**, as is the case in Middle Eastern countries (Egypt, Syria, Iraq).

International law consists of international treaties and convention and is predicated by international customs. In general, international law is recognized by civilized nations and respects judicial decisions and the teachings of the most highly qualified judges of various nations.

Knowledge of international law, country-specific laws, and legal implications of trade blocs and other trade agreements are necessary for a firm to successfully conduct business overseas.

Cultural Environment

Not only does the legal environment have a significant impact on international business, but cultural differences can also complicate the picture as well.

Not unlike the political and legal systems, **culture** is the human-made part of the environment, though it is more deep-rooted and difficult to change than the other two. Culture has two components, objective and subjective. *Objective culture* is visible or documented. It is seen in architecture, artifacts, infrastructure, food, dress, and so forth. *Subjective culture* is more open to interpretation both by insiders and outsiders and is implicitly ingrained in society and people's minds. Subjective culture includes attitudes, beliefs, self-definition (i.e., how one sees oneself in relationship to others), role definitions, norms, and values. Subjective culture is passed on from generation-to-generation through social institutions such as family, religion, and school systems. These common attitudes, codes of conduct, and expectations are subconsciously directed at and control behavior within a society. For example, in the US, bribery is illegal and frowned upon, but giving to lobbying and political action committees are not. In certain other cultures accepting money is a way of doing business, and no facade of legitimacy is required.

Globalization has resulted in the spread of cultural beliefs, and social activities from one group to another Known as **cultural diffusion**, the blending of various cultures has increased due to the advancement of technology, communication, and transportation. Nonetheless, significant and critical cultural differences remain. For example, meeting a deadline in the US is important, as "time is money"; however, in Mexico, time spent building relationships is more important than the deadline. In the US, the UK or Germany, being on time is important; however, in Egypt, Lebanon, or Greece, being late is acceptable. Therefore, when firms conduct business in a new (unfamiliar) culture, its employees have to learn new ways of perceiving, evaluating, and acting.

Organizational culture is tremendously influenced by the culture of the society in which it operates. For instance, *kaizen* (which means "improvement") is a process which Toyota uses to manage quality. This process is supported by Toyota's culture, which reflects societal values such as respect for others and the importance of everyone's contribution. It is, therefore, crucial to be aware of one's own organizational culture as well as cultures of other firms with whom business is conducted. Organizational cultures vary in the ways in which firms share values, beliefs, norms, traditions, and goals, and it can be considered as the organization's "personality" or "the way we do things around here." Management style, systems, organizational structure, strategy, type of staff, and a company's mission or business model are all part of organizational culture. Organizational culture can vary a great deal from one firm to another. For example, Apple Computer's organizational culture is organic in that it is informal, flexible, and can adjust to change. The "laid back" nature of Apple's culture is apparent in its dress code (i.e., jeans, tee shirts, ball caps, and sneakers). On the other hand, IBM's culture is more mechanical, rigid, hierarchical, and rule-bound. This is also reflected in its dress code, which is more formal (i.e., suits, conservative colors, dress shoes, and a clean-cut appearance).

In certain situations, the organizational culture of a company can exert greater influence on work behavior than the culture of the society in which it operates. Similarly, the organization culture of the subsidiary is more influential for workers in the subsidiary than the culture of the parent company.

When a firm enters into an international market, cultural differences between the parent company and its subsidiary can be challenging, particularly if the parent company's managers attempt to impose their own values and systems on workers from a dissimilar culture. A subsidiary of a global firm can increase adaptability to the host country through **cultural sensitivity**. Cultural sensitivity is a state of heightened awareness for the values and frames of reference of the host country. Individuals with a high level of cultural sensitivity tend to be less parochial in their ways of thinking and will be better equipped to evaluate how managerial practices can be implemented in the host country.

Cultural sensitivity increases as one moves from parochial to ethnocentric to geocentric thinking. **Parochialism** is the belief that there is no way of doing things other than the way it is done within one's own culture (i.e., there is no alternative). **Ethnocentrism** is somewhat similar to parochialism, but this approach has a tendency to reflect a sense of superiority. Individuals with an ethnocentric approach believe that their way of doing things is the *best* way. **Geocentrism** is a global approach that does not show preference of one culture over another. Instead, it adopts the approach of doing whatever it takes to better serve the global firm.

There are various frameworks regarding cultural dimensions which may be helpful in understanding cultures at a national level as they relate to business. Hofstede described five cultural dimensions that explain differences in behaviors of national cultures (and not behavior of individuals within the countries). On a continuum, each of these dimensions should be evaluated in order to understand the national culture in which a firm elects to do business. Hofstede's cultural dimensions are:

Individualism versus collectivism – *Individualism* is defined as a social pattern where individuals see themselves as independent of groups and who are motivated by their own self-interest in terms of preferences, needs, rights, and contracts. Individualistic cultures have higher per capita gross national product (GNP), are more affluent, more urbanized, and more industrialized. Individualist countries include the US, UK, and Australia. At the opposite end of the continuum, *collectivism* is a social pattern that consists of closely linked individuals who see themselves as belonging to one or more groups (i.e., family, co-workers, in-groups, tribes). Collectivists are motivated by norms, duties, and obligations identified with these groups and give priority to the goals of the group instead of the individual. China, India, and Greece are countries which are collectivistic. Countries that are close to the equator have a tendency to be collectivistic. Countries such as Sweden, Norway, and Finland that are remotely located in a climate that is extremely cold and experiences harsh winters tend to be individualistic in nature. Inhabitants in these countries have learned to survive as rugged individuals and are not apt to rely on groups for their survival. (Citizens of countries located in warmer climates have time to enjoy the company of others and don't have to worry about survival.)

Power distance is defined as the extent to which the less powerful expect and accept that power is distributed unequally. In cultures that are considered high on this dimension, a centralized authority usually designates the procedures for employees to follow, and inequality in rewards are not questioned. In low-level power distance countries, lower level employees will follow the procedures outlined by their superiors unless they disagree or feel that the directions are wrong. In high power distance cultures, strict obedience to superiors is expected, even when their judgment is considered to be wrong. Centralized organizations are the norm in high power distance cultures, whereas decentralized decision-making is more common in low power distance cultures. The US, Germany, and the Netherlands are examples of low power distance cultures, whereas Saudi Arabia, France, and Malaysia rank high on power distance.

Uncertainty avoidance is a dimension which is defined as the extent to which the members of a culture feel threatened by uncertainty or ambiguity. In cultures that are high on uncertainty avoidance, familiar risks are accepted, but risks which are uncertain or ambiguous will create anxiety; in these cultures, there is an emotional need for rules, and these conditions are not conducive to change or innovation. Countries that have high uncertainty avoidance are Italy, Korea, and Mexico, whereas the US, UK, and Singapore rank low on this dimension.

Masculinity and femininity is a cultural dimension that evolved from male and female stereotypical gender roles. Masculinity pertains to societies in which social gender roles are clearly evident (i.e., men are expected to be assertive, tough and focus on material success, whereas women are expected to be modest, tender and concerned with nurturing and quality of life). A feminine culture is one in which gender roles may overlap, i.e., both women and men are supposed to be tender, modest, and concerned with the quality of life. In masculine cultures, success, materialism, and money are the dominant values, and in feminine cultures, quality of life is the dominant value. In feminine cultures (e.g., predominantly Scandinavian), female managers are more common in organizations.

Time orientation measures the culture's meaning of time. For example, the US view on time is "time is money," whereas, in other cultures, time is not considered to be a limited resource. Such countries can be very casual about keeping appointments and meeting deadlines. Another aspect of time orientation deals with a society's view of the future. Most Asian cultures have a long-term future orientation; individuals from these cultures learn self-restraint early in life, are concerned with saving money, working toward long-term future goals, and persistence is valued. In contrast to this, individuals from the US, UK, and Canada adopt a short-term orientation, are concerned with short-term investments and reward managers for immediate financial outcomes.

Other perspectives of national cultures which have been useful to a firm deal with rule orientation as well as relationship orientation. **Rule-oriented cultures** are interested in designing work organizations in accordance with certain guiding principles that had some utility in the past. In a rule-oriented culture, there is a strong emphasis placed on formal organizational procedures and contractual arrangements. Human resources policies are strongly adhered to, and rewards and benefits are based on an employee's conformity to policy and rules. On the other hand, in **relationship-oriented cultures,** maintaining harmonious relationships are important, and productivity may be sacrificed at the expense of maintaining peaceful relationships among groups within an organization.

Finally, it should be emphasized that within cultural differences, **religion** is an important determinant of how international businesses function throughout the world. For example, in the Middle East, where the predominant religion is Islam, religious practices such as praying throughout the day have been integrated into business practices. In India, McDonald's and other Western fast-food businesses do not serve pork or beef out of respect to its Muslim and Hindu customers.

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GLOBAL MANAGEMENT ISSUES

Issues that can be faced by organizations when it expands to operating globally can be classified into 4 categories, Technology and Knowledge Management, Communication, Negotiation and Decision-Making, and Ethics and CSR. These 4 are discussed in turn in this chapter.

TECHNOLOGY AND KNOWLEDGE MANAGEMENT

As globalization increases, the creation, diffusion, and absorption of knowledge become increasingly important. Not only does the management of cross-border strategic alliances and joint ventures require the effective transfer of scientific and organizational knowledge, but it can also be a source of competitive advantage.

Technology is defined as a systematically developed set of information, skills, and processes which are necessary to create and develop products and services and support the firm's infrastructure (i.e., physical plant, equipment, processes, etc.). **Knowledge** is a fluid mix of experiences, values, contextual information, and expert insights. It provides a framework in which an individual (or a firm) evaluates and incorporates new experiences and information. Organizational knowledge evolves through a process of continuous interaction with individuals within the firm as well as interactions with external sources of information such as customers, suppliers, and competitors.

There are three ways in which technologies and knowledge can be transferred: product-embodied, process-embodied, and person-embodied transfers. **The product-embodied transfer** is the transfer of the product itself. An example would be a large industrial crane used for offloading intermodal freight containers from ships – these may be manufactured in Japan, and the product itself may be transferred to Kuwait or Brazil. These types of transfers are usually routine, and global organizations from major industrialized countries can easily transfer these technologies to less developed countries. However, maintenance of such machines requires elaborate training of personnel and discipline in usage procedures.

A **process-embodied transfer** is the transfer of blueprints, patent rights, scientific or engineering processes. An example of this would be firms such as Royal Dutch Shell or Exxon who use technology in their offshore oil exploration. Plans, blueprints, or working know-how of this type of technology can be transferred relatively easy via trained personnel who can have access to manuals or procedure protocols. Both product-embodied technology and process-embodied technology involve the transfer of *explicit knowledge.* Explicit knowledge is unambiguous, straightforward, clear-cut, and can be easily written or transmitted. This type of knowledge can be stored in databases or repositories.

A **person-embodied transfer** is accomplished via continuous dialogue between the supplier (i.e., individual or firm) of the technology and knowledge and the recipient firm. This type of transfer includes details or concepts that are not easy to articulate in the form of the product or process, and it involves *tacit knowledge.* Tacit knowledge is highly personal, difficult to communicate (both written and orally), and is highly specialized. Tacit knowledge is difficult to transfer, as it is embedded in the historical and cultural contexts in which a company operates. This type of knowledge is obtained through experience, which has accumulated over time through repetition. Tacit knowledge is the knowledge that can be, albeit with difficulty, but hasn't been made, explicit. Tacit knowledge is particularly prevalent in collectivistic cultures like India, Brazil, and China, and could reside in groups as well as in individuals. Such cultures do not feel the need to expend the considerable effort needed to convert tacit to explicit knowledge. Individuals and groups are fairly stable, and if changes do occur, the group manages to continue operations because of shared experiences within the group. Procedures, timelines, responsibilities, and accountabilities are generally more fluid. Making anything very explicit is considered unnecessary and may be an interference in their way of doing things.

The success of cross-border knowledge transfer hinges on three factors – strategic intent, administrative heritage, and technical systems. If both parties (sender and the recipient) match on these three factors, it is more likely that the transfers will be successful. If the **strategic intent** of both managements emphasize knowledge creation and support it with tangible resources, cross-border technology, and knowledge transfer will be successful. **Administrative heritage** of a firm consists of the values and practices of its founders (which are reflected in its organizational culture and leadership), the nature of organizational communication, and the quality of its professional interactions. Global firms with historical emphasis on knowledge management and which emphasize knowledge transfer among subsidiaries routinely are generally successful. **Technical systems** reflect a firm's R&D systems, sophisticated management information systems (MIS), as well as the quality of its professional interactions. Differences in capacity (capability), R&D systems, MIS, and skill levels of the technical and administrative staff will inhibit knowledge transfer.

Having defined the constructs of technology and knowledge and their nuances, we now turn to some specific issues in their management in a global context. These issues are presented so as to stimulate the thinking of the reader rather than being complete and sacrosanct. Clearly, individual differences in the firms that make up the MNE, the industry, and the political and legal environments of the countries define the issues in technology and knowledge management that are faced by the MNE.

- The transfer of technology and knowledge is more successful when all parties (the transferring party and the recipient party) speak a common language, have a common ancestry, shared the history, and are in geographic proximity. For example, the US and Canada share a common border, a common language, and common ancestry, and are able to transfer technology and knowledge without much difficulty. However, in countries that have more cultural distance (for example the UK and Vietnam) and do not share a common language, border or ancestry, transferring technology and knowledge can be complex and more difficult.
- In high tech global industries, both parties can be successful in transferring technology if both parties are technically savvy. Cultural differences between the countries don't negatively affect as much.
- Individualistic cultures emphasize explicit knowledge. This form of knowledge is favored more in societies which encourage people to think more independently. Managers in countries that are highly individualist (US, UK, Canada) are more effective in their willingness to transfer and receive new forms of technology since often their performance evaluation is hinged to their technological knowledge and ability.
- Collectivist cultures are more adept in the absorption of tacit knowledge when compared to individualistic cultures. Collectivist cultures have a higher tolerance for ambiguity, errors, and faults.
- Transferring tacit knowledge from a company located in a collectivistic society to a company located in an individualistic society that favors explicit knowledge is generally more difficult than the transfer of tacit knowledge from a collectivistic culture to another collectivistic culture.

- The transfer of knowledge to a high power-distance context can be difficult as the rank and file await acceptance from higher-ups who may be unable to engage.
- A firm operating in a country which ranks high on uncertainty avoidance will have more difficulty in accepting knowledge.
- *Knowledge hoarding* is an impediment to transferring knowledge. Knowledge hoarding happens when people are power hungry, lack trust, have an aversion to uncertainty, or fear to make mistakes.
- Knowledge can be in several stages of development starting from creation, early adoption, majority adoption to commodity. The developmental stage of knowledge will impact its acceptance and transmission.

It goes without saying that transfer of technology has to satisfy local (host country) objectives and priorities, including government regulations, export requirements, and licensing agreements. Beyond those hurdles, the not-invented-here (NIH) syndrome is a major cause of negative attitude towards the acceptance of technology and knowledge from the parent firm. In this syndrome, knowledge disavowal occurs when a manager in a subsidiary chooses not to implement a high-quality technology or organizational knowledge with an attitude of "people here will not buy into these foreign practices." A firm can overcome NIH syndrome by building stronger interpersonal relationships and establishing effective channels of communication via open and meaningful dialogue. Building trust between the parties involved is critical to overcoming this syndrome. Global firms need to be attuned to why certain parties are resistant and how they can reconcile their differences. This can be done by explaining the processes, explaining the rationale, and how the firm and its employees will benefit. MNEs need to be creative in finding ways that resistant parties can claim ownership in the new knowledge or process and thus allowing them to save face.

In summary, it is vital for firms to be competent in transferring and receiving technology across its subsidiaries. A competent manager should be aware of the two different types of knowledge and the influence of organizations' and countries' cultural differences in the successful transfer of knowledge.

COMMUNICATION

Communication is a process of sharing meaning by sending messages through words, behaviors or artifacts; and the vehicle through which organizations can disseminate information, motivate, train, negotiate, and make decisions. Communication is successful if the intended message is conveyed, but in cross-cultural communication, *cultural noise* may distort the message. Cultural noise happens when individuals filter messages in a way which is consistent with their own experiences and perceptions of reality and relative to their own value system and behaviors. The more differences, or *cultural distance*, between cultures, the more prone they are to miscommunication.

Though *cultural sensitivity* is important, for effective communication, one has to be careful of *cultural stereotyping.* Cultural stereotyping occurs when an outsider assumes that every member of culture has the same attributes or traits. A firm must have an understanding of these stereotypes in order to avoid communication failure. The bottom line in effective communication is *trust.* Trust is the foundation of dealing with dissimilar cultures and cross-border alliances.

Communication occurs through language (spoken or written) as well as non-verbal mode. *Language* is a frequent cause of miscommunication. This can be due to an individual who does not speak the local language or due to a translation that is too literal. Language conveys objective information but in the context of cultural and societal understanding. International managers need to have a good command of the local language or have a competent interpreter. However, interpreters also tend to see the world through their own lens, and this can cloud effective communication. *Non-verbal communication* is communication without words. Non-verbal communication is responsible for 90 percent of all communication. The use of body language, speech rhythms, and silence can vary across cultures. There are four terms that are associated with non-verbal communication – kinesics, oculesics, proxemics, and haptics. The umbrella, *kinesics,* is the type of communication that is relayed through body movements such as posture, gestures, facial expressions, and eye contact. Kinesics systems are culturally-specific and learned. Certain expressions including anger, disgust, fear, happiness, sadness, and contempt, can usually be recognized internationally; however, laughter does not always convey the emotion of happiness (i.e., in Thailand, laughter may express embarrassment).

Similarly, relaxed posture may be considered rude by some cultures. *Oculesics* is the subtle difference in eye behavior (i.e., eye contact). In Western culture, eye contact is usually construed as someone being trustworthy, whereas, in another culture, eye contact can be intimidating. *Proxemics* deals with the influence of proximity and space on individuals in the communication process. This can be related to an individual's private space, office space, and room layout. Personal space is culturally-patterned and spatial cues (i.e., if someone is encroaching your personal space, you back away) can vary across cultures. *Haptics* deals with touching, such as embracing or handholding. In some cultures, particularly in the Middle East, a male touching a female (who is not his wife) is a violation of a cultural norm and is unacceptable.

The context in which communication takes place affects the meaning of a message. Cultures can be classified as either high or low context with a relative range in between. In *high context, cultures,* feelings, thoughts, and information are *not* expressed explicitly but are embedded. In high context cultures, most workplace communication takes places within the context of extensive information networks which are formed through close personal relationships (i.e., families, co-workers, and friends). Hence, information flows freely because of constant close contact and network ties among people. Examples of high context cultures are the Middle East, Africa, Asia (e.g., *guanxi* in China). In *low context cultures*, thoughts and feelings are expressed in words, and information is readily relayed. In these cultures, personal and business relationships are usually compartmentalized, and communication is more direct. In low context cultures, information is more formal, focused, controlled, and does not flow freely. Examples of low context cultures are North America, Scandinavia, and Germany.

Americans have a tendency to give and receive information very quickly and clearly and approach communication in a linear fashion. IM, emails, Skype, faxes, and social media may be employed. Some cultures are more focused on slower messaging channels to build and sustain personal relationships. The almost-lost art of letter writing is still preferred by some cultures (particularly the French).

Here are a few more tips for communicating in an international setting. *Face-to-face communication* is preferable for building interpersonal relationships in business transactions. If face-to-face is not possible, video conferencing is a helpful tool in communicating. In face-to-face communication, managers should slow down and speak louder, listen as much as they talk, avoid religious and political topics, dress more formally (i.e., casual dress is a sign of disrespect) and avoid conversations about personal wealth, power or status, idioms, and colloquialisms should be avoided as they get lost in translation. In addition to the written words, use graphs, charts, and other visual aids when possible to help relay messages. Finally, frequent communication and over-communication of information with the use of electronic media and social media is also advisable as this helps in building trust.

NEGOTIATION AND DECISION MAKING

Negotiation is an exchange by which two or more parties reach a mutually acceptable agreement. These exchanges can take place at a person-to-person level or can involve teams representing international firms. In international business, cultural differences can pose significant challenges throughout the process. These differences can result in factors such as the amount and type of planning before the negotiation, the emphasis placed on task versus interpersonal relationships, and the number of individuals involved and the extent of their power in terms of status and responsibility to make decisions. Negotiation may include different languages, types of communication, different thought patterns, and different approaches to problem-solving. To overcome these hindrances, negotiators must use empathy to connect with others from dissimilar cultures. Empathy can be used to build trust, which is important if negotiations are to lead to a satisfactory conclusion.

Negotiations are engaged in to culminate in decisions. Any decision which entails negotiations is called a non-programmed decision. They are not routine, are more complex, and are more important than routine or programmed decisions. In the case of routine decisions, who decides and what the decision should be are well documented. However, when programmed decisions are in jeopardy of being incorrect, different cultures will resort to different approaches. A case in point is the crash of an Asiana Airlines (Korean) flight in San Francisco. The Korean culture is predicated on respect of an older person, status, and authority. The junior pilot did not challenge the senior pilot's decision, and this resulted in three deaths and multiple injuries to crew and passengers. On the other hand, in Asian cultures, even small decisions are made based on consensus. No one individual will stick his/her neck out to take responsibility for the decision and if s/he does s/he will be frowned upon.

The negotiation process has five stages, and the order can vary because of cultural norms and preferences: preparation, relationship building, exchange of task-related information, persuasion, and concession and agreement.

In negotiation, everything starts with **preparation** – it is important to know where similarities exist so that common ground can be established. Identifying value systems, attitudes, and expected behaviors of the opponent will provide useful information before engaging in the process. **Relationship-building** is particularly important (especially in Asian cultures) and is the foundation of building trust and mutual respect. In western cultures, **exchange of task-related information** might precede relationship building which might even never occur. Such information exchange can be voluminous wherein both parties describe their positions in details. In western societies, this exchange can be very direct and clear. Whereas in Asian cultures it is more masked, making each party guess the other's position.

Persuasion is the most difficult part of the negotiation. Each party is attempting to persuade others to accept more of their position and to give up some of their own. The majority of persuasion usually takes place over one or more sessions and may include various tactics such as threats or promises. Tactics such as rudeness, interruptions, lighting that is too bright, uncomfortable room temperature, or other means to make the opponent feel physically or psychologically uncomfortable may be employed. US negotiators have a tendency to be aggressive, demanding, or loud, but Asian negotiators want to avoid confrontation and may walk away if they feel threatened or disrespected. All these tactics may vary widely across cultures.

The final stage of the negotiation process is **concessions and agreement**. Firms from various cultures may open their bargaining positions differently. US negotiators address issues one at a time in a linear fashion; however, negotiators from Asia approach each issue in a holistic fashion and come to a consensus at the end of the process (not making incremental concessions as the US party would). At the final stage of the agreement, local practices determine how the agreement will be honored (i.e., US negotiators take a written contract seriously, whereas the Japanese consider a formal contract to be somewhat insulting and rely on understanding and trust). An important issue to understand is *face-saving,* which is the preservation of one's reputation, credibility, or dignity. The concept of face is deeply ingrained in the culture of many Asian societies and is an important consideration in international business. Some cultures see concessions as a sign of weakness or loss of reputation, and not putting them in a written contract allows the negotiating party to save (protect) face.

Negotiations can be hampered by a number of things.

View of the notion of time – for instance, US negotiators have a *monochronic* view of time (i.e., "time is money") and expect to negotiate with a firm deadline in mind. Conversely, a Latin culture (i.e., Mexico, Brazil, Argentina) has a *polychronic* view of time and do not see meeting the deadline as being critical. To these cultures, it is more important to build relationships than meeting the deadline.

The objective/subjective approach to decision-making – in some cultures, individuals may take an objective approach (i.e., Western cultures will adopt an approach that is based on rationality), whereas other cultures may be more subjective and rely on emotions.

Locus of control – a manager's perception of locus of control can also affect a negotiation strategy. Some individuals feel that they can plan on certain outcomes because they are in control of a situation (internal locus of control). However, individuals in other cultures (i.e., Indonesia or Malaysia) feel that they have no control over outcomes (external locus of control) and that control is in the hands of outside forces such as fate, nature, or a deity.

Uncertainty avoidance – the cultural dimension of uncertainty avoidance, which implies that some cultures have an aversion to risk-taking, uncertainty, and ambiguity, might affect negotiated outcomes. Managers from some cultures may feel more comfortable choosing alternatives that are familiar solutions instead of trying new ones. European managers tend to value decisions that are based on experience and emphasize quality, whereas decisions made by US managers are more future-oriented and rely more on new ideas.

ETHICS AND CSR

In addition to the above issues, ethics and corporate responsibility (CSR) also are more of a problem in international business than businesses that are entirely domestic. Ethics is defined as a moral philosophy or code of morals practiced by a person or group of people. Business ethics is defined as the moral thinking and analysis of corporate decision-makers regarding the motives and consequences of their decisions and actions. There are many approaches to understanding ethics, but for sure, we know that ethics are not universal, and ethical standards are culture-specific.

Simply put, this means that what might be acceptable in one culture may not be acceptable in another (cultural relativism) – we have used bribery as an example of this previously. It is difficult for an MNC to develop a universal code of ethics because of these cultural differences; however, basic moral norms can be applied to MNCs such as no killing, telling the truth, respecting the property of others, honoring contracts and exercising fairness in business transactions (i.e., fair dealings are free from prejudice, and favoritism and are impartial and honest). Again, these basic morals are easy to talk about, superficially. What does telling the truth means when it hurts the innocent? Will different cultures value "telling the truth" differently?

Bribery and corruption are the most pervasive and troublesome ethical issues for MNCs. Bribery is the offering, giving, receiving, or soliciting of any item of value to influence the actions of an official or another person in charge of public or legal duty. Forms of bribery include: facilitating payments (i.e., small cash disbursements, "grease" money), middleman commission, political contributions and cash disbursements (i.e., large amounts of money that can be deposited to banks in a third country such as Switzerland or the Bahamas). Here, too, one has to careful about rushing to judging people from other cultures. Some sophisticated modern country-cultures have made payments socially acceptable. For example, this could be done by creating cliques and networks whose members "give back" to one another in indirect ways (think "old boys network"). Under the façade of relationships, a less competent person could be hired because of the person's connection. The hirer will expect a return in some way, shape or form in the future. "He owes me one" wouldn't exist if the previous transaction was fair.

Corruption is a form of unethical or dishonest conduct by a person(s) entrusted with a position of authority in order to acquire personal gain or benefit. Corruption may include many activities, including bribery and embezzlement**.** There are social/business costs associated with bribery and corruption in that companies that have the best value, product or service may not get the business (i.e., business goes to a company that offers the biggest bribe), or taxpayer's money may be misappropriated (i.e., if government officials choose an inferior piece of equipment over a better alternative). Competition on price, quality, and service can also erode. Consumers also bear the burden of increased costs due to corruption. Corruption can undermine trade and FDI, thus depriving investors and host countries the benefits of trade and investment. Corruption can result in the misallocation of capital, which diverts resources from constructive activities such as technology and innovation.

Conditions that are conducive to corruption are those countries which lack legal frameworks and the inability to enforce laws. In addition, culture is a predictor of corruption. Corruption correlates with cultures that are high on uncertainty avoidance, as corruption is a mechanism for reducing uncertainty. Masculine, authoritative cultures with high power distance results in superiors extending favors to subordinates in return for loyalty.

Before conducting business overseas, it is important for a firm to know the level of corruption in a country. Valuable information can be obtained from Transparency International, which is a global anti-corruption coalition which monitors corruption worldwide and publishes a global corruption perceptions index of countries. A firm should consult the laws "as practiced" of both the home and host countries and consult the International Code of Conducts for MNEs (OECD, ICC and ILO Codes of Conduct are three such codes).

Not only should an international firm operate ethically, but it also should conduct business in a socially responsible and sustainable way. **Social responsibility** is an ethical theory which implies that individuals are accountable for fulfilling their civic duty; the actions of an individual must benefit the whole of society. In this way, there must be a balance between economic growth and the welfare of society and the environment. **Corporate social responsibilit**y is a commitment to developing policies that integrate responsible business practices into daily operations. In this concept, firms consider the interest of society by managing its business in a manner that addresses social and environmental impacts created by the firm's operation. CSR strategies encourage the company to make a positive impact on the environment as well as stakeholders, including consumers, employees, investors, communities, competitors, and others. Many firms consider the environmental impact of their business, such as clean air and water as well as their carbon footprints. "Green" operations sustain the environment and are considered both good for a firm and society and demonstrate good corporate citizenship. Ethical labor practices include treating employees fairly and not using child labor or sweatshops. International firms engaging in CSR are apt to have improved access to capital, increase in revenues, decrease in costs, and reduction of risks. In addition, firms may realize increased brand value, improved customer attraction and retention, improved reputation/corporate image, as well as attracting and retaining employees.

CHAPTER V-24

SOLUTIONS FOR GLOBAL ISSUES: STRATEGY, STRUCTURE, HUMAN RESOURCE MANAGEMENT, AND GLOBAL LEADERSHIP AND MINDSET

In order to remain competitive globally, firms need to build strong positions in world markets with products and services that meet the needs of its diverse set of consumers. In previous chapters, we've discussed several reasons for firms to have an international presence and the issues and constraints they present, i.e., technology and knowledge management, communication, negotiations and decision-making, and ethics and CSR. The degree to which the four constraints are debilitating for an organization depends upon the strategy of the firm. In this chapter, several macro concepts will be discussed, which can positively influence the critical bottlenecks in international business. These macro solutions lie in the firm's strategy, structure, human resource management, and global leadership and mindset.

STRATEGY

It is necessary for a firm to formulate a global strategy which is aligned with its objectives. Strategy involves assessing both internal and external environments as well as identifying factors which are critical to success, keeping in mind that what works in one country may not work in another.

Most organizations operate on planning cycles of five plus years and often use intermediate reviews to make sure that they remain on target. When necessary, they need to adjust their strategies to accommodate any changes in the business environment. While this is true for all firms, adjustments are more necessary and frequent for global firms. Economic, political, technological, and legal upheavals, as well as changes in positions of competitors, impact international businesses more than ones that are just domestic.

There are two strategic alternatives available to a firm wanting to be a global player – entry alternative and global alternative. The **entry alternative** is one in which a domestic firm participates in the global marketplace through exporting, licensing, franchising, and joint ventures, as we previously discussed. The **global alternative** is one in which an MNC has a footprint via immovable assets in a foreign country. Within the global alternative, there is a continuum from an undifferentiated world to one that is multi-domestic or multi-local/regional.

Undifferentiated global strategy implies the development of standardized products and marketing and treats all countries similarly regardless of cultures and systems. If a firm has a standardized product, this strategy has the advantage of worldwide economies of scale. This strategy may result in a lack of local flexibility and responsiveness to consumers' needs. Hence, it is usually riskier than a regional or multi-local strategy.

Regionalization (multi-domestic/ multi-local) strategy is characterized by firms developing specific products for specific markets based on consumer needs and country-specific competition. However, a multi-domestic strategy is difficult to manage because of having to accommodate multiple cultures and ways of doing business. Although there may be pressures to globalize, there also may be pressure to regionalize – particularly in the case of newly developed or emerging economies. Strategic choice of the firm (i.e., on a continuum of globalization to regionalization) relies on the nature of the industry, the type of firm, the firm's strengths and weaknesses, and the nature of its subsidiaries. Each firm's strategic approach should be unique in adaption to its own environment. Some firms have adopted the strategy of **glocalization** (i.e., go global but act local) to balance the advantages of each. Once a strategy is formulated, the structure of the firm is then determined.

Organization Structure

Organization Structure (design) shows a firm's reporting relationships, procedures, controls, as well as authority and decision-making processes. It is obvious that organization structure impacts technology and knowledge transfer and communication between units in different countries of a global enterprise. Appropriately designed structures provide the firm stability and flexibility. **Structural stability** provides the capacity for a firm to operate in a predictive and consistent manner, and flexibility in a company's structure will allow the firm to identify opportunities and allocate resources efficiently for future expansion. There are several types of organizational structures for global operations, including simple, functional, multi-divisional, and matrix structures.

Simple structure is one in which the owner/manager makes all major decisions and monitors all activities within the firm. The staff works as an extension of the manager who actively works in the business on a daily basis. Usually, there are few rules, informal relationships, limited tasks specialization, and unsophisticated information systems. Coordinating work is usually easy and frequent, and informal communication occurs between the owner and subordinates. A simple structure is appropriate for a global organization with a single product line and a limited number of employees using an undifferentiated global strategy. As the firm starts to grow, a new structure may evolve which will accommodate a shift in strategy which might include more sophisticated workflows requiring more coordination within the firm and across its subsidiaries.

Functional structure is composed of a CEO and a limited corporate staff of managers in functional areas (i.e., accounting, marketing, HR, R &D, etc.). This structure allows for functional expertise and specialization, which facilitates actively sharing knowledge *within* each functional area but maybe not so much *across* all areas. Decisions are made at the top levels of management with the intent of exerting control over the organization.

Divisional structure is composed of a corporate office and operating division(s). Each operating division represents a separate business or profit center in which a top corporate officer delegates responsibilities for every-day operations and business unit strategies to division managers. A **multi-divisional structure** evolves as firms develop greater levels of diversification. For an international firm, the divisions may be organized geographically (by countries) or by product line. One disadvantage of the divisional structure is that this may result in redundancy and competition for resources between/among divisions.

Matrix structure is a design in which the reporting relationships are set up as a grid, or matrix, rather than the traditional hierarchy. Employees have dual reporting relationships, i.e., employees may report to both a functional manager as well as a product manager. Resources can be used more efficiently since experts and equipment can be shared across projects. Products and projects are formally coordinated across functional departments, and information flows both across and up through the organization, thus facilitating and expediting information sharing and decision-making. Employees usually work autonomously and have to "self-manage" between their competing matrix bosses; at the personal level, this can enhance motivation and decision making for the individual, but at the same time it can be uncomfortable for employees, as there is no chain of command. This can lead to confusion because the lines of reporting are unclear. Some may experience psychological stress (i.e., the tension caused by being torn between two bosses), conflict (i.e., competing for resources among various matrix members), and inefficiency (i.e., multiple managers, conflicting policies and procedures, infighting and contradictory loyalties).

Horizontally-linked structure (network) is a more recent type of structure which is less hierarchical and more flexible and responsive than others. In a network structure, managers coordinate and control relationships that are both internal and external to the firm. This structure is akin to a fishnet though the nodes can be connected to any other nodes unlike in a fishnet. Each node could be a function (IT, R&D, human resources, marketing, finance, etc.), or a product, or a firm acquired by an M&A.

Rather than being constrained by one of the four organizational structure types, a large MNE should be cognizant of and leverage the following four dimensions: 1) functional expertise of the value chain activities in which the company is involved; 2) product and technical know-how of the firm; 3) knowledge of the countries and regions in which the firm operates; and 4) expertise regarding similar market segments and major accounts that cut across various regions and nations. How these dimensions should be combined may vary across firms. There is no "best way" for organizing an international firm, and each firm may organize its operations using a combination of these dimensions. In most cases, the strategy is not pre-determined or permanently fixed. Thus, the structure continues to evolve in responses to a firm's strategy.

A company goes through several structures as it grows to become more and more global (i.e., revenues increase from foreign countries). The first phase is the **pre-international division** phase. In this phase, a firm starts with exporting or servicing international users, a la e-commerce companies, with just a simple structure. As international activity increases, pressure mounts for firms to evolve away from a simple structure and develop one international division. In an **international division structure**, all international activities are grouped into one separate division and assigned to a senior executive at headquarters. This individual has line authority over subsidiaries abroad with the international division becoming a profit center. Thus, the firm is segregated into two parts: domestic and international. Coordination occurs at the top management level. Factors that favor the adoption of the international division structure include limited product diversity, comparatively small sales generated by foreign subsidiaries, limited geographic diversity, and having a few executives with international expertise. In the final phase of global growth (a rule of thumb is that when the sales of the international division exceed those of the largest domestic division) a company adopts a **global structure**. This structure allows the firm to make more secure and sound economic and investment decisions about purchasing raw materials and location of new manufacturing plants. This structure also allows the firm to turn to international capital markets for its financial needs.

There are 3 types of global structures: global products structure, global area structure, and global matrix structure.

The **global products structure** provides managers the authority and responsibility for the global management of all functional activities related to a product or product group — each product or brand division functions as a semi-autonomous profit center. Corporate headquarters may provide the overarching company-wide plans and strategy, but product/brand managers have decentralized authority to operate their divisions. The major advantage of a global products structure is the ease and directness of the flow of technology and product knowledge from one country to another. This form of structure emphasizes (and promotes) product planning on a global level, as it provides an avenue for direct communication from the customer to those in the organization who have product knowledge and expertise. This design also facilitates coordination of domestic and foreign production facilities according to the availability of natural resources, labor cost, and skilled workers. One disadvantage of this structure is the duplication of facilities and staff groups, as each product group develops its own infrastructure to support operations in various parts of the world. In addition, product managers may pursue other geographic areas that offer immediate growth opportunities for products and neglect those areas which might offer better long-term opportunities. Often there is bias within the structure, as a manager may be concerned with only his or her niche, and there is no motivation to share knowledge across products (i.e., information hoarding).

Global area structure is an option for firms who wish to coordinate global operations using geography. In an area-based structure, the firm's worldwide operations are grouped into several geographic areas, and the head of each area is given line authority and responsibility for all products in the area. The manager in charge of the area is responsible for the development of business in the assigned area. This structure is best suited to firms which have narrow product lines with high levels of regional product differentiation. One major advantage of this structure is that it encourages finding regional solutions to problems; decisions regarding product adaptation, price, distribution channels, and promotion are pushed down to regional headquarters. However, the difficulty may arise in reconciling product emphasis with a geographically-oriented management approach. A certain amount of product expertise has to be developed in each area unit, and duplication of product development and technology is often required. Functional staff activities may overlap with those of headquarters, resulting in increased overhead and another layer of communication. In this design, R&D programs are often difficult to coordinate, global planning may be difficult, and there may be no consistent effort to apply newly developed domestic products to international markets. When newly developed overseas products are being introduced to the domestic market, the process can be somewhat slow, and product knowledge is weak.

Global matrix structure is appropriate when there is a product versus area dilemma. A global matrix structure brings together both the local market and product expertise into teams that develop and respond to the global market. This structure supports flexibility in designing products in response to consumer needs. Through a global matrix structure, a firm may have improved ability to access global resources. It can also better coordinate shared technologies across borders and benefit from decentralized decision-making. This is richer in that it utilizes a diverse range of skills and perspectives. As in any matrix structure, employees are accountable to more than one manager, and reporting relationships are complex and somewhat vague.

Having talked about strategy and structure at great lengths, we now turn to culture and personnel as the other two key factors for overcoming the four issues in the success of an international firm. Culture and personnel are effectively managed by proper global human resource policies and leadership styles that support global operations.

International Human Resource Management

Besides strategy and structure, proper management of global employees is a key in the organization's meeting of its objective of satisfying the needs of its global customers. That proper management of employees is the major responsibility of the **international human resource management** (IHRM) function. The function includes planning, recruiting, selecting, training, compensation, and performance management with the final goal of attracting, developing, and maintaining a high-quality workforce. It is well accepted now that the strength of any firm is determined by the quality of its human resources. In a highly competitive global environment, factors of production (i.e., capital, technology, raw material, and information) can easily be duplicated; however, human resources cannot. *Human capital is the most important resource of any organization and is a competitive advantage.*

Due to complex local laws, regulations, different cultural norms, and local practices which have been entrenched for many years, a "one size fits all" approach to IHRM is not practical. A global firm may adopt one of four approaches in dealing with staffing. An **ethnocentric staffing approach** reflects the values, attitudes, practices, and priorities of the firm's home-country headquarters, which determines its IHRM policies and practices. In this approach, managers from the parent country are appointed to leadership and other major positions in the subsidiary. Decisions regarding foreign staffing are made at headquarters. A **polycentric staffing approach** considers the needs of the local subsidiary when formulating policy and procedures. Staffing decisions are formulated and implemented at the local level. Managerial positions may be filled with individuals from the host country; however, a manager from a local subsidiary would rarely be promoted to a position at the firm's headquarters. A **regiocentric approach** is adopted when a firm considers the needs of the entire region in formulating its policies and procedures. In this approach, managers from the host country are often selected for managerial positions in the host country and may be promoted to positions at the regional level. Some subsidiaries in a given region may craft a common set of HR policies that uniquely fit a particular area. In the **geocentric (global) staffing approach**, it is the intent of the firm to optimize the use of all resources. In this case, managers are selected and promoted on a global basis regardless of their countries of origin or culture. Firms with ethnocentric or geocentric approaches usually have policies and practices that are applicable globally.

Conversely, policies and practices of firms adopting a polycentric or regiocentric approach may vary across countries or regions. Whatever approach is adopted by the firm, subsidiaries have to operate within the legal framework of the host country. Laws pertaining to occupational safety, anti-discrimination/equal opportunity, and various hiring practice may vary from country-to-country.

The above four approaches are presented as a primer to the reader. What approach is used, which would probably be a combination of all, would depend upon the strategy of the firm. For example, a firm may be faced with the challenges of technology and availability of skilled employees. High tech speaks the same language globally; so, an ethnocentric staffing component might have a higher weight than in a situation of low-tech consumer consumables.

An additional way of looking at culture and personnel in an international firm should be the types of MNC employees. There are three types: parent country-nationals (PCNs), host country nationals (HCNs), or third-country nationals (TCNs). PCNs are employees whose nationality is the same as that of the headquarters of a global firm. For example, a US citizen working for a US company such as Caterpillar and working in Argentina is a PCN. An HCN is an employee whose nationality is the same as that of the subsidiary. For example, an employee who is a citizen in the UK is working for a US company (i.e., John Deere) in Langar (Nottinghamshire, England) would be an HCN. A TCN is an employee whose nationality is neither that of the headquarters nor the local subsidiary. For example, an Italian citizen, working for a Dutch firm (i.e., Royal Dutch Shell) in Dubai (United Arab Emirates) would be considered a TCN. The type of nationals used should be consistent with the culture that a company wants to develop.

One trend in international business is the growing use of teams. With advances in communication technology (i.e., email, Internet, Skype, video conferencing, mobile communication, etc.), communicating with a geographically-dispersed workforce becomes easier and allows international firms to operate on an around-the-clock, around-the-world basis. Virtual teams are horizontal networks in which people interact from the office, home or while traveling using their phones, laptops, or other electronic devices. These teams interact through computer-mediated systems that are linked across time, space, and organizational boundaries. Virtual teams allow firms to effectively share resources and knowledge and provide greater access to talent. Culturally-diverse virtual teams can also stimulate creativity and innovation and bring a variety of ideas into the process. However, there are some drawbacks to virtual cross-cultural teams in that miscommunication may occur due to differences in language, non-verbal communication, and culture. Being aware of (forgiving and sensitive to) these differences will allow individuals to effectively communicate. Due to multiple time zones, operating schedules and holidays, virtual teams may face scheduling issues. Building trust and relationships can be challenging, as individuals do not have face-to-face encounters with their counterparts. Availability, speed, acceptability, and the cost of equipment necessary to conduct virtual meetings could be a problem as well as different skill levels and the willingness to participate via virtual means.

While teams may be a viable option, MNCs often send employees abroad for work assignments. **Expatriates** are individuals who are appointed to overseas assignments. These assignments usually last for five years, involve costly training and may result in failure which can be linked to an employee being unhappy, the family being unable to adjust to the host country or lack of support from the firm — sending an employee overseas costs as much as 1-2 times more than keeping an employee at home. Expatriate expenses may include relocation expenses, housing, transportation, schools, clubs, domestic workers, and more vacation time for families to return to their home countries for visits. Hardship allowances may be given to individuals who are assigned to less desirable or less developed areas. Often time firms or employees may incur additional tax burdens like double taxation (employment tax is a complex issue and varies from country-to-country.) **Repatriation** (the return of the home-country employee) may occur for a number of reasons such as the overseas assignment is completed, the various personal reason of the employee (i.e., illness, death in the family, children going to school), or the expatriate does not meet the stated objectives of the assignment. Repatriation may be a stressful time for returning employees, and transition strategies (i.e., from expatriation to repatriation) must be in place to facilitate mainstreaming employees into their former work environments. Some returning employees may see their return home as a demotion, do not use their overseas experience because it was devalued by the firm, or feel that they do not have support/commitment from their firms. Retention of former expatriates is important, as employees who have gained firsthand international experience are invaluable to the development of a global cadre.

Global Leadership and Mindset

Global leaders are adept at operating in international and multicultural contexts. They are developed by cultivating particular ways of viewing the world and integrating their own experiences. These individuals have a natural curiosity about the world, and they see themselves as global entrepreneurs who are driven by creating new solutions and by identifying opportunities. Though it is universally accepted that **leadership** is the process of influencing and motivating people and of providing a work environment that enables people to achieve their individual, group or organizational goals, what it takes to influence and motivate people varies immensely across countries and cultures. Leadership styles that are appreciated by subordinates are determined by deeply ingrained values regarding employees' rights and duties and are an outgrowth of socially- and culturally-constructed legal, moral, ethical, and work obligations. For example, an Indian subordinate may prefer an assertive leadership style and may be less concerned with visionary qualities. Similarly, in China, because of Confucian values, subordinates are skeptical of those who talk without taking a specific action.

Sound leaders are essential to the success of any firm; however, leaders who have developed a global mindset are clearly a competitive advantage for international firms. Individuals rise to global leadership positions by demonstrating behaviors consistent with the host and home countries' cultures. Through this process, global leaders cultivate a more flexible model of leadership that can be applicable ultimately in most areas of the world. Leaders or managers who develop a sophisticated global mindset have a high cultural quotient (i.e., cultural intelligence), are open-minded and flexible, are able to communicate and collaborate cross-culturally, are capable of supporting global objectives, and are able to balance both global and local goals and practices. These leaders have the ability to make decisions autonomously and have emotional resilience. They not only welcome change but are usually the change agents.

Three major qualities, intellectual, psychological, and social capital, are associated with a leader who has developed a global mindset.

Intellectual capital is associated with general knowledge, an individual's capacity to learn, and global business savvy. Global business savvy can be described as the ability to recognize global business opportunities and to develop a vision of doing business worldwide. This ability requires that an individual has extensive knowledge of a firm's resources and capabilities to capture global markets, has a good understanding of each product line in each subsidiary, as well as understands how the company and its people operate at the local level. An individual who has developed a sophisticated global mindset is cognitively complex (i.e., the ability to comprehend the differentiated world and then to integrate) and has a cosmopolitan outlook.

Psychological capital is associated with an individual's judgment-free openness to differences among people as well as with the capacity to adapt to a dynamic environment. Self-assurance, a passion for diversity and a quest for adventure are attributes of psychological capital.

Social capital reflects the ability of an individual to build trusting relationships with others who are different from themselves (often using cultural empathy as well as diplomacy).

CHAPTER V-25

BENEFITS

It is always hard to categories topics into homogeneous groups. We have discussed the legal environment as laws that govern corporations and as an aspect of global operations. In the next few chapters, we continue discussing some other regulatory topics that are more meaningful for large corporations. Benefits are an indirect reward given to employees/groups of employees for organizational membership (employment). Benefits make up 30-40% of payroll expense (up to 70% in highly unionized environments) and can include retirement plans, paid vacation, health insurance, and educational assistance. Health insurance is the most expensive benefit, followed by paid leave and retirement plans.

Benefits are viewed as a competitive advantage for the following reasons:

- Attractive to employees (generally not taxed as employee income)
- Linked to individual job satisfaction
- Help give the organization a positive image in the community
- Aid in attracting/retaining talent (primary reason executives view benefits as a competitive advantage)

Benefits Management and Communication

When building a benefits package for employees, you must consider several questions. How much total compensation, including benefits, can the organization provide? What percentage of total compensation should benefits be? Which benefits should be offered to which employees (part-time vs. full-time, etc.)? What are the expense levels for each benefit? What does the organization gain from each benefit? How flexible should the benefits package be?

Flexible Benefits

Flexible benefits, also known as cafeteria plans, allow employees to select the benefits they prefer. These plans are becoming increasingly popular due to the changing composition of the workforce. There are some potential problems with flexible benefits. Employees might not pick the most effective benefits; for example, a construction worker who doesn't select disability insurance and gets injured on the job. The pool can also have adverse effects; for example, if only employees with chronic health conditions select health insurance, the organization will pay higher rates. Flexible benefits also require more administrative time to manage.

Management Role in Benefits

Management plays a key role in benefits. They must maintain good communication with the HR benefits specialist as well as with employees, especially those nearing retirement. They must also be able to answer simple benefits questions and manage the impact on productivity by coordinating the use of time off benefits.

Benefits Management Metrics

Here are a few metrics to consider when evaluating benefits.

- Benefits as a percentage of payroll

- Benefits expenses per full-time (or full-time equivalent) employee
- Benefits expenses by employee group (salaried, hourly, part-time, full-time, etc.)
- Benefits administration costs
- Healthcare costs per employee

Benefits Cost Control Approaches

There are several ways to approach cost control with benefits. Management can reduce retirement benefits or organizational contributions to 401(k) plans. Some 60% of organizations use a cost-sharing plan, where employees pay more of their benefit costs. Changing prescription drug programs and negotiating reduced rates with providers are two other options. Wellness plans and employee health education efforts can also reduce overall costs.

Benefits Communication

Specialized benefits communication programs should be developed, using a variety of approaches, including videos, emails, newsletters, meetings, and written personalized benefits statements. Timing and frequency are important factors to consider in planning communications.

The ERISA (Employee Retirement Income Security Act) requires pension plan summaries (descriptions of plan benefits) to be communicated to plan participants.

Types of Benefits

There are two types of benefits, government-mandated and voluntary.

Government-mandated benefits include Social Security, which is based on employee's compensation, funded by a tax paid by the employer and employee and mandated by the federal government. Additionally, unemployment insurance and worker's compensation, which are both state-mandated. COBRA requires organizations to continue to provide health care coverage for a limited time after an employee leaves the organization. Finally, HIPPA requires that employees previously covered by health insurance be able to obtain coverage upon changing employment, in spite of preexisting conditions; also governs the privacy of medical information.

There are many more **voluntary benefits** for employers to consider, including severance pay, supplemental unemployment benefits, early retirement options, pension plans, IRAs, 401(k)/403(b)/457s, Keogh plans, healthcare for retirees, adoption benefits, domestic partner benefits, credit unions, life/disability insurance, long term care insurance, legal insurance, educational insurance, paid lunch/breaks, holidays/vacation, sick/medical leave, paid time off, bereavement leave and social/recreational programs.

Worker's Compensation

Worker's compensation coverage includes cash benefits/medical care/rehabilitation services and covers injuries or illnesses acquired on the job. These programs are state-mandated and vary from state to state and account for 1.8% of total payroll.

Unemployment Compensation

Unemployment compensation is a state-mandated program that provides for an employee unemployed (through no fault of their own) for up to 26 weeks of pay at between 50-80% of their base rate. Employees fired for misconduct or not actively seeking employment are ineligible. One problem with this program is that it can rapidly deplete state funds during an economic downturn.

Severance Pay

Severance pay is offered to individuals whose jobs were eliminated or who left the organization by mutual agreement. The amount of the package often coincides with the level of employee's position within the organization and their length of employment. Outplacement assistance is another benefit which can be offered to ease a transition. This program assists with resume writing, interviewing, and career counseling.

Health Care Benefits

In the following order of frequency (from highest to lowest), most health care benefits offered are major medical coverage, prescription drug coverage, dental insurance, short-term disability, long-term disability, vision insurance.

However, it is getting more expensive for organizations to cover their workers. Healthcare costs are increasing faster than inflation because of the increased cost of malpractice insurance, uninsured workers (estimate is that between 15-20% of the U.S. population lacks health coverage) and retirees' health benefits costs.

To try and manage these increased costs, companies have looked to higher co-pays (employees pay a greater percentage of premiums) and managed care (market system alternatives). These alternatives include PPO (preferred provider organization), where an employer contracts with an organization for services at a competitive rate; and HMO (health maintenance organization), which provides services for a fixed period at a flat rate.

Here's a look at a few other ways the industry is looking at managing costs.

Utilization review, which includes requiring a second opinion, a review of procedures performed, and a review of all charges.

Mini-medical plans limit the number of doctor visits, hospital and prescription coverage; and caps total annual benefits under $10,000.

Consumer-driven health plans (defined contribution health plans) are plans where the employer places a specified amount into the employee's account and identifies the healthcare options available. The employee selects from the available options and pays for part of the services with the money from their account.

Health savings accounts, where employers and employees contribute to accounts. Employee contributions are pre-tax, and unused amounts can be rolled over for future expenses.

Wellness and prevention programs that include health coaching, exercise facilities, smoking-cessation, and weight-loss plans.

Health Care Legislation

Passed by Congress in 1985, **COBRA (Consolidated Omnibus Budget Reconciliation Act)** requires employers with 20 or more full-time employees (part-time employee coverage is not guaranteed) to continue health care coverage for the following groups: employees who voluntarily quit or are terminated (not for misconduct), widowed or divorced spouses and dependents of former or current employees, retirees and spouses/dependents whose healthcare coverage ends and any child born or adopted by a covered employee.

Signed into law in 1996, **HIPAA (Health Insurance Privacy and Portability Act)** ensures the privacy of medical information and allows employees to switch health plans if they change employers even if the employee has a pre-existing condition (may be a waiting period for coverage).

A **flexible spending account (FSA)** allows employees to move pre-tax income into flexible spending accounts to fund additional health care insurance, life insurance, disability insurance, and dependent-care benefits.

Retirement Benefits

Social Security was established to serve as an old age/survivor's/disability/retirement insurance program. It is funded by FICA (Federal Insurance Contributions Act) tax, paid by both employer and employee. The current FICA rate is 7.65% (for those earning under $200K a year). This is a politically sensitive topic, as it is operated by the federal government and affects a large number of individuals. There is some concern that the system is not fiscally sound.

Pension Plans are voluntary retirement plans which can be funded by either the employer or the employer and employees. Contributory plans are paid for by both parties; noncontributory plans are paid for by employers only. There are a few types of pension plans.

In a **defined benefit plan**, the employer makes contributions and employees receive a defined amount per month upon retirement. This has decreased in popularity recently.

In a **defined contributions plan**, the employer makes an annual payment to the employee's pension account. The retirement benefits depend on the fixed contributions and employee earnings levels. Some examples include profit sharing plans, ESOP (employee stock ownership plans) and 401(k) plans. Returns can vary depending on profitability or other factors with these plans, and benefits are less secure and predictable.

In a **cash balance plan**, retirement benefits are based on the accumulation of annual company contributions (expressed as a percentage of pay) plus accrued interest. In these plans, retirement benefits accumulate at the same annual rate until retirement.

Retirement Legislation

There are two important pieces of retirement legislation to consider. **ERISA (Employee Retirement Income Security Act of 1974)** regulates private pension plans. It requires an organization to offer pension plans to all eligible employees if offered to one group and sets up minimum funding requirements for those plans. The **Pension Protection Act of 2006** set up reporting requirements for employers. Assets and liabilities of pension plans must be disclosed, and rules were set up to ensure coverage of unfunded liabilities, particularly in the case of defined benefit plans.

Miscellaneous Benefits

There are a number of benefit programs that fall outside of those already discussed. These are grouped under miscellaneous benefit programs and include financial services (credit unions, purchase discounts, employee stock ownership plans (ESOP) and financial planning), relocation assistance, educational assistance, social events, and recreational events.

Family benefits also fall under this umbrella. The **Family and Medical Leave Act (FMLA)** was signed into law in 1993. It provides up to 12 weeks paid or unpaid leave for birth/adoption/foster care placement of a child, caring for spouse/child/parent with a serious health condition and a serious health condition of an employee. Other family benefits include adoption benefits, elder care assistance, domestic partner benefits, and child care assistance, which may be onsite or a negotiated discount through a child care provider.

Time Off Benefits

The final category of benefits to discuss is time off.

Holiday pay in the U.S. is typically 10-12 paid days. In an attempt to curb abuse, some employers require employees to work the last work day before the holiday and the first work day after the holiday to receive holiday pay

Vacation pay is graduated amount of time off based on length of service. Organizations vary in how they account for vacation pay year to year. Some carry a "use it or lose it" policy; others allow employees to carry over unused vacation to the next year. Another option is to allow employees to sell back their unused vacation days.

Federal and state laws mandate a **leave of absence** in some situations, including military leave, election leave (time off to vote) and jury duty leave.

Bereavement leave is time off for a death in the family. This typically applies to immediate family members (parents, spouse, children). The amount of leave varies from organization to organization, though three days is typical (and it may be longer if travel is needed).

Time off for recuperation from illness/injury is called **sick leave.**

Some companies set up a **paid time off bank**, which combines leave time for sick leave/vacation/holidays into one total number of hours/days available for an employee to take off with pay. This is easier to administrate and can aid in recruiting. However, it also may create a perception among employees that the organization doesn't believe they can manage their time off themselves.

CHAPTER V-26 COMPENSATION

Along with benefits and performance/talent management, **compensation** is a component of a total rewards program. This chapter focuses on compensation and the development of a compensation plan.

Compensation can be broken into two components: base pay and variable pay.

Base pay is a wage or salary. There are two types:

Hourly base pay is paid at a flat rate per hour. Positions that are compensated at an hourly base pay are typically eligible for overtime pay for hours worked over 40 in a standard work week.

Salaried base pay is a flat salary per pay period; the salary payment remains the same regardless of how much time is worked.

Variable pay is linked to the performance of the individual, the team, and the organization as a whole. This can be a motivating factor for employees to reach stretch goals. However, it can also be discouraging if all employees in a workgroup don't buy in.

Philosophies of Compensation

Entitlement Philosophy is centered around the idea that if an employee works for an organization for another year, they deserve a raise. It can be problematic in that there is little or no accountability for performance and raises become expected.

Performance Philosophy states that compensation should be based on performance differences. There is a growing trend toward this type of compensation as it has strong accountability for performance.

Human Resources Metrics

Irrespective of the philosophy of compensation, metrics are required to define the effectiveness of compensation strategies. One standard metric for compensation is the employee turnover rate. Organizations with effective compensation strategies in place typically don't have high turnover rates.

COMPENSATION DESIGN ISSUES

Equity is a major issue that arises in compensation. Equity is the perceived fairness of an employee's input (work) to their compensation (outcomes). Employees judge equity by comparing themselves against others. Equity is perception-based.

External equity refers to pay that is equitable compared to that of employees performing similar jobs in other organizations. Perceived inequity can lead to higher turnover and difficulty in recruiting. External equity can be tracked by performing pay/salary surveys.

Internal equity refers to compensation of jobs relative to the knowledge/skills/abilities required to perform them successfully. There are three factors that impact an employee's perception of internal equity. **Procedural justice** refers to how the processes used by the organization to determine pay are perceived. **Distributive justice** refers to the perception of fairness in the distribution of pay outcomes. When pay levels are kept highly secretive within an organization, **pay secrecy** leads to an increased perception by employees that the pay system is inequitable. Transparency in establishing and communicating the pay system within an organization is essential for employees to perceive that the organization's pay system is equitable.

Market Competitiveness and Its Impact on External Equity

There are three paths in market competitiveness.

Meet the market means pay rates are set within the median range of the labor market (second quartile). This path attempts to balance the cost to the organization with an impact on retention and recruitment reinforcing external equity.

Lag the market means pay rates are set below the market level (first quartile). This path can lead to increased turnover and difficulties in recruitment, decreasing external equity.

Lead the market means pay rates are set above the market level (third quartile). This path can lead to higher costs for the organization, and therefore, higher productivity/revenue is required to keep pace with costs, which can enhance recruitment and reduce turnover. This path also decreases external equity.

Competency-based Pay

Competency-based pay rewards employees for skills they possess, demonstrate, and learn. There are two primary types: knowledge-based pay and skill-based pay. In both, base pay levels increase as employees learn to do more. Competency-based pay requires a continuous commitment to training and identification of competencies required for various jobs.

Legal Constraints and Compensation

The Employment Law chapter covered most major laws on compensation, including FLSA (Fair Labor Standards Act), laws governing child labor, exempt/non-exempt employee classifications, and overtime provisions. Comp time (compensatory time off instead of overtime pay) can't legally be offered to employees in the private, for-profit sector.

DEVELOPING A BASE PAY SYSTEM

Developing a base pay system is an important task for any organization. Steps involved in this process include valuing jobs, establishing pay grades and pay ranges, and determining the procedures for pay increases within the organization.

Valuing Jobs with Job Evaluation Methods

There are four types of job evaluation methods by which an organization can value jobs.

The **point method** assigns points to jobs based on compensable factors required to perform the jobs; the higher the points, the higher the value placed on the job. One type of point method is called the Hay method, which utilizes knowhow, problem-solving and accountability as the factors in valuing jobs.

An example of the point method for a restaurant job would be taking the following tasks and assigning points to them: order processing, cash register knowledge, food preparation skills, area cleanliness, and cross training. The higher the point value assigned to the position, the higher the value the position has to the organization and the higher the pay grade.

Another type, the **ranking method,** involves ranking jobs from highest to lowest, based on their value to the organization (best used in small organizations).

An example of a ranking method in a restaurant would start with the manager, then assistant manager, dining room manager, head chef, sous chef, pastry chef, head waiter, wine steward, wait staff, valet, bus staff (clearing tables) and janitorial staff.

A third option is the **classification method**, where job descriptions are written for each class of jobs, and jobs are placed into the class where they best fit.

An example of a classification method for a restaurant would involve writing broad descriptions for each class of jobs (manager, cook, server, etc.) and then slotting each position into the appropriate classification.

Finally, there is the **factor/comparison method**, which combines the ranking and point methods.

For a restaurant to use the factor comparison model, they would have to identify the key jobs within the restaurant and then determine what the key factors were for those jobs.

While these methods are useful in valuing jobs, they are time-consuming and require a large staff to devote to these processes; most organizations value their jobs by using market pricing methods.

Valuing Jobs with Market Pricing Methods

Market pricing methods use market pay data to compare the relative value of jobs based on what other employers pay for similar jobs. This effectively ties organizational pay to market pay. There are potential problems, however, as data may be limited and jobs may not match up well from organization to organization.

Pay Surveys

Pay surveys are used to compare benchmark jobs with other organizations (benchmark jobs are positions found in many organizations, such as clerk, receptionist, accounts payable, etc.). These surveys and the data are dependent on good sources. They must have a realistic sample, broad base, timely results (not too old), sound methodology, and job matching information, so accurate matches can be made from employer to employer. Employers must exercise caution; however, as the use of surveys by employers within an area can lead to allegations of price-fixing in terms of wages.

Pay Structures

Pay structures are developed by creating pay grades, pay ranges within those grades, and determining how to implement pay increases.

Pay Grades

Pay grades are groupings of jobs with approximately the same value or worth to the organization. In small organizations, with 500-1000 employees, the suggested number of pay grades is between 11-17. There are two primary ways to establish pay grades: through job evaluation points as discussed earlier, or through market banding (setting pay grades based on market salary survey amounts). Once pay grades are set, jobs are assigned to the pay grade with similar job evaluation points (if using the points method) or to the pay grade with similar market survey values (if using market salary survey method).

Pay Ranges

Pay ranges are established within each pay grade. The market line is the midpoint of the pay structure. The maximum of the pay range is 20% above the midpoint; the minimum is 20% below the midpoint. Broadbanding is a growing trend with regard to pay ranges; in broadbanding, there are fewer pay grades. Broadbanding is designed to encourage horizontal movement and skills growth. It is growing in popularity because it creates a more flexible environment, encourages competency development, and emphasizes career development. There are some concerns as well, as promotions don't necessarily mean pay increases with broader bands of pay ranges; and it may lead to turnover by creating the appearance of fewer opportunities for advancement.

Potential Problems in Compensation

Let's look at a few potential problems with compensation.

Red-circled employees are employees paid above the pay range of the job they hold. These employees' pay rates need to be brought back into the range for their jobs. The fastest way is to cut pay, though this is not recommended. A safer way is to freeze employee's salary until the entire pay grade advances, and the employee's pay rate is again within the grade. Alternatively, the employee in question can be given a small lump-sum payment in lieu of a base pay increase when others in their classification receive increases.

Green-circled employees are employees that are paid below the pay range for their jobs. The recommended practice here is to advance these employees as quickly as possible to reach the pay grade minimum.

Determining Pay Increases

There are two ways to handle pay increases: standardized or based on performance.

Performance-based involves targeting high performers. This approach provides significantly higher increases to top performers, which aids in retention. It utilizes a pay adjustment matrix, so pay increases are based on the relationship of employee's current pay to job midpoint and on performance evaluation. As employees advance in the pay range, they must receive higher evaluations to obtain the same percentage raise as an employee lower in the pay range.

Standardized pay increases are more across-the-board and not necessarily tied to performance. These include seniority increases, which are often set as automatic based upon anniversary dates; cost of living increases (COLA), which are tied to the consumer price index; across-the-board increases, which are usually a set percentage given to all employees; and lump-sum increases, or one-time payment of all or a portion of a yearly pay increase rather than an increase in base pay.

The lump-sum increase has some advantages (increases employee's awareness of how much their performance impacted their salary; can be used to slow down increases in base pay) and disadvantages (can discourage employees who don't see their base pay increase; often opposed by unions due to impact on pension plans).

CHAPTER V-27
SAFETY

Safety in the workplace includes legal provisions covered in the Employment Law chapter, such as worker's compensation and OSHA. This chapter focuses on establishing a safety culture within the organization and maintaining the workplace as a safe environment.

ORGANIZATIONAL APPROACH TO SAFETY

The safety culture begins at the top of the organization and must be reflected by all levels of employees within the organization to be effective. The organizational approach to safety involves designing jobs with safety in mind, establishing and implementing safety policies, developing procedures for ongoing review and communication of safety within the organization, and establishing accident response and investigation procedures.

Safety Policies

To be effective, safety policies must be clear and must be communicated on a regular basis to the employees. Consequences for violation of safety policies must be clearly outlined and enforced.

Record keeping of safety violations/accidents is also essential; this allows the employer to track trends in safety within their organization and benchmark against other employers in their industry. Safety efforts which can be measured include accident/injury statistics by department/shift/job classification.

Safety Communication

Continuous communication is essential and should take a variety of forms to reach employees. Such forms include posters, newsletters, regularly-scheduled meetings to discuss a specific safety topic, and periodic training in safety techniques. Training programs might cover basic first aid, firefighting, or hazardous material safety.

Accident Response Efforts

An accident response effort should begin as soon as any injuries have been treated, and the workplace is safe to enter. General steps to review an accident scene include reviewing the scene, interviewing employees and others present, preparing an accident report, and making recommendations.

Engineering Approach to Safety

An engineering approach to safety involves the designing of workplace settings and equipment, regularly reviewing equipment for potential hazards. The design of work equipment and work areas to minimize safety hazards is a key feature of engineering safety. Examples include safety guards on hazardous equipment, installation of emergency cut-off switches, providing adequate ventilation, and ensuring lighting is adequate for safe work performance. Other factors involved in establishing a safe work environment include awareness of noise levels, size of area relative to work performed, traffic flow in the area, and types of work performed and materials utilized.

Engineering approach also includes ensuring that work processes are ergonomically sound. Ergonomics refers to the science of designing work processes and equipment so that people perform the processes and use the equipment as efficiently and safely as possible.

Individual Approach to Safety

While the safety culture must be emphasized throughout the organization, and while engineering efforts must focus on safety in process and equipment design, each employee is ultimately responsible for their safety and the safety of their peers.

Individuals are responsible for participating in and learning from employer-sponsored safety training programs. They are also responsible for maintaining awareness of their work environment and notifying the appropriate parties of potential hazards. Individuals should continuously practice safe working habits and follow all safety procedures on a consistent basis.

EMPLOYEE HEALTH

The health of employees is also a factor in ensuring that the workplace is safe. There are various conditions and issues which affect employee health and therefore impact safety.

Substance Abuse

Substance abuse is the use of controlled substances, alcohol, or other drugs. Symptoms of substance abuse include fatigue, slurred speech, missed deadlines, unplanned absences (especially on Monday or Friday), difficulties performing tasks, and behavior changes. Impacts on the workplace include lower productivity, absenteeism, tardiness, more mistakes, and behavioral changes, which may result in workplace violence. An effective way to handle these situations is to provide employees with the opportunity to seek help with their issues or face discipline. If this process is utilized, follow-up monitoring to ensure compliance is critical.

Emotional and Mental Health

When an employer recognizes signs of stress overload in an employee, the most effective and safest method to handle the situation is for the manager/supervisor to contact the HR staff for assistance. Assistance may take the form of a referral to an employee assistance program. Depression is also a significant factor in the workforce, and again, the best technique is to contact the HR staff for assistance.

The Aging Workforce

Workforces are getting older as more baby boomers remain actively employed. To address the safety of older workers, the following are effective action items (of course, they are also important for all employees, but especially for older workers, who are more subject to long periods of recuperation following strains or breaks): prevention of slip/fall hazards, use of ergonomically sound workplace design, elimination of as much repetitive stress and heavy lifting as possible, and education on safe driving techniques.

Smoking

Many state and local governments have enacted laws governing smoking in workplaces or public spaces, given the research addressing the health concerns of smoking for smokers and persons exposed to second-hand smoke alike. Likewise, many workplaces have also established no-smoking policies. If an employer is concerned about establishing a ban on smoking, they might also consider offering a smoking cessation program to employees; employee participation could be used as a qualifier for some type of incentive to encourage participation.

Obesity

Obesity has a significant impact on health and productivity, from increasing the likelihood of diseases such as diabetes and the resulting increased potential for loss of productive work days to increased health care costs for all. An incentive weight loss program is an effective technique to encourage employees to get healthier together, which benefits both them and the organization.

SAFETY AND SECURITY AT WORK

Security concerns in the workplace confront us every day – in the newspaper, on the internet, and on TV. From workplace violence to disasters, this section describes effective responses to these situations.

Workplace Violence

Workplace violence is defined as violent acts that are directed against someone in the workplace or on duty. There are four major types: criminal, customer, coworker, or domestic. Criminal acts involve robbery, trespassing, etc. Customer acts involve a customer becoming violent. Coworker acts involve a coworker (current or past) threatening or attacking another employee. Domestic involves an act by someone with no work-related connection to the victim (spouse, partner, etc.).

Workplace violence can include physical assault, threats, harassment, intimidation, and bullying.

Addressing Workplace Violence

Watch out for warning signs – verbal threats, conflict with others, changes in behavior, significant stress (this can be on the job or in their personal life), and establish a policy and procedure to respond to a workplace violence incident. Violence response teams can work to defuse an incident before it occurs by investigating concerns communicated to them by an employee or by management. They should also be involved in responding after a workplace violence incident and be prepared to provide support for affected employees. In general, these teams should involve personnel from the HR department, the Security department, and key management/employees.

Security Management

A security audit should be conducted on a regular basis, evaluating the entire organization's physical plant as well as the surrounding area for potential threats/safety factors (these might include the location of nearest emergency response personnel, lighting, crime stats in the surrounding areas, etc.). Setting up controlled access, the use of electronic keypads or keycards to access the premises can offer added security. Extra protective measures such as bulletproof glass in extremely vulnerable areas to protect employees should also be a consideration. Education programs such as training on recognizing potentially violent employees and how to handle them should be provided; training should include notifying the HR department immediately, along with remaining calm, allowing an individual to vent their feelings and demonstrating concern.

Disaster Planning

There are three major factors in disaster planning: organizational assessment, human impact planning, and disaster training.

Organizational Assessment

An organizational assessment involves establishing a disaster planning team, made up of representatives from HR, operations, security, information technology, and other areas as needed.

It establishes plans for communication and restoring/continuing operations during the immediate aftermath and the recovery period, and calls for disaster drills to practice and refine response strategies

Human Impact

The human impact must also be considered. This means establishing and maintaining backup databases for company information and employee contact information and establishing procedures for issues like handling payroll and assisting with evacuees.

Disaster Training

All employees should have training in the following areas: first aid/CPR, hazardous materials containment, disaster escape methods, employer contact methods, and restoration efforts.

CHAPTER V-28

LABOR RELATIONS

The term **labor relations** refers to the relationships between employers and **unions**, which are formal associations of workers that promote member interests through group actions.

There are pros and cons to Unions. They are regarded positively because they give voice to their members and provide a forum for them to express their dissatisfaction with their wages or working conditions. However, actions by unions can also hurt profitability and force management to reallocate resources.

In the 1950s in the U.S., approximately 36% of the workforce belonged to a labor union. By contrast, today, union membership is around 8% in the private sector. However, union membership is increasing in the public sector.

Employees join unions because they are dissatisfied with the treatment they receive from their employers. They believe that a union will help improve their work situations.

Employers resist unions because they feel that unions put constraints on management, and their actions can result in higher wages and benefits costs.

Management employs different strategies toward unions. Some employers will work toward developing good relations with unions.

Others will take an adversarial or aggressive approach. If an organization wants to avoid union organizing efforts, both the HR department and the operations management must be attentive and responsive to employee needs.

Global Union Trends

Union membership varies around the world. Scandinavia has the highest rate of union membership (approximately 50% of its workforce). Overall in Europe, on the other hand, is experiencing decreasing union membership (average is between 10-30% of their workforce). European Union membership is often tied to political parties, and strikes in Europe (particularly in France and Italy) are often national strikes protesting government policies, rather than strikes against an employer.

Unions in the United States

U.S. unions focus on so-called basic issues such as pay, benefits, job security, and working conditions. They are typically organized by the type of job or employees (for example, teamsters or teachers). Collective agreements are contracts, and spell out details of wages, working conditions, conditions of employment, and work rules in effect for the life of the contract. Relationships between unions and management in the U.S. are typically competitive.

From 1945-1960, more than 30% of the U.S. workforce belonged to a union. In 2009, only 12.4% of the civilian government (local/state/federal) workforce was represented by a union, and only 7.4% of the private sector workforce belonged to a union.

Reasons for U.S. Union Membership Decline

- Deregulation
- Increased unemployment
- Foreign competition
- More activist management stance against unions due to their effect on operating expenses

- Geographic job growth (largest job growth has come in the South, Southwest, and the Rocky Mountain areas, which have little union tradition)
- Low-skill jobs being moved outside of the U.S.
- Industrial changes (decrease in manufacturing, decrease in blue-collar jobs)

Public Sector Unionism

Unions have had significant success in the public sector. It is now the most highly-unionized part of the American workforce, with more than 40% of government workers represented by unions. Local government workers have the highest percentage of union members of any group across the U.S. workforce. This sector presents unique challenges. Due to the nature of their jobs, laws in over 30 states forbid strikes by many of these employees because they work in critical service areas (police, fire, sanitation).

Current union targets for membership growth include professionals (registered nurses, physicians, teachers), low-skilled and immigrant workers (nursing home employees, cooks) and contingent/part-time workers.

History of Labor Unions in the U.S.

The **American Federation of Labor (AFL)** was founded in 1886. Their focus was on working conditions and economic issues for skilled craft workers (carpenters, painters, etc.). The **Congress of Industrial Organizations (CIO)** was founded in 1938; their core members consisted of employees in semi-skilled and unskilled occupations. In 1955, the AFL and CIO merged.

Unions can generally be split into two types: **craft unions**, for example, American Federation of Radio and Television Artists; and **industrial unions**, which represent workers in the same industry, regardless of their occupation (for example, United Food and Commercial Workers, United Auto Workers)

Union Structure

A group of autonomous unions is called a **federation**. AFL-CIO is the most prominent labor federation in the U.S. and numbers approximately 10 million members.

In 2005, seven unions left the AFL-CIO and formed **Change to Win**, due to a disagreement about how to stop the decline in union membership, along with some internal political issues.

National/international unions are not governed by any federation; they have their own boards of directors and operate independently. Examples include the American Federation of State, County and Municipal Employees (AFSCME).

Local unions are usually centered around a particular employer or in a geographic location. They are typically directed by a business agent who operates the union office, along with union stewards, who are employees elected to serve as representatives of unionized workers.

HISTORY OF U.S. LABOR LAWS

The following section describes the history of labor law development in the U.S. and discusses the three significant labor laws which govern labor relations today.

The **Railway Labor Act of 1926** gave railway employees the right to organize and bargain collectively. It was amended in 1936 to include airline employees.

The **Norris-LaGuardia Act of 1932** was a response to Depression cutbacks by employers, which resulted in strikes and violence. At the time, laws allowed employers to go to court and get injunctions to force employees to return to work. Norris-LaGuardia gave workers the right to organize and restricted the courts' abilities to issue injunctions in labor disputes.

National Labor Relations Act (Wagner Act)

An outgrowth of the Depression, the **National Labor Relations Act (Wagner Act)** established the National Labor Relations Board, independent entity created to enforce its laws, including conducting unionization elections, investigating complaints, issuing opinions and prosecuting violations in court. It also established the right of workers to organize unhampered by management interference through unfair labor practices. It also defined those unfair labor practices as (1) interfering with, restraining or coercing employees in the exercise of their rights to organize or bargain collectively; (2) dominating or interfering with formation or administration of any labor organization; (3) encouraging or discouraging membership in any labor organization by discriminating in hiring, tenure or conditions of employment based on membership; (4) discharging or discriminating against an employee because they filed charges or testified under the act; and (5) refusing to bargain collectively with representatives of the employees.

Labor Management Relations Act (Taft-Hartley Act)

Passed to offset "pro-union" provisions of the Wagner Act, the **Labor Management Relations Act (Taft-Hartley Act)** forbade unions from engaging in unfair labor practices, including discrimination against non-members, refusing to bargain, and excessive membership fees. It also established the Federal Mediation and Conciliation Service, an agency designed to help management and labor settle labor contract disputes, and required that FMCS be notified of disputes over contract renewals if not settled within 30 days after the designated date.

The Taft-Harley Act established right-to-work laws, which restrict compulsory union membership. In states with these laws on the books, employers can have an "open shop," which means that workers can't be forced to join a union or pay dues. It also forbids closed shops (where individuals have to join a union prior to being hired); the only exception is in construction-related occupations.

In states with no right-to-work laws, shops can be union shops (joining a union is mandatory after hiring – typically within 30-60 days), agency shops (employees who refuse to join the union are required to pay amounts equal to union dues in return for representation by the union), or maintenance-of-membership shops (workers must remain members of the union for the duration of the labor contract.

It also allowed a U.S. President to declare that a strike presents a national emergency and that the President can declare an 80-day cooling off period during which negotiations continue. A strike can only occur if no settlement after the cooling off period ends.

Labor-Management Reporting and Disclosure Act (Landrum-Griffin Act)

Passed in 1959, the **Labor-Management Reporting and Disclosure Act (Landrum-Griffin Act) r**equires unions to establish bylaws, make financial reports, and provide members with a bill of rights. It also appointed the U.S. Secretary of Labor to serve as a watchdog of union conduct.

THE UNIONIZATION PROCESS

In general, the process starts when the union targets an industry or company and encourages employees to request union representation.

Organizing Campaign

The union may contact employees outside of work, mail materials to employees' homes, invite employees to meetings outside of work and promote advantages of union membership. They use websites, blogs, and online forums to promote membership.

Management may also campaign against the union by distributing anti-union information at work, mailing the information to employees' homes, using anti-union videos/emails and by prohibiting solicitation in the workplace. (NOTE: the no-solicitation policy must have been in effect before the union organizing efforts, as it is illegal to establish such a policy because a union organizing campaign begins.)

Authorization Cards/Representation Elections

Union authorization cards must be signed by at least 30% of the employees in the targeted group before an election can be called. Before an election is held, the appropriate bargaining unit must be determined.

A bargaining unit is made up of all employees eligible to select a single union to collectively represent and bargain for them. Management and the union should agree on which employees will be in the bargaining unit; if they can't, then the regional office of the NLRB will decide. The employees in the bargaining unit should be a "community of interest" (sharing similar wages/hours/working conditions, supervision by similar levels of management, similar physical location, or being a traditional industry grouping – for example, housekeeping and grounds maintenance employees). Supervisors (defined as individuals with authority to hire, fire, transfer, discipline or use independent judgment with employees) are not allowed to join unions; the only exception is in industries covered by the Railway Labor Act.

Election Process

If an election is held, the union only needs a simple majority of the votes to become the collective bargaining representative for the bargaining unit. If either side believes unfair labor practices were used, they may appeal the results to the NLRB. If evidence of unfair labor practices is found, the NLRB can order a new election. If no evidence of unfair labor practices and the union gets a simple majority, the union then petitions the NLRB for certification.

Certification and Decertification

The NLRB certifies the union as the legal representative for the designated bargaining unit if in the private sector; an equivalent body does so for the public sector. Once a union is certified, the employer must bargain with them; refusal to do so is an unfair labor practice. If union members decide that they don't want to be represented by the union anymore, they can seek to decertify the union. Decertification cards must be signed by 30% of the bargaining unit before an election can be called. Once 30% of cards are signed, a decertification election takes place. A simple majority voting to decertify means that the union is removed as the legal representative for the bargaining unit. Reasons for decertification could include better treatment from management, feeling that the union isn't meeting the employees" needs, or the perception that the union isn't as good as it used to be.

CONTRACT NEGOTIATION (COLLECTIVE BARGAINING)

Management and union representatives negotiate over wages, hours, and other terms/conditions of employment. In general, negotiations run on a continuum from conflict to cooperation. Both sides often come to the table with their most extreme proposals and bargain towards a more moderate compromise. The relationship established must continue for the life of the contract. It is beneficial for both sides for negotiations to be as cooperative as possible.

Collective Bargaining Issues

Some standard collective bargaining issues include: (1) management rights, organizational management usually seeks to retain the right to direct/manage/control the business as they see fit, except any rights that are modified by the contract; (2) union security, often a no-layoff policy or a job security guarantee; (3) union dues, dues check-off (provides for automatic deduction of union dues from employees' pay); (4) required union membership, which can be union shop, agency shop or maintenance-of-membership shop, subject to state right-to-work laws.

Classification of Bargaining Issues

Mandatory

- Discharge of employees
- Grievances
- Work schedules
- Union security/dues checkoff
- Retirement/pension coverage
- Vacations/time off

- Rest/lunch breaks
- Safety rules
- Profit-sharing plans
- Required physical exams

Permissive

- Benefits for retirees
- Product prices for employees (discounts)
- Performance bonds

Illegal issues are issues that would require either party to take illegal action. Examples include giving preference to union members in hiring or demanding a closed-shop provision in the contract. If one side wants to bargain over an illegal issue, the other side can refuse.

Collective Bargaining Process

This section highlights the steps in a collective bargaining process.

The initial stage is **preparation and initial demands**, where each side researches organizational and industry-wide information on wages, working conditions, benefits, absenteeism, and any other issues pertinent to negotiation. Next, the **core bargaining issues** (wages/benefits/working hours) are established. After hearing initial proposals, both sides determine what the other side values most, so the best compromise can be reached. This is called **continuing negotiations**. Federal law requires that negotiations be conducted in **good faith** (in other words, the negotiators for both parties must have the authority to bargain and come to an agreement). Once an **initial agreement** is reached, both parties must agree. For the union, this takes the form of ratification of the agreement by a vote of the union membership.

If an agreement can't be reached, the negotiations are said to be at an **impasse**. When this occurs, there are three methods to resolve it: (1) conciliation, an outside party (such as the Federal Mediation and Conciliation Service) may help the parties continue to negotiate and arrive at a solution; in conciliation, the third party assists, but makes no proposals for solutions; (2) mediation, an outside party, can suggest ideas for solutions; (3) arbitration, a neutral third party (individual or panel) makes a decision; more common in public sector settings.

Strikes/Lockouts

If even after attempting to reach a settlement with conciliation, mediation or arbitration, no settlement is reached, employees may go on strike. Types of strikes can include:

- Economic – when parties can't agree during the collective bargaining process
- Unfair labor practice – when union members walk out over what they see as illegal employee actions (such as failure to bargain)
- Wildcat – strikes without union leadership approval; violate no-strike clause; strikers can be disciplined or discharged
- Jurisdictional – members of a union walk out to try to force an employer to assign work to them instead of members of another union
- Sympathy – one union walks out to support another union, even though the first union has no dispute with the employer
- Lockout by employer

Union/Management Cooperation

Cooperation almost always benefits both parties. There are a couple of types of programs to enhance cooperation. One is employee involvement programs where workers form committees to make operational suggestions and decisions in areas not covered by unions. The other is employee ownership, where unions encourage employees to consider purchasing of an organization that might close, rather than lose the union jobs.

GRIEVANCE MANAGEMENT

It is important to have formal channels of communication to resolve grievances as soon as possible after they arise. Unionized employees generally have the right to union representation if they're being questioned by management and if discipline may result.

Here are general steps for a grievance procedure. It begins with an employee discussing the grievance with the union steward and supervisor. The union steward then takes the grievance to the supervisor's manager and HR manager. A committee of union officers then discusses the grievance with appropriate organizational management. Then the national union representatives would discuss the grievance with the designated organization executives or corporate industrial relations officer.

If the grievance still is not resolved at this stage, it goes to arbitration, where a neutral third party settles the dispute. The most common grievance arbitration issues include discipline/discharge, health and safety, and security issues.

CHAPTER V-29

TAX REPORTING

Taxes are an involuntary fee imposed on individuals and corporations in order to finance government activities. Governments use tax money to pay for building and technology infrastructure, military programs, public safety, environmental protection, education, and various other public services.

This section will cover the different types of taxes imposed by the government, their legal basis, how they are collected, and other issues surrounding their imposition.

Different taxes are imposed by different governments on the local, state, and federal level. Some examples of these taxes are income tax, payroll tax, sales tax, property tax, gift tax, and estate tax.

Tax Rates

The **taxable amount** is the assessed amount that is subject to taxation. This may be based on income, the value of the property, or purchase price of assets or services. The **tax rate** is the percentage of the taxable amount that is used to calculate the amount of taxes owed, which is referred to as the **tax liability**.

Some taxes, such as sales tax, apply the same rate to all individuals. However, most taxes rely on the **ability to pay principle**, which asserts that an increased tax burden should be placed on individuals and corporations with higher incomes. The ability to pay principal calls for a progressive tax rate. A **progressive tax rate** is a tax in which the tax rate increases as the taxable amount increases.

Taxable Entities

A **taxable entity** is an individual or a business who the tax is levied upon. All U.S. citizens are taxable entities. However, only one form of business is a taxable entity. Most forms of businesses (including sole proprietorships, partnerships, and LLCs) are **pass-through entities**, meaning that the owners of a business are individually taxed for the business's income. A corporation, however, is considered a separate legal "person" and the business itself is taxed.

Common Tax Payments and Forms

Tax payments are required at different times and are paid in different ways, all depending on the type of tax and the tax paying entity. Businesses pay of taxes by filing forms with federal, state, and local governments. These tax forms allow taxpayers to calculate their tax liability and either remit payments or request refunds from the government.

A few examples of the most commonly filed business federal tax forms include

- Form 940 – annual federal unemployment tax return
- Form 941 – employer's quarterly federal tax return
- Form 1120 – corporation federal income tax return
- Form W2 – employer wage and tax statement
- Form 1099 – federal tax return for income other than salaries and wages
- Form 8027 – employer's annual return of tip income

Tax forms and methods of paying state and local taxes vary from state to state.

Financial vs. Tax Reporting

Because tax regulations and GAAP (generally accepted accounting principles) are frequently different, there can also be differences between financial reporting and tax reporting. These differences result in a temporary difference between financial income and taxable income, which is the amount used to calculate the income tax liability. As a result of these differences, U.S. corporations keep two sets of books. One set of books to comply with GAAP, whose rules are intended to promote uniform statements that accurately convey financial history; and another set of books comply with the Internal Revenue Code, which is intended to generate revenues for the government. Two primary differences between financial and tax reporting involve the use of a modified cash basis and different methods to deal with depreciation.

Accrual vs. Cash Basis

Unlike financial reporting, certain activities within tax reporting use **cash basis** accounting rules. Financial reporting uses **accrual basis**, which requires revenues to be recognized when earned and expenses are to be recognized when incurred. Tax reporting uses a modified cash basis, which requires revenues to be recognized when cash is received and expenses recognized when paid.

Depreciation Method

Another difference between financial reporting and tax reporting relates to **depreciation**, which is the method of allocating the cost of a fixed asset over its useful life. Under GAAP rules, there are multiple acceptable methods of depreciation, including straight-line method, the sum of years digit method, and double declining balance method.

GAAP also allows companies to use an estimated number of years for a fixed asset's useful life. The tax code calls for the use of the Modified Accelerated Cost Recovery System (MACRS), which calculates depreciation and useful life using amounts defined by the Internal Revenue Service. MACRS is an accelerated form of depreciation, meaning that it takes more depreciation in the first few years and less depreciation in the later years of the asset's life. This reduces income tax payments in the first few years but will result in more taxes in the later years, which is attractive to profitable companies.

Tax Fraud and Underpayment

The primary source of federal tax law is the Internal Revenue Code of 1986, which is a compilation of all tax-related laws enacted by Congress. The Internal Revenue Service (IRS) is a branch of the U.S. Treasury Department, who is responsible for tax collection and tax law enforcement. **Tax evasion** occurs when a taxpayer uses fraudulent methods to rearrange facts and hide the actual tax liability. The IRS estimates it loses more than 300 billion dollars a year due to people omitting income or overstating deductions on tax returns Criminal tax fraud usually provides for imprisonment, while civil tax frauds are collected through monetary fines. Failure to file a tax return by the due date results in a penalty of 5% per month on the amount of tax due.

The inaccuracy of the amount on tax return results in a penalty of 20% of the tax underpayments. An underpayment resulting from fraud imposes a 75% penalty on the amount of tax due. Supplying false or fraudulent information on tax returns results in a fine of up to $1000, or one year of imprisonment in some cases.

TYPES OF TAXES

Payroll Tax

A payroll tax is a tax which an employer withholds from their employee's paycheck and pays to the government on behalf of the employee

Companies must withhold amounts for federal income tax, state income tax, and Social Security taxes. Social Security taxes (or FICA taxes) consists of amounts for Social Security and Medicare, which are designed to provide workers with retirement funds, employment disability, and medical benefits.

Social Security taxes are levied on salaries earned by employees at the following rates: 6.2% for Social Security on the first $118,500 of each employee's wages, and 1.45% for Medicare on all employees' wages.

Employers are also required to withhold income taxes from employees each pay period. The amount to be withheld depends on information within the Employee's Withholding Allowance Certificate (W– 4), which the employee fills out. When individual taxpayers file their tax returns, these prepaid amounts are credited against their actual bill, resulting in either a refund of taxes or an additional tax due.

Social Security Tax

Employers must also pay their share of Social Security taxes, as well as state and federal unemployment taxes. The amount of Social Security taxes withheld for each employee must be matched by the employer, while unemployment taxes are levied only on the employer. Federal unemployment tax provides benefits for a limited period to employees who lose their jobs through no fault of their own.

Employers must pay 6% on the first $7,000 of wages earned by each employee. All states also have a State Unemployment Tax In the state of Tennessee, taxes are paid on the first $8,000 of wages earned by each employee. The Tennessee rate depends on the amount of the company's payroll.

Social Security taxes and federal income taxes that were withheld from employees must be reported each quarter on Form 941 and must be filed within one month after the end of each quarter. Federal unemployment taxes are filed annually on Form 940 before January 31 of the subsequent year. State unemployment taxes usually are filed and paid by the end of the month following each quarter.

The employer is also required to provide each employee with a Wage and Tax Statement (W-2) by January 31 following the end of each calendar year. The W-2 shows gross earnings, Social Security taxes withheld, and income taxes withheld. Employers must also send a copy of each employee's W-2 to the Social Security Administration each year.

For restaurants, employers must also keep a record of tip income their employees receive. They must withhold and pay Social Security taxes and income taxes on that amount.

State and Local Taxes

As previously mentioned, state and local governments (such as cities, counties, and school districts) may also collect taxes. The primary state and local taxes include state income tax, sales tax, property tax, and state unemployment tax. Tennessee is one of the lowest-taxed states in the nation for both businesses and individuals.

There are 41 states that impose a state income tax which ranges from 1% to 9% of income. Tennessee is one of the few states that does not collect individual income tax. However, Tennessee does collect a Hall Tax for income earned from interest and dividends. The Hall Tax is taxed at a rate of 6% on amounts over $1,250. Tennessee also collects a franchise and excise tax for corporations. Excise tax, which is essentially an income tax, is a 6.5% tax on net earnings from doing business in the state. The franchise tax is a 0.25% tax on the greater of a business's net worth or book value of property owned in the state.

In 45 states, including Tennessee, there is a sales tax on retail sales. A sales tax is based on a flat percentage of the selling price of a product or service, Tennessee currently has a 7% sales tax. Some products and services are exempt from sales tax or have a different tax rate. Here are some examples of items that are taxed differently in Tennessee: food and food ingredients are taxed at 5.5%; items bought to resell are not subject to sales tax; gasoline, school textbooks, and some medical supplies are not subject to sales tax. Shelby County also has a sales tax of 2.25%, effectively making total sales tax within Shelby County 9.25%. The company collects the sales tax from the customer when the sale occurs and periodically (usually monthly) remits the collections to the state's department of revenue.

Property Tax

A property tax is based on the assessed value of real property owned by a taxpayer. Real property is land and any structures that are permanently attached to it, such as buildings. Property taxes are not based on the true fair market value of the property, but the assessed value of the property, which varies from state to state.

Within Tennessee, the assessed value of the residential property is 25% of the fair market value, and the assessed value of the commercial property is 40% of the fair market value. Most states do not impose a property tax, most cities and counties do, however. Shelby County currently has a 4.37% property tax rate Memphis currently has a 3.4% property tax rate.

Franchise and Excise Tax and Due Dates

Franchise tax and excise tax are filed on a single form FAE 170, which is due on the 15th day of the fourth month following the company's year-end (usually April 15th).

Hall Tax is filed on form INC 250, which is due on the 15th day of the fourth month following the company's year-end. Sales tax is filed on form SLS 450, which is due monthly on the 20th of the month following the reporting period.

Shelby County property tax bills are mailed to property owners in September and payments are due before March 1. Memphis property tax bills are mailed to property owners in June and payments are due before September 1.

Federal Income Tax

Federal Income Tax is a tax the U.S. federal government imposes on the taxable income of individuals, corporations, estates, and trusts. As previously mentioned, corporations are a separate legal entity that must pay taxes. Since corporations cannot deduct dividends paid to shareholders, it results in a double taxation effect. The **double taxation effect** is the result of a corporation being taxed on its income, which is then distributed to shareholders in the form of dividends, which are then taxed again at the shareholder level. This leads to the same source of income being taxed twice.

Taxable income is the corporation's gross income reduced by specific deductions. Gross income includes any form of income from sales, interest, rent, royalties, or dividends subtracted by the cost of goods sold. Income does not include cash or property received in exchange for stock.

DEDUCTIONS

Deductions are subtractions from gross income specifically allowed by the tax law. The purpose of deductions is based on the Ability To Pay Concept, which implies taxes should be no greater than what taxpayers can afford to pay. The following deductions are allowed:

- Salaries and wages for employees
- Rent expense
- Repairs and maintenance expense
- Bad debts that cannot be collected
- Interest expense
- Charity contributions
- Depreciation expense
- Advertising expense
- Employee benefit programs
- Employee pension and profit-sharing plans

A **net operating loss** results when deductions exceed the amount of taxable revenues. This loss can be carried back two years or forward twenty years to offset taxable income for those years. The taxable income amount is then multiplied by the corporate's tax rates to result in the **income tax liability**.

The following table presents corporate tax rates based on taxable income.

Taxable Income Over	Not Over	Tax Rate
$ 0	$ 50,000	15%
50,000	75,000	25%
75,000	100,000	34%
100,000	335,000	39%
335,000	10,000,000	34%
10,000,000	15,000,000	35%
15,000,000	18,333,333	38%
18,333,333 +		35%

The income tax liability is then reduced by any tax credits to result in total tax.

Corporate Tax Credits

Corporate tax credits include items such as research and development (R&D) expenses and foreign income taxes paid. Income tax returns must be filed annually. Corporations may choose a calendar year (Jan 1– Dec 31) or a different fiscal year for reporting purposes. Usually, corporations use a fiscal year, which can end on the last day of any month in the year. Income tax regulations adopt the **pay-as-you-go** concept that taxpayers are required to pay tax as they generate income. This generates the necessity of estimated tax payments.

Estimated tax payments are four installments of advance payments of taxes, based on the estimated tax liability, which will be due at the end of the year. Corporations must make estimated tax payments unless tax liability is expected to be less than $500. Corporations that have not had an income of $1 million or higher in the last three years may use the preceding years tax liability to base advance tax payments instead of expected current tax liability.

Corporations that have had an income of $1 million or higher in the last three years may use preceding years tax liability to base the first installment of advance tax payments. If advance tax payments were underpaid compared to actual tax liability at the end of the year, corporations must pay the difference in full on the due date of the tax return. If advance tax payments were overpaid compared to actual tax liability at the end of the year, the amount of overpayment could be refunded or applied to future estimated tax payments.

INCOME TAX FILING FORMS

Form 1120 is the Corporation Income Tax Return, it must be filed with the IRS before the 15th day of the third month following year-end (March 15th for the calendar tax year). Corporations calculate taxable income and taxes owed on Form 1120. The form also includes numerous schedules that are required for specific types of income and deductions.

- Schedule C – Dividends and Special Deductions
- Schedule J – Tax Payments and Credits
- Schedule K – Other Information (business activities and ownership)
- Schedule L – Balance Sheet per Books
- Schedule M1 – Reconciliation of Taxable Income and Book Income
- Schedule M2 – Retained Earnings per Books
- Form 1120-W is used to file estimated tax payments, due on the 15th of the month following quarter end
- Form 7004 is an application for extension of time to file income taxes, due on the same date as the income tax return should have been filed
- Form 4562 is used to report depreciation and amortization
- Form 4797 is used to report the sale or exchange of business property
- Form 1125-A is used to report the cost of goods sold
- Form 1125-E is used to report compensation of corporate officers
- Form 8275 is used to disclose items or positions that are not otherwise adequately disclosed on a tax return

Chapter V-30

Financial Reporting

Financial accounting is a system that accumulates and processes information about an entity's financial position then reports that information to external users. The difference between financial accounting and cost accounting depends on the users for which the accounting information is prepared. Financial accounting is for external users and cost accounting for internal.

An **external user** is a person outside of an organization who uses the organization's accounting information to make decisions. Investors and shareholders use an organization's accounting information to determine whether to buy or sell the organization's stock. Creditors use this information to determine the risk of lending the organization money. And governmental agencies use it to evaluate whether the organization is obeying tax and stock trading rules.

The Financial Accounting Standards Board states that the primary objective of financial reporting is to provide useful information to investors and creditors for decision-making purposes. **Useful information** has two fundamental qualities: **faithful representation**, which means the information accurately depicts what happened, and **relevant information**, meaning it would make a difference in a business decision.

Useful information must also have several important enhancing qualities.

Comparability ensures different companies use the same accounting principles and ensures that a company uses the same accounting methods between different periods.

Understandability means the information is presented so that a reasonably informed user can interpret the information.

Verifiability means it enables observers to prove the information is free of errors.

Timely implies that information is available at the time decisions are to be made.

Financial Statements

Accounting information is communicated to users through the use of **financial statements**. Recall the four different financial statements, which are the backbone of financial accounting. These statements are the balance sheet, the income statement, the statement of stockholder's equity, and the statement of cash flows.

The **balance sheet** presents what a business owns and what it owes at a specified point in time. The **income statement** presents the amount of money a business has made and how much it has spent over a period of time.

The **statement of stockholders equity** presents how much of a business' previous income was distributed to owners, and how much was retained in the business to fund future growth. The **statement of cash flows** presents where a business obtained cash and how that cash was spent over a period of time.

GAAP

Users of financial statements make decisions based on information reported on the financial statements, and in doing so, they depend on them being honest and accurately prepared. Just as a person wouldn't gamble at a casino if they thought it was rigged, people wouldn't "play" the stock market if they thought it was rigged.

All U.S. companies get financial reporting guidance from a set of rules known as the **generally accepted accounting principles (GAAP)**. GAAP provides standards on how a company should record and report accounting information within the financial statements.

There are four basic principles of accounting as required by GAAP: measurement, revenue recognition, expense recognition, and full disclosure.

The Measurement Principle

The **measurement principle** allows the use of various measurement bases depending on the specific situation. The most commonly used measurements are historical cost and fair value.

The **historical cost principle** requires that companies account for and report assets and liabilities based on their acquisition price, whereas the **fair value principle** requires that companies report assets and liabilities at their market-based values. In other words, the price that would be received to sell an asset or paid to transfer a liability.

Revenue and Expense Recognition Principles

Recall the difference between cash basis accounting and accrual basis accounting. In accrual accounting, transactions that change a company's financial statements are recorded in the periods in which the events occur, even if cash was not exchanged.

The **revenue recognition principle** requires that revenue is recorded when earned, whereas the **expense recognition principle** requires that expenses are recorded when incurred.

GAAP requires the accrual basis of accounting and disallows the cash basis of accounting because it violates the revenue recognition and expense recognition principles.

Full Disclosure Principle

The **full disclosure principle** requires companies to disclose any information that would be significant enough to influence a financial statement user. When determining which information to report or how it should be reported companies must follow the full disclosure principle in a reasonable fashion by evaluating if its size or importance would be likely to influence a decision maker, and if the cost of the company providing the information outweighed the benefit, a financial statement user would gain.

An example of the second scenario would be a company splitting up its revenue account to show every product they sold, which would only add length to its income statement while giving their competitors details on their operating results.

FINANCIAL REPORTING FOR PUBLIC COMPANIES

A corporation is a business, organized as a separate legal entity, that is owned entirely by shareholders. A public corporation is a corporation whose ownership is sold to the general public in the form of stock, which is traded on a stock exchange.

Each share of stock gives the shareholder the following privileges: a proportionate share of corporate earnings distributed in the form of dividends; a proportionate share of ownership rights to vote on various issues at annual meetings; a proportionate share in the corporation's assets among liquidation, or the process in which a corporation is brought to an end; and a proportionate share in any new issues of stock.

Shareholders own the corporation, but it is managed by a board of directors, whom the shareholders elect. The board of directors then select a chief executive officer (CEO) to manage the company's operations. The CEO may also appoint other officers, such as the chief financial officer (CFO), who is responsible for all of the company's accounting and financial issues.

Corporations require special accounting procedures as they are heavily regulated by state and federal laws. State laws govern issuing stock, distributing earnings to shareholders, and retiring stock. Federal laws govern the sale of stock to the public and disclosure of financial affairs to the Securities Exchange Commission through quarterly and annual reports.

The **Securities Exchange Commission (SEC)** is an agency of the U.S. government that ensures the fairness of financial security markets, develops accounting practices and fosters corporation-shareholder relations. The SEC strictly regulates the actions of publicly traded corporations and legally requires them to submit numerous formal documents regarding financial reporting and the sale of stock.

They also enforce numerous federal security laws, including The Securities Act of 1933, The Securities Exchange Act of 1934, and The Sarbanes-Oxley Act of 2002.

Securities Act of 1923

The Securities Act of 1933 has three basic objectives. First, investors must receive financial information about securities being offered for public sale. Second, it prohibits deceit, misrepresentations, and other fraud in the sale of securities. Third, this law empowers the SEC disciplinary powers of publicly traded companies, and it requires them to periodically file financial reports with the SEC.

Sarbanes Oxley Act

The Sarbanes Oxley Act of 2002 (SOX), put into action after the notorious Enron reporting fraud scandal protects investors from unethical corporate behavior and decreases the likelihood of future corporate scandals by increasing every employee's responsibility for accurate financial reporting.

SOX requires a company's CEO and CFO to have personally reviewed annual reports and to sign a statement attesting to the following

The reports must contain no untrue statements that could make them misleading, and the financial statements fairly present the financial condition of the company. Furthermore, all facts are disclosed to the company's auditors and board of directors. In addition, no changes have *been made in the internal controls of the company without being properly communicated.*

SOX increases the independence of outside auditors who review the accuracy of financial statements. It requires a company's management to certify that the company maintains an adequate system of internal controls, and requires a company's board of directors comprises independent members (non-employees) and at least one financial expert. SOX also provides legal penalties for fraudulent reporting of financial activity, including large fees and up to 20 years of imprisonment for anyone who knowingly falsely certifies financial statements.

SEC FILINGS

As mentioned earlier, the SEC legally requires public corporations to submit numerous forms regarding financial reporting and the sale of stock, including Form 10-K, Form 10-Q, Form 8-K, Form S-1, Schedule 13-D, and proxy statements.

Form 10-K

Form 10-K is an audited annual report that provides a financial overview of the company's past year and extensive detailed financial and operating information. It is the largest and most significant document required by the SEC. It must be filed with the SEC within 60 days after the company's year-end.

The 10-k contains the following three parts:

Part I

Business – A description of the company's business, products, and market – this section should also include any information about recent events, competition and regulations

Risk factors – Information about risks that pose a threat to the company's operating activities

Properties – Information about properties owned by the company

Legal proceedings – Information about any pending lawsuits the company may be involved in

Part II

Market for registrant's common equity – Information about the company's equity securities, number of shares and dividend information

Selected financial data – Contains certain specific financial information about the company for the last five years

Management discussion and analysis – Management gives the company's perspective on operation results, financial results, and market risks for the past year in their own words

Financial statements and supplementary data – Includes the four financial statements, notes explaining the information within the financial statements, and an independent auditor's opinion on whether the financial statements fairly present the company's financial position

Controls and procedures – Information about the company's disclosure procedures and the company's internal controls over financial reporting

Part III

Directors, officers, and corporate governance – Information about the company's directors and executive officers, as well as their code of ethics

Executive compensation – Information about the company's compensation policies and how much compensation was paid to the top executive officers of the company

Security ownership and stockholder matters – Information about shares owned by the company's directors and executive officers, and about shares covered by company compensation plans

Principal accountant fees and services – Information regarding how much company paid their accounting firm for services throughout the year

Form 10-Q

Form 10-Q is an unaudited quarterly report that includes summary versions of the financial statements and limited additional disclosures. It details the company's latest developments during the previous quarter and gives a preview of the direction the company plans to take.

The 10-Q must be filed within 40 days of the company's quarter end.

Form S-1

Form S-1 is the initial registration form used to register shares with the SEC in order to be publically traded on the stock market. The form must include a detailed analysis of the company's business model and their competition, how the company plans to use capital received from selling a stock, and the company's methodology for pricing the initial shares.

Form 8-K

Form 8-K is a current report that details significant events of interest to shareholders. A few examples of these significant events may include entry into or termination of an agreement, exit from a line of business, bankruptcy, acquisition or disposition of assets, material asset impairments, amendments to company's bylaws, code of ethics or article of incorporation, changes in company's CPA firm, changes in ownership control of the company, and departure of company's executive officers.

The 8-K must be filed within four business days of the significant event occurring.

Schedule 13-D

Schedule 13-D must be filed whenever a person acquires 5% or more of the company's stock to let other investors be aware of a large portion of the company being bought out.

The document includes information about the stock, background information of the owner, the purpose of the transaction, and any special relationships between the owner and the company.

Proxy Statement

A **proxy statement** is a document providing shareholders with information regarding matters that will be discussed at the annual shareholders meeting. The information may include issues that will be voted on, proposals for the new board of director members, director's salaries, or any declarations made by the company's management.

STATE FILINGS

Blue sky laws are state laws which govern the issuance of stock, the retirement of stock and distributing earnings. They vary from state to state but typically require a company to register stocks through a state before they can be sold within that state.

The SEC most commonly regulates fraudulent reporting activities, although states also have the authority to bring legal action against violators.

In the state of Tennessee, three financial business filings are required. Form U-1 is an application to register sales of stock through the state. Form 1461 is used to issue employee stock purchase plans. Form 1460 is used to notify the state of sale of stock to an accredited investor.

Additionally, there are several other non-financial business filings required by the state of Tennessee. The corporate charter (ss-4417) registers the business through the state and notifies the state of the business name, address, fiscal year end and shares of stock the corporation is authorized to issue. The article of entity conversion (ss-4611) registers the conversion of an unincorporated business to an incorporated business. The article of dissolution (ss-4410) informs the state of termination of the corporation. The application for change of name (ss-4403) informs the state of a name change. Finally, the application for change of mailing address (ss-4800) informs the state of an address change.

AUDITS

Audited financial reports are often required by entities other than just the government and stockholders, including investors, creditors, banks, lenders or a company's board of directors.

An audit takes place when an accounting professional conducts an independent examination of a company's financial statements to ensure they fairly represent the company's financial position and that they have been prepared in accordance with U.S. GAAP. Only accountants who meet certain criteria and attain the designated certified public accountant (CPA) may perform audits. Auditors must have an independent mental attitude, meaning they have no bias towards their client and will not be swayed by a client trying to influence an auditor's findings.

If an auditor discovers that financial statements have not been fairly presented, he has the responsibility of notifying the user of the statements through an audit report. If an auditor finds that the financial statements have been fairly presented and in accordance with GAAP, he will issue an **unqualified opinion**. If an auditor expresses any opinion other than an unqualified opinion, users of the financial statements should proceed with caution.

Chapter V-31

Corporate Governance

THE ROLE OF CORPORATIONS IN GLOBAL FINANCIAL MARKETS

Corporations and their financial information contribute to the safety, integrity, and efficiency of the capital markets. Public companies rely on public sources of funding through issuing stocks, as opposed to private funding through banks or selected groups of investors. For this open financial system to function effectively, there should be an appropriate system of checks and balances, namely an effective corporate governance structure.

Investors receive reliable and useful financial information in making sound investment decisions. The liquidity, integrity, safety, efficiency, transparency, and dynamics of capital markets are vital to the nation's economic welfare since the markets act as signaling mechanisms for capital allocation.

Corporations also voluntarily disclose their non-financial information on corporate governance, ethical, social and environmental matters for a variety of reasons: to alert stakeholders as a means of avoiding the attention of regulatory bodies where sanctions for noncompliance are imminent, to comply with industrial codes and best practice, and to fulfill their corporate social responsibility.

Information is the lifeblood of the capital markets. Investors are confident when financial information is perceived to be reliable. Without information, stocks would be mispriced, capital markets would be inefficient, scarce resources (capital) would be ineptly used and allocated, and economic growth would not be possible.

CORPORATE REPORTING

Information from public companies flows into the marketplace from three fundamental sources: regulated disclosures, voluntary disclosures, and research analyst reports. Regulators typically require public companies to disclose material information that may impact investors' investment decisions. Financial statement reporting focuses on providing historical financial information and results of operations in four basic financial statements: balance sheet, income statement, the statement of cash flows, and the statement of owner's equity. In the United States, regulated disclosures include filings with the SEC of annual audited financial statements on Form 10-K, quarterly reviewed financial reports on Form 10-Q, extraordinary transactions on a current basis on Form 8-K (e.g., auditor changes, resignation or death of a director or an officer, bankruptcy) and internal control reports for large public companies (Sections 302 and 404).

Corporate reporting is much broader than financial reporting, as it encompasses both financial and nonfinancial reports. Public companies often voluntarily release earnings guidance regarding projected performance and ethical, environmental, and social impact reports.

Integrated Financial and Internal Control Reporting

Many provisions of the Sarbanes-Oxley Act of 2002 (SOX) pertain to financial reporting, including Sections 302 and 404, which require public companies' management (CEO, CFO) to certify financial statements and report on the effectiveness of the company's ICFR (internal control over financial reporting).

Integrated Sustainability Reporting

Considering recent moves toward business sustainability worldwide, companies are shifting their profit-maximizing goals to include fulfilling social and environmental responsibilities. Integrated sustainability reporting implies disclosing information on all five EGSEE performance dimensions (economic, governance, social, ethical, and environmental). Sometimes these dimensions compete with one another; other times, they complement one another. Nonetheless, corporations that are managed ethically, governed effectively, and are socially and environmentally responsible are expected to produce sustainable performance, create shareholder value, and gain public trust and investor confidence over the long run.

Financial Reporting: Fraud and Antifraud Program and Plan

Companies of all types and sizes are susceptible to **employee fraud** including embezzlements, thefts, and misappropriations of assets; and to **financial reporting fraud** (FRF), or "cooking the books." The board of directors, management, and auditors can take several steps to reduce fraud. These include programs focusing on fraud awareness and education, whistle-blowing policies and procedures of encouraging employees to report suspicious behavior without fear of reprisals, conducting surprise audits, and adequate internal control procedures designed to prevent and detect fraud.

Enterprise Risk Management

Enterprise risk management (ERM) has recently received considerable attention from companies and the accounting profession. Companies should conduct risk assessment periodically to identify potential risks and design appropriate strategies to mitigate their adversarial impacts.

The board of directors, particularly the audit committee, should oversee the company's ERM with both internal and external auditors being involved in assessing natural or man-made risks to protect important assets and information.

XBRL-Generated Financial Reports

XBRL, or eXtensible Business Reporting Language, is an application of eXtensible Markup Language (XML) in business and financial reporting. XBRL is now commonly accepted as the electronic method of business and financial reporting worldwide. XBRL enables computer systems to assemble data electronically, retrieve data, and convert data to human-readable financial reports. In the United States, both regulators (SEC) and standard setters (FASB, PCAOB) have taken initiatives to address online financial reporting using the XBRL format. An important issue is whether to require public reporting at a "point in time" (periodic filing report dates, quarterly 10-Q or annual 10-K Form), or on a real-time basis.

CORPORATE GOVERNANCE

In today's global environment, business organizations are under scrutiny from diverse stakeholders to accept accountability and responsibility for their corporate governance effectiveness and financial reporting process. Corporate governance is a process (journey) of managing corporate affairs to create shareholder value while protecting the interests of other stakeholders. Today, good corporate governance measures and procedures are being actively integrated into the corporate culture and business metrics.

The primary sources of corporate governance in the United States are corporate laws, securities laws, listing standards, and best practices.

Corporate Laws

State corporate law establishes standards of conduct for corporations and defines fiduciary duties, authorities, and responsibilities of shareholders, directors, and officers. Corporate law differs from one state to another, which may result in some variation in responsibilities of directors and officers as well as shareholders' rights. Most states, excluding Delaware, adopt the Model Business Corporation Act as their corporate law.

The Federal Securities Laws

The two fundamental laws about public companies are the Securities Act of 1933 and the Securities Exchange Act of 1934. These acts are primarily disclosure-based statutes that require public companies to file a periodic report with the SEC and disclose certain information to their shareholders. The Sarbanes-Oxley Act of 2002 (SOX) and the Dodd-Frank Act of 2010 (DOF) expanded the role of federal statutes by providing measures to improve corporate governance, financial reports, and audit activities.

Listing Standards

Listing standards adopted by national stock exchanges establish corporate governance standards for listed companies to promote high standards of shareholder democracy, corporate responsibility, and accountability to shareholders. Corporate governance listing standards address a variety of issues such as uniform voting rights, mandatory audit committee formation, and shareholder approvals of broad-based option plans. These standards apply to all public companies listing their equity shares with some exceptions.

CORPORATE GOVERNANCE FUNCTIONS

There are seven essential corporate governance functions: oversight, managerial, compliance, internal audit, advisory, external audit, and monitoring. A well-balanced implementation of these seven interrelated functions produces effective corporate governance and reliable financial reports.

The seven interactive functions should be properly integrated into the overall corporate culture and strategy. Effective corporate governance should develop the right balance between the achievement of short-term targets and long-term sustainable performance. Corporate governance participants should lead from the front and by example, in managing the organization for the best interests of its stakeholders. Corporate governance should create an appropriate balance of power-sharing that provides shareholder democracy in freely electing directors (e.g., the majority voting system), enables the board of directors to make strategic decisions and oversee and consult with management without micromanaging, and empowers management to run the company.

Oversight Function

The board of directors has a fiduciary duty to oversee management to ensure it is acting in the best interests of the company and its stakeholders. The effectiveness of the oversight function depends in large part on directors' independence, qualifications, and resources. Oversight can be made effective if the directors 1) appoint the most competent and ethical CEO; 2) approve the hiring of other senior executives; 3) design executive compensation schemes that are linked to sustainable performance; 4) remove executives when they become incompetent and/or unethical; 5) understand the business of the company and be familiar and actively engage in corporate strategic decisions and activities; 6) oversee corporate affairs and compliance with all applicable laws, rules, regulations, standards and best practices; 7) understand corporate reporting in all five (EGSEE) dimensions of business sustainability; and 8) work with management to ensure the alignment of management interests with those of other stakeholders (employees, creditors, customers, suppliers, government, environment, and society).

Managerial Function

The managerial function of corporate governance is assumed by the management team led by the CEO and supported by the CFO, the controller, the treasurer, and other senior executives. Management holds the responsibility to run the company and manage its resources and operations to create sustainable shareholder value. The management responsibilities are organized into three areas – operations, corporate reporting, and compliance.

Compliance Function

The compliance function is framed by federal statutes passed by Congress (e.g., Securities and Exchange Acts of 1933 and 1934, the SOX), state statutes (e.g., state corporate laws defining the fiduciary duties of directors and officers), regulators (e.g., SEC, Public Accounting Oversight Board (PCAOB), Financial Accounting Standards Board (FASB), national stock exchanges (e.g., listing standards), and courts (e.g., interpreting laws and enforcing directors and officers legal duties for the benefit of shareholders). It is the business of corporate attorneys and accountants to ensure that the compliance function is carried out well.

Internal Audit Function

The internal audit function of corporate governance is assumed by internal auditors who provide both assurance and consulting services to the company in the areas of operational efficiency, risk management, internal controls, financial reporting, and governance processes. Internal auditors' roles changed from merely providing input and objective feedback to management, to directly participating in corporate governance, and, thus, in the decision-making function.

Legal Counsel/Financial Advisory Function

The legal and financial advisory function of corporate governance is assumed by professional advisers, internal legal counsel, financial analysts, and investment bankers. Legal counsel provides advice and assists the company in complying with applicable laws, regulations, and rules. Financial advisers and analysts and investment bankers assist companies in evaluating the legal and financial consequences of business transactions.

External Audit Function

The external audit function of corporate governance is required for public companies and is performed by external auditors. External auditors are expected to be independent and are hired by the company to opine whether financial statements are truly and fairly represented, in all material respects, and provide reasonable assurance that the company's financial position and the results of its operations conform with generally accepted accounting principles.

Monitoring Function

The monitoring function is exercised by shareholders, particularly institutional shareholders, who are empowered to elect directors. Institutional investors are distinct from individual investors. Institutional investors consist of managers of pension funds, hedge funds, insurance companies, and endowments of not-for-profit entities like foundations and universities.

BOARD COMMITTEES

The board of directors as a representative of shareholders is responsible for protecting the interests of shareholders by engaging in strategic decisions and overseeing managerial functions. Boards of directors generally perform their oversight function and fulfill their fiduciary duties through committees to make efficient use of time and to take advantage of the expertise of individual directors. Board committees can bring more focus to the board's oversight function; however, ultimately, the entire board remains responsible for fulfilling this function, which includes holding management accountable for the performance of the company. Most public companies are required to have an independent audit, nominating (governance), and compensation committees.

Audit Committee

An audit committee comprised of at least three independent directors is required under the listing standards to implement and support the oversight function of the board, specifically in areas related to financial reporting, internal controls, risk assessment and management, compliance and ethics, and audit activities.

Compensation Committee

A compensation committee comprised of at least three independent directors is required to implement and support the oversight function of the boarding areas relevant to the design, review, and implementation of directors and executives' evaluation and compensation plans. Compensation committee responsibilities are to develop the company's executive pay philosophy, oversee all aspects of executive compensation, and annually review the performance of individuals in the oversight group (directors).

Nominating Committee

An independent nominating committee comprised of at least three independent directors is required under the listing standards to implement and support the oversight function of the board about identifying and recommending candidates for nomination to the board and to oversee the director election process.

Governance Committee

The governance committee typically consists of both inside and outside directors. They often meet between board meetings to discuss matters relevant to the governance of the company. This committee is also involved with (1) internal corporate governance matters at the company, such as drafting an ethics code of conduct and corporate governance policy; and (2) communications with or from shareholders, including responding to individual proposals voted on by shareholders at the annual meeting.

Compliance, Risk and Ethics Committee(s)

The committee(s) works to ensure compliance with all applicable laws, rules, regulations, and standards; prevent further occurrences of financial scandals; and promote an ethical culture of integrity and competency within the company. Members of this committee can be composed of both independent outside and inside directors.

Executive Committee

The executive committee usually meets between board meetings to review and approve managerial decisions, plans, and actions on behalf of the entire board. The executive committee will handle emerging or time-sensitive issues when gathering the entire board is difficult.

Disclosure Committee

The SEC recommends that public companies establish a disclosure committee to assist the company's executives (e.g., CEO, CFO) in complying with Section 302 of SOX internal control and financial statement certifications. The primary responsibility of the disclosure committee is to oversee the appropriateness of all mandatory and voluntary disclosures that are made publicly available and oversee the process of disseminating public information.

IT Committee

The implementation of Section 404 on internal control over financial reporting underscores the importance of IT in financial reporting. Some companies have started to develop a separate IT board committee to address and oversee IT issues. Cybersecurity risk can trigger financial and reputation risks that affect a firm's bottom-line earnings.

Special Committees

The board of directors may form special committees to assist the board in carrying out its strategic and oversight functions. These may include financing, budgeting, investment, risk management, special litigation or investigative issues, and mergers and acquisitions.

The Beginning

Congratulations on having finished the book. Your journey to acquire knowledge has just begun.
Keep Reading. Keep Hearing. Keep Seeing.
Keep Learning.
Open Minds and Open Hearts.

About the Author

After over 40 years of business experience as an executive, academic, and administrator, Rajiv has turned to write this book to steer organizations into making better decisions. He believes that many executives do not possess the stance to make sound decisions that impact multiple functions, stakeholders, and the environment. Though this is true for technologists and non-business specialists, it is also valid for many formally educated business professionals. This situation can be attributed to academics who themselves are not experienced enough to understand the far reaches of businesses and, hence, are unable to position their locally optimized solutions in the larger context of organizational optimization.

Rajiv has acquired his expertise for umbrella and grassroots understanding of businesses not only from sharpening his predisposition over the decades but also from the positions he has held. He has been a business executive; consulted for a Fortune 1 company and others; been a dean and department head of business schools; held endowed chairs; won awards for his research and teaching; been conferred the Lifetime Achievement Award in Marketing Research and The Outstanding Academic Title Award for the Handbook of Marketing Research, and he is old.

In addition to his conviction in the critical importance of cross-functional management by generalists, he believes in experiential learning. And since real experiences are hard to come by and expensive, he deems simulations as highly effective learning tools. Not coincidently, then, this book is a complement to a comprehensive computer-based simulation, Virtual Business Professional, VB Pro. It is designed for professionals to learn by running a virtual business. The Simulation is entirely self-sufficient in that it incorporates 1) quizzes for users to assess their *knowledge*, 2) business decisions to improve their *judgment*, 3) uncontrollable environmental events to sensitize users to such possibilities, and 4) measures to assess their Principles-in-Use while working in organizations. Feedback on their performance, relative to a cohort if applicable, is constantly available for users. VB Pro is largely self-paced with judicious enablement by a facilitator. It is meant for use at the individual level.

Rajiv is the President of PrecisED, Inc., a Delaware Public Benefit Corporation through which VB Pro and other simulations are offered. Besides being a Professor at the University of Memphis, he is a Senior Research Fellow at Drucker School of Management, Claremont Graduate University, and an Honorary Distinguished Professor at the School of Management & Entrepreneurship, Shiv Nadar University, India.

Rajiv has a Ph.D. from the University of Massachusetts, an MBA from the Indian Institute of Management, Calcutta, and a B.Tech. from the Indian Institute of Technology, Kharagpur. He is a proud graduate of Don Bosco School, Calcutta.