E

E-COMMERCE

SEE: Electronic Commerce

EAP

SEE: Employee Assistance Programs

ECONOMIC CENSUS

The U.S. economic census provides information about the structure and function of the nation's economy, from the national level to the local level, every five years. The Bureau of the Census is mandated by Title Thirteen of the United States Code (sections 131, 191, and 224) to develop an economic census every five years, covering years ending in two and seven. The 2002 Economic Census covers about 98 percent of the U.S. economy in its collection of establishment statistics. There are also several related census programs, including: censuses for outlying areas of Guam, Puerto Rico, U.S. Virgin Islands, and the Commonwealth of the Northern Mariana Islands; and additional reports on minority- and women-owned businesses (available in 2006), surveys of business expenditures, and nonemployer statistics. In addition, the Census of Agriculture and Census of Governments are conducted at the same time.

COLLECTING, COMPILING, AND ISSUING THE CENSUS DATA

With the exception of the Census of Agriculture, which is conducted by the Department of Agriculture, the 2002 Economic Census covered the entire economy of about 20 million business establishments. In December 2002, the Census Bureau mailed 600 versions of the census forms; these forms were tailored to the five-million businesses receiving them. Data for those not receiving forms—generally self-employed individuals with no paid employees—are obtained from other federal agencies.

The 2002 Economic Census consists of general statistics available for the nation, states, metropolitan areas, counties, places with 2,500 or more inhabitants, and zip code areas. All operations of a particular business location are summarized. Product statistics cover products, lines of merchandise, and lines of service provided by business establishments. For example, one can determine how much hardware is sold by all kinds of stores, not just hardware stores.

The Census Bureau compiles the data and issues report series on industry, geographic area, subject, and zip code. These reports are based on the North American Industry Classification System (NAICS). The new *Advance Report* presents economy-wide data at the national level. The *Industry Series* reports are issued only for individual industries in the goods-producing part of the economy—manufacturing, mining, and construction. They provide data primarily at the national level, although there is some state data. The *Geographic Area Series* will be issued separately for each of the twenty NAICS sectors. Within several sectors, there will be individual state-by-state reports. There will only be a few *Subject Series Reports,* primarily at the national level, that will provide additional analyses of

industries. Of special significance are the *Merchandise Line Sales* report for retail businesses and *Commodity Line Sales* report for wholesale trade. Zip code statistics are issued for manufacturing, retail trade, and the service industries. The data for all components of the economic census generally include the number of establishments, number of employees, annual payroll, and measures of output such as sales or receipts. More detailed economic statistics vary by sector.

PRE-2002 ECONOMIC CENSUS DATA

The economic census is an integrated program collected in 5-year intervals since 1967, and before that for 1963, 1958, and 1954. In other words, the census provided comparable data across economic sectors using consistent time periods, definitions, classifications, and reporting units. Prior to 1954, the individual censuses were taken separately at varying time periods. The economic censuses were first incorporated in the 1810 Decennial Census, when questions dealing with manufacturing were included. The first census of business was taken in 1930 and included wholesale and retail trade. Industries continued to be added to the census. In 1933, some service industries were included; the census of transportation was added in 1963 and the census of construction began on a regular basis in 1967. Finally, the 1992 Economic Census included eight sectors: census of construction industries; census of finance, insurance, and real estate; census of manufactures; census of mineral industries; census of retail trade; census of service industries; census of transportation, communication, and utilities; and the census of wholesale trade.

NAICS AND THE 2002 ECONOMIC CENSUS

The North American Industry Classification System replaced the Standard Industrial Classification (SIC) system that began in the 1930s and was revised in 1967, 1972, 1987, and 2002. This new classification system organizes establishments into industries by type of producing and non-producing activities in which they are involved, rather than organizing business activities into a mixture of production and market-based categories (as in the past). The NAICS uses a numbering system of six digits instead of SIC's four digits, and increases the number of sectors of economic activity from ten to twenty. This allows more flexibility in designating subsectors and allows for expansion, especially for the service sector industries. With the NAICS, it is now possible to compare economic activity in the United States with that of Canada and Mexico.

The implementation of NAICS caused a major disruption when comparing data from the 1997 Economic Census with previous census data. NAICS data time series can go forward from 1997, but many of the time series cannot go back in time because the NAICS categories require information not collected in earlier censuses; the hierarchy within the levels of classification and the scope for the sectors have changed. The 2002 Economic Census published data primarily on the basis of the 2002 North American Industry Classification System. Changes between the 1997 and 2002 NAICS were within construction and wholesale trade and did not effect sector totals. NAICS 2002 introduces a number of new industries—including residential remodelers, discount department stores, electronic shopping, electronic auctions, wholesale electronic markets, internet publishing and broadcasting, and web search portals. Economic Census comparisons are easier to make since 90 percent of all industries are comparable between 1997 and 2002. To facilitate comparisons, the 2002 Economic Census includes bridge tables and comparative statistics. *Advance Comparative Statistics for the United States 1997 NAICS Basis* will present 1997 and 2002 data at the national level.

USES OF THE ECONOMIC CENSUS

In summing up the importance of the census, Alan Greenspan (chairman of the Federal Reserve Board) stated that the census provides accurate statistics essential for sound economic policy and successful business planning. All levels of government, business, industry, and the general public use the statistical information from the economic census. It provides an essential framework for such measures as the production and price indexes, gross domestic product, input/output measures, and other key data that determine changes in the economy. Policymaking agencies of the federal government use these data to monitor and guide economic activity as well as to provide assistance to businesses. State and local governments use this information to assess business activities and tax bases within their jurisdictions.

According to the Census Bureau, individual businesses use the census data to gauge the competition, calculate market share, locate business markets, identify business site locations, design sales territories, set sales quotas, and evaluate new business opportunities. Trade associations study trends in their industries to keep members abreast of market changes. Consultants and researchers use census data to analyze market structure.

LEARNING ABOUT AND ACCESSING THE ECONOMIC CENSUS

The Census Bureau provides access to over 60,000 documents via its Web site. The *Census Catalog and Guide, Monthly Product Announcement,* and *Census and You* provide the latest information

about Census Bureau products, programs, and future plans. Federal depository collections found in many public and academic libraries, Census Data Centers located in all states, and census data specialists are also available to assist local users. *The Guide to the 2002 Economic Census* is the best single source for learning about the 2002 Economic Census.

There were a number of significant changes in the 2002 Economic Census. The 2002 Economic Census includes "enterprise support" establishments, thus providing additional data on outsourcing activities that will impact comparisons between certain industries. The 2002 survey also gathered e-commerce information for the first time. New industries added in the 2002 Economic Census include Landscape Architectural Services, Veterinary Services, Landscaping Services, and Pet Care (except Veterinary) Services. The metropolitan statistical area concept is being supplemented with several hundred new, micropolitan, statistical areas, meaning data will be available for many new counties outside metropolitan areas. Selected data and reports are now available to the public on the *American FactFinder* site.

Most importantly, all components of the census will be available in database format on the Internet, DVD, and CD-ROM. This means faster publication and wider access along with fewer printed reports. Furthermore, the introduction of the new industry classification system provides a more accurate snapshot of the economy, and there will be greater integration of the census data economy-wide.

SEE ALSO: North American Industry Classification System

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Revised by Hal P. Kirkwood, Jr.

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ECONOMICS

The study of economics leads to the formulation of the principles upon which the economy is based. History, politics, and the social sciences cannot be understood without the basic understanding of economic principles. The science of economics is concerned with the scientific laws that relate to business administration, and attempts to formulate the principles that relate to the satisfaction of wants.

The term "economics" covers such a broad range of meaning that any brief definition is likely to leave out some important aspect of the subject. It is a social science concerned with the study of economies and the relationships between them. Economics is the study of how people and society choose to employ scarce productive resources, which could have alternative uses, to produce various commodities and distribute them for consumption. Economics generally studies problems from society's point of view rather than from the individual's. Finally, economics studies the allocation of scarce resources among competing ends.

OBJECTIVES

As a science, economics must first develop an understanding of the processes by which human desires are fulfilled. Second, economics must show how causes that affect production and consumption lead to various results. Furthermore, it must draw conclusions that will serve to guide those who conduct and, in part, control economic activity.

MICRO AND MACRO VIEWS OF THE ECONOMY

While there are numerous specialties within the academic field, at its most basic level economics is commonly divided into two broad areas of focus: microeconomics and macroeconomics. Microeconomics is the study of smaller levels of the economy, such as how an individual firm or a small group of firms operate. Macroeconomics is the study of whole economies or large sectors of economies.

MICROECONOMICS. Microeconomics is the social science dealing in the satisfaction of human wants using limited resources. It focuses on individual units that make up the whole of the economy. It examines how households and businesses behave as individual units, not as parts of a larger whole. For instance, microeconomics studies how a household spends its money. It also studies the way in which a business determines how much of a product to produce, how to make the best use of production factors, and what pricing strategy to use. Microeconomics also studies how

individual markets and industries are organized, what patterns of competition they follow, and how these patterns affect economic efficiency and welfare.

MACROECONOMICS. Macroeconomics studies an economy at the aggregate level. It is concerned with the workings of the whole economy or large sectors of it. These sectors include government, business, and households. Macroeconomics deals with such issues as national economic output and growth, unemployment, recession, inflation, foreign trade, and monetary and fiscal policy.

BASIC ECONOMIC PRINCIPLES

Basic economic principles include the law of demand, demand determinants, the law of supply, supply determinants, market equilibrium, factors of production, the firm, gross product, as well as inflation and unemployment.

THE LAW OF DEMAND. When an individual want is expressed as an intention to buy, it becomes a demand. The law of demand is a theory about the relationship between the amount of a good that a buyer both desires and is able to purchase per unit of time, and the price charged for it. The ability to pay is as important as the desire for the good, because economics is interested in explaining and predicting actual behavior in the marketplace, not just intentions. At a given price for a good, economics is interested in the buyer's demand that can effectively be backed by a purchase. Thus, it is implied with demand that a consumer not only has the desire and need for a product, but also has the money to purchase it. The law of demand states that the lower the price charged for a product, resource, or service, the larger will be the quantity demanded per unit of time. Conversely, the higher the price charged, the smaller will be the quantity demanded per unit of time—all other things being constant. For example, the lower the purchase price for a six-pack of Coca-Cola, the more a consumer will demand (up to some saturation point, of course).

DEMAND DETERMINANTS. Movement along the demand curve—referred to as a change in quantity demanded—means that only the price of the good and the quantity demanded change. All other things are assumed to be constant or unchanged. These things include the prices of all other goods, the individual's income, the individual's expectations about the future, and the individual's tastes. A change in one or more of these things is called a change in demand. The entire demand curve will move as a result of a change in demand.

LAW OF SUPPLY. The law of supply is a statement about the relationship between the amount of a good that a supplier is willing and able to supply and offer for sale, per unit of time, and each of the different possible prices at which that good might be sold. This law further states that suppliers will supply larger quantities of a good at higher prices than at lower prices. In other words, supply generally is governed by profit-maximizing behaviors. The supply curve indicates what prices are necessary in order to give a supplier the incentive to provide various quantities of a good per unit of time. Just as with the demand curve, movement along the supply curve always assumes that all other things are constant.

SUPPLY DETERMINANTS. At the opportunity for sale at a certain price, a part of total supply becomes realized market supply. Economics emphasizes movement along the supply curve in which the price of the good determines the quantity supplied. As with the demand curve, the price of the good is singled out as the determining factor with all other things being constant. On the supply side, these things are the prices of resources and other production factors, technology, the prices of other goods, the number of suppliers, and the suppliers' expectations.

MARKET EQUILIBRIUM. Supply and demand interact to determine the terms of trade between buyers and sellers. In theory, supply and demand mutually determine the price at which sellers are willing to supply just the amount of a good that buyers want to buy. The market for every good has a demand curve and a supply curve that determine this price and quantity. When this price and quantity are established, the market is said to be in equilibrium. The price and quantity at which this occurs are called the equilibrium price and equilibrium quantity. In equilibrium, price and quantity have the tendency to remain unchanged.

FACTORS OF PRODUCTION

Factors of production are economic resources used in the production of goods, including natural, man-made, and human resources. They may be broken down into two broad categories: (1) property resources, specifically capital and land; and (2) human resources, specifically labor and entrepreneurial ability.

Managers often speak of capital when referring to money, especially when they are talking about the purchase of equipment, machinery, and other productive facilities. Financial capital is the more accurate term for the money used to make such purchases. An economist would refer to these purchases as investments. The economist uses the term *capital* to mean all the man-made aids used in production. It is sometimes referred to as investment goods. Capital consists of machinery, tools, buildings, transportation and distribution facilities, and inventories of unfinished goods. A basic characteristic of capital goods is that

they are used to produce other goods. Capital goods satisfy wants indirectly by facilitating the production of consumable goods, while consumer goods satisfy wants directly.

To an economist, land is the fundamental natural resource that is used in production. This resource includes water, forests, oil, gas, and mineral deposits. These resources are rapidly becoming scarce. Land resources, which include natural resources above, on, and below the soil, are distinguished by the fact that man cannot make them.

Labor is a broad term that covers all the different capabilities and skills possessed by human beings. While this often this means direct production labor, it includes management labor as well. The term *manager* embraces a host of skills related to the planning, administration, and coordination of the production process.

Entrepreneurial ability also is known as enterprise. Entrepreneurs have four basic functions. First, they take initiative in using the resources of land, capital, and labor to produce goods and services. Second, entrepreneurs make basic business policy decisions. Third, they develop innovative new products, productive techniques, and forms of business organization. Finally, entrepreneurs bear the risk. In addition to time, effort, and business reputation, they risk their own personal funds, as well as those of associates and stockholders.

THE FIRM

The economic resources of land, capital, and labor are brought together in a production unit that is referred to as a business or a firm. The firm uses these resources to produce goods that are then sold. The money obtained from the sale of these goods is used to pay the economic resources. Payments to those providing labor services are called wages. Payments to those providing buildings, land, and equipment leased to the firm are called rent. Payments to those providing financial capital, such as loans, stocks, and bonds, are called dividends and interest. In other words, capital goods tend to increase the productivity of labor through being man-made and reproducible.

GROSS PRODUCT

The total dollar value of all the final goods produced by all the firms in an economy is called the gross product. This commonly is measured by one or both of the following:

1. Gross national product (GNP) includes the value of all goods and services produced by firms originating in a single nation. This means that foreign direct investment (FDI)—such as a Japanese auto plant in the United States—is not included in GNP, even though the plant might employ U.S. workers and sell its output exclusively to U.S. consumers. Conversely, the value of production by U.S.-based firms abroad would be considered part of the U.S. GNP.
2. Gross domestic product (GDP) includes the value of all goods and services produced within a nation, regardless of where the owners of production are based. In this case, FDI into the United States would contribute to U.S. GDP, while U.S. investment in other countries would contribute to those countries' GDP, not that of the United States.

GDP is the preferred measure of gross product for many kinds of economic analyses. This is because foreign investment has grown rapidly around the world, and because foreign-owned assets, such as a manufacturing facility, tend to have a greater net influence on the domestic economy in which they are situated. Both measures of gross product calculate the value of products and services on a value-added basis so that output is not double-counted, such as when products are resold through different phases of the supply and distribution chain.

In order to make comparisons, economists often use "real" GNP or GDP, which means the figure has been adjusted to hide the effects of inflation, or the general rise of prices relative to the quantity or quality of goods produced. Therefore, real gross product is commonly taken as an indictor of overall economic health. A rise at a moderate, sustainable pace is considered healthiest. However, if gross product is declining or rising at an unsustainably fast pace, it usually is interpreted as a negative signal.

INFLATION AND UNEMPLOYMENT

The economic health of a nation, of which gross product is one measure, is directly affected by two other important factors: inflation and unemployment.

INFLATION. Inflation is an ongoing general rise in prices without a corresponding rise in the quantity or quality of the underlying merchandise or services (i.e., getting "less for more"). Ultimately, inflation represents an economic imbalance and diminishes a currency's real and nominal purchasing power. The steeper the rise, the faster the decline of the currency's purchasing power. Rapid economic expansion is one factor that can lead to price inflation, as can lax or inconsistent control of the money supply (such as through central bank monetary policy). Leading measures of inflation in the United States are the Consumer Price Index (CPI) and the Producer Price Index (PPI).

When inflation data are used to adjust the estimate of GDP, it is known as the GDP deflator.

UNEMPLOYMENT. The unemployment rate measures the percentage of the total number of workers in the labor force who are actively seeking employment but are unable to find jobs. While this seems straightforward, there are some measurement issues to consider, such as what constitutes looking for a job, how part-time labor is interpreted (i.e., being underemployed rather than unemployed), and what happens when an individual is technically employable but not actively seeking employment for whatever reason.

Measurement difficulties aside, in general the higher the unemployment rate, the more the economy is wasting labor resources by allowing people to sit idle. Still, when unemployment rates are low there is a tendency toward wage inflation because new employees are harder to find and workers often require additional incentives in order to take or keep a job. Because having a moderate pool of unemployed workers serves as a buffer to rising labor costs, most economists view full employment (zero or negligible unemployment) as impractical and even undesirable. Structural unemployment seemingly allows human capital to flow more freely (and cheaply) when there are changes in demand for labor in various parts of the economy. Of course, this does not mean that high unemployment is viewed as positive.

SCHOOLS OF ECONOMIC THOUGHT

While many of the aforementioned basic economic principles and ideas are widely accepted by economists, there have been—and continue to be—differing theories about some areas of economic behavior. Following is a brief overview of the three most influential theoretical perspectives.

CLASSICAL ECONOMICS. Dating back to eighteenth-century Europe, classical economics posited the market system would ensure full employment of the economy's resources. Classical economists acknowledged that abnormal circumstances such as wars, political upheavals, droughts, speculative crises, and gold rushes would occasionally deflect the economy from the path of full employment. However, when these deviations occurred, automatic adjustments in prices, wages, and interest rates within the market would soon restore the economy to the full-employment level. A decrease in employment would reduce prices, wages, and interest rates. Lower prices would increase consumer spending, lower wages would increase employment, and lower interest rates would boost investment spending. Classical economists believed in Say's Law, which states that supply creates its own demand. Although more recent economic philosophies differ in some of the specifics, particularly on the role of governments, central banks, and international trade, many tenets of classical economics are still accepted today.

KEYNESIAN ECONOMICS. As a consequence of the 1936 publication of British economist John Maynard Keynes's *General Theory of Employment, Interest, and Money,* mainstream economists came to give less importance to the role of money in the economy than had classical economists. Keynes sought to explain why there was cyclical employment in capitalistic economies. It was Keynes's analysis of how total demand determines total income, output, and employment, and the potentially key role for fiscal policy in the process, that captured the attention of most economists.

Moreover, the General Theory seemed to make compelling arguments for the use of government fiscal policy to avoid such problems and to smooth out economic instability. Keynesian followers believe that savings must be offset by investment. They termed propensity to consume as a person's decision on how much of total income will be allocated to savings and how much will be spent. The Keynesian view sees the causes of unemployment and inflation as the failure of certain fundamental economic decisions, particularly saving and investment decisions. In short, the Keynesian view is one of a demand-based economy.

MONETARISM. More recently, the monetarists, led by Nobel laureate economist Milton Friedman, argued that money plays a much more important role in determining the level of economic activity than is granted to it by the Keynesians. Monetarism holds that markets are highly competitive and that a competitive market system gives the economy a high degree of macroeconomic stability. Monetarists argue that price and wage flexibility provided by competitive markets cause fluctuations in total demand rather than output and employment. Monetarism is thus concerned with controlling the money supply and not injecting excess liquidity into markets. This view is somewhat compatible with, but not identical to, the supply-side school of economics.

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Revised by Gerhard Plenert

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ECONOMIES OF SCALE AND ECONOMIES OF SCOPE

Economies of scale are reductions in average costs attributable to production volume increases. They typically are defined in relation to firms, which may seek to achieve economies of scale by becoming large or even dominant producers of a particular type of product or service. A distinction can be made between internal and external economies of scales. Internal economies of scale occur when a firm reduces costs by increasing production. External economies of scale occur when an entire industry benefits from expansion; for example, through the creation of an improved transportation system, a skilled labor force, or by sharing technology.

Economies of scope are reductions in average costs attributable to an increase in the number of goods produced. For example, fast food outlets have a lowe+r average cost producing a multitude of goods than would separate firms producing the same goods. This occurs because the preparation of the multiple products can share storage, preparation, and customer service facilities (joint production).

ECONOMIES OF SCALE

The basic notion behind economies of scale is well known: As a plant gets larger and volume increases, the average cost per unit of output is expected to drop. This is partially because relative operating and capital costs decline, since a piece of equipment with twice the capacity of another piece does not cost twice as much to purchase or operate. If average unit production cost = variable costs + fixed costs/output, one can see that as output increases the fixed costs/output figure decreases, resulting in decreased overall costs.

Plants also gain efficiencies when they become large enough to fully utilize dedicated resources for tasks such as materials handling. The remaining cost reductions come from the ability to distribute non-manufacturing costs, such as marketing and research and development, over a greater number of products. This reduction in average unit cost continues until the plant gets so big that coordination of material flow and staffing becomes very expensive, requiring new sources of capacity.

This concept can be related to best operating levels by comparing the average unit cost of different sized firms. In many types of production processes, the most efficient types of production facilities are practicable only at high output levels. It is very expensive to build custom-made cars by hand, and would be equally or more expensive to use a large General Motors assembly plant to build just a few Chevrolets per year. However, if the plant is used to build 6 million cars per year, the highly specialized techniques of the assembly line allow a significant reduction in costs per car.

Suppose, for example, that Honda were constrained to produce only 10,000 motorcycles a year instead of a possible 1 million. With this circumstance, the need for an assembly line would become obsolete. Each motorcycle could be produced by hand. Honda could rule out benefits that might be derived from the division and specialization of labor. In producing such a small number, the use of any production techniques that reduce average cost would become obsolete. In these two examples, Honda and General Motors would enjoy economies of scale with reduced average cost simply by increasing the scale of their operations.

More broadly, economies of scale can occur for a number of reasons, including specialization efficiencies, volume negotiating/purchasing benefits, better management of by-products, and other benefits of size that translate into savings or greater profitability for a large-scale producer.

SPECIALIZATION. In a small firm, labor and equipment must be used to perform a number of different tasks. It is more difficult for labor to become skilled at any one of them and thereby realize the gains in productivity and reduction in per-unit costs that specialization permits. In the same way, management functions cannot be as specialized in a smaller firm. Supervisors may have to devote time to screening job applicants, a task usually more efficiently handled by a personnel department in a larger firm. Executives may have to divide their attention between finance, accounting, and production functions that could be handled more proficiently by departments specializing in each of these areas in a larger firm.

According to Langlois, some economies of scale result from the specialization and division of labor. Mass production allows the use of specialized equipment and automation to perform repetitive tasks. The larger the output of a product, plant, or firm, the greater will be the opportunities for specialization of labor and capital equipment. Similarly, machinery and equipment cannot be used as efficiently when it has to be switched back and forth between tasks.

Increased specialization in the use of labor is feasible as a plant increases in size. Hiring more workers means that jobs can be divided and subdivided. Instead of performing five or six distinct operations in the productive process, each worker may now have just one task to perform. Workers can be used full-time on those particular operations at which they have special skills. In a small plant a skilled machinist may spend half his time performing unskilled tasks, resulting in higher production costs. Furthermore, the division of work operations made possible by large-scale operations gives workers the opportunity to become very

proficient at the specific tasks assigned to them. Finally, greater specialization tends to eliminate the loss of time that accompanies the shifting of workers from one job to another.

VOLUME DISCOUNTS. Oftentimes, the suppliers of raw materials, machinery, and other inputs will charge a lower price per unit for these items if a firm buys in large quantities. When a firm produces at high output levels, it needs a large volume of inputs and can take advantage of the associated price discounts to reduce its per-unit costs; if the company is large enough it may have strong negotiating power on this point. There may be similar economies of scale for stocks of raw materials, and intermediate and final products, part of which may be held to meet interruptions to the supply of raw materials, a temporary breakdown of firms, and the uncertain flow of orders from customers.

ECONOMIC USE OF BY-PRODUCTS. The production of many types of goods gives rise to economically valuable by-products. Large-scale firms are often able to recycle "waste" by-products that smaller size firms simply have to throw away because it is not economical to do anything else with them. For example, a small sawmill may simply throw away sawdust and old wood scraps. Many processing firms find that the volume of these waste products is large enough to warrant their resale. For example, sawdust can be sold as a sweeping compound for cleaning floors and hallways in large buildings. Wood scraps may be packaged, processed, and sold as kindling wood and artificial logs for home barbecues and fireplaces. In this way, the sale of by-products effectively reduces the per-unit costs of producing lumber in large volumes. For the same reasons, large oil firms often produce a host of petroleum by-products, and meatpacking firms produce fertilizers, glue, leather, and other by-products of meat production.

EXTERNAL ECONOMIES OF SCALE. The growth of supporting facilities and services is encouraged by a firm's large scale of operation. As a firm's scale of operations gets larger, it often becomes worthwhile for other firms and local governments to provide it with unique services that result in direct or indirect cost advantages. If a firm builds a large plant in a particular area, an improvement in highways and expanded transportation services may soon follow. Smaller suppliers that find a large part of their sales going to the larger firm may move closer to reduce transportation costs. All of these developments could result in lower per-unit costs for the large firm.

LARGE ECONOMIES OF SCALE. Larger firms have a cost advantage over their competitors. Not only does a larger plant gain from economies of scale, it also will produce more. Companies often use this advantage as a competitive strategy by first building a large plant with substantial economies of scale, and then using its lower costs to price aggressively and increase sales volume. Large economies of scale cause the firm's long-run average total cost curve to fall over a sizeable range as output is increased. In industries where the technology of production leads to economies of scale, the long-run average total cost curve for a single firm may fall over almost the entire range of output covered by the industry demand curve. When long-run average total cost falls in this fashion, it is possible for a firm that gets into this market ahead of others to obtain a competitive advantage. The ever lower per-unit costs it realizes at higher and higher levels of output permit the firm to charge a price lower than the average per-unit costs that prevail at lower levels of output. In this way, the firm is able to satisfy the entire market demand at a price below that which potential new rival firms must charge when getting started. These new firms would thus not be able to charge a price low enough to compete for sales with the established firm. Therefore, the established firm is able to keep rivals out of the market and maintain a monopoly position.

ECONOMIES OF SCOPE

According to David Kass in his 1998 article, "Economies of Scope and Home Healthcare," economies of scope exist if a firm can produce several product lines at a given output level more cheaply than a combination of separate firms each producing a single product at the same output level. Economies of scope differ from economies of scale in that a firm receives a cost advantage by producing a complementary variety of products with a concentration on a core competency. While economies of scope and scale are often positively correlated and interdependent, strictly speaking the benefits from scope have little to do with the size of output.

For instance, in the paper products industry it is common for large firms to produce their own pulp, the primary ingredient in paper, before manufacturing the paper goods themselves. However, smaller firms may have to purchase pulp from others at a higher net cost than the large companies pay. The savings from producing both pulp and paper would be an economy of scope for the large producers, although the large companies probably also have economies of scale that make it feasible to invest in pulping operations in the first place.

In another example, banks have economies of scope when they offer a variety of related financial services, such as retail banking and investment services, through a single service infrastructure (i.e., their branches, ATMs, and Internet site). Clearly, the costs of providing each service separately would be much greater than the costs of using a single infrastructure to provide multiple services.

Research concerning hospitals has suggested that other types of services, such as pediatric care, may have economies of scope. With increasing competition and emphasis on service, economies of scope are necessary for hospitals to provide these services profitability.

DISECONOMIES OF SCALE

When a firm grows beyond the scale of production that minimizes long-run average cost, diseconomies of scale may result. When diseconomies of scale occur the firm sees an increase in marginal cost when output is increased. This can happen if processes become "out of balance," or when one process cannot produce the same output quantity as a related process. Diseconomies of scale also can occur when a firm becomes so large that:

- Transportation costs increase enough to offset the economies of scale
- Monitoring worker productivity becomes too imperfect or costly
- Coordinating the production process becomes too difficult
- Frequent breakdowns result
- Maintaining efficient flows of information becomes too expensive
- Workers feel alienated and become less productive
- The focus of the firm is reduced, leading to inefficiencies and loss of strategic position

SEE ALSO: Economics

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EFFECTIVENESS AND EFFICIENCY

Efficiency and effectiveness were originally industrial engineering concepts that came of age in the early twentieth century. Management theorists like Frederick Taylor and Frank and Lillian Gilbreth designed time and motion studies primarily to improve efficiency. Work simplification efforts again focused primarily on questions like "How fast can we do this task?" Work simplification also led to terminology like *streamlined processes* and *efficiency experts,* but the emphasis was still on time and motion. The concept of effectiveness, which takes into consideration creating value and pleasing the customer, became popular in the United States in the early 1980s when Americans perceived Japanese products such as cars and electronics to offer greater value and quality.

The words *efficiency* and *effectiveness* are often considered synonyms, along with terms like *competency, productivity,* and *proficiency.* However, in more formal management discussions, the words *efficiency* and *effectiveness* take on very different meanings. In the context of process reengineering, Lon Roberts (1994: 19) defines efficiency as "to the degree of economy with which the process consumes resources-especially time and money," while he distinguishes effectiveness as "how well the process actually accomplishes its intended purpose, here again from the customer's point of view."

Another way to look at it is this: efficiency is doing things right, and effectiveness is doing the right things. For example, think of a company that was successfully making buggy whips as automobiles became the mode of transportation. Assume that the processes used to make buggy whips were perfect. The relationships of internal and external suppliers and customers were perfect. The suppliers and customers teamed together to make perfect buggy whips. The buggy whips were delivered on or ahead of schedule at the lowest possible cost. This company was very efficient. However, the company and its strategists were not very effective. The company was doing the wrong things efficiently. If they had been effective, they would have anticipated the impending changes and gotten into a different market.

Let's consider a surgery example. A surgeon is very skilled, perhaps the best in the country. The impending job is to operate on the patient's left knee. However, the surgeon doesn't perform all the steps of the process leading up to the surgery. Someone else marks the right knee for surgery. However skilled this surgeon is, however fast he performs the surgery (i.e., however efficient he is), this process will not be effective. When the patient awakens from the surgery, he will not be a happy camper. And what about the HMO?

Who will pay for a surgery performed on the wrong knee?

Efficiency and effectiveness can both improve speed, on-time delivery, and various other process baselines. A travel application which has six signatures (as opposed to two) causes the travel application process to be inefficient and ineffective. Many of the people who sign the application are not effective in their job because they waste their time on things that don't add value for any of the stakeholders. They are not doing the right things. They are also inefficient because they are participating in a process that takes too long and therefore costs too much. Eliminating some of the signatures would make the process (and the signers) more efficient and more effective. People who sign all those travel applications might justify it by saying, "These people have to be here anyway. It does not cost us anything extra for them to be signing the travel applications." There's something terribly wrong with that type of thinking!

A process can also be inefficient and ineffective because the steps of the process are completed serially instead of simultaneously. Assume that a university curriculum/course approval process takes an average of two to three years. The steps of the serial process are identified as follows:

1. A professor suggests to the department chairman that a quality management course be added to the curriculum.
2. The department chairman reviews the course, agrees, and submits the suggestion to all the colleagues in the department.
3. The colleagues review the course, agree, and submit their recommendation to the department chairman.
4. The department chairman reviews their recommendation and submits it, along with all materials, to the dean of the business school.
5. The dean reviews the materials and recommendations, agrees, and submits them to all the department chairmen in the school.
6. The chairmen all agree, and submit the recommendations and materials back to the dean with their recommendation.
7. The dean submits the materials and recommendations to the entire faculty in the business school.
8. The faculty reviews all materials and sends recommendations back to the dean.
9. The dean submits all materials and recommendations to the associate vice president for academic affairs.
10. The associate vice president agrees and submits everything to the vice president.
11. The vice president agrees and submits everything back to the associate.
12. The associate submits everything to the faculty senate.
13. The faculty senate agrees and submits everything, with its recommendation, back to the vice president.
14. The vice president submits everything to the president.
15. The president signs the materials and submits them back to the associate vice president.
16. The associate vice president submits the recommendation for course approval to the coordinating board.
17. The coordinating board approves and submits the materials back to the associate vice president.

If the material were put in a shared computer file, the first 14 steps (or, at least steps 4 through 14) of this process could occur simultaneously. The first 14 steps of this process could be done in less than six weeks. Does the reader wonder why any person would ever recommend curriculum changes and get involved in such an inefficient and ineffective process? Professors and administrators don't want to do this work. They would prefer conducting research projects, writing articles, developing innovative teaching techniques, implementing improvement initiatives, working on strategic plans, and helping students. Instead, they are involved in meaningless work that does not add value for themselves or other stakeholders. Students and taxpayers would not want to pay for the extra time that it takes to do work serially instead of simultaneously.

Measures of efficiency, effectiveness, and capability for rapid adaptation are of great interest to all stakeholders: process owners, internal and external customers and suppliers, and executives. Inefficient processes are costly in terms of dollars, waste, rework, delays, resource utilization, and so on. Ineffective processes are costly as well because they are not reliable. They don't do what they are supposed to do. Processes that are not capable of rapid adaptation (flexibility and innovation) are costly because they are not capable of rapidly responding to customers' needs in terms of customization and rapid decision making. The greatest risk is that stakeholder loyalty will diminish.

In order to make processes more efficient, more effective, and more capable of rapid adaptations, people should ask themselves what, who, where, when, where, and how questions.

Perhaps the first question about a process is, why do it at all? Many steps exist simply because of organizational inertia ("We have always done it that way"). The second question might be, why do we do it this way?

Then you might consider questions like these: What is being done? What should be done? What can be done? When should it happen? and so forth. These questions, and the concepts of efficiency and effectiveness, apply to all processes, all jobs, all types of organizations, all industries.

Some process efficiency measures are:

- cycle time per unit, transaction, or labor cost;
- queue time per unit, transaction, or process step;
- resources (dollars, labor) expended per unit of output;
- cost of poor quality per unit of output;
- percent of time items were out of stock when needed;
- percent on-time delivery; and
- inventory turns.

Some effectiveness measures are:

- how well the output of the process meets the requirements of the end user or customer;
- how well the output of the sub process meets the requirements of the next phase in the process (internal customers); and
- how well the inputs from the external suppliers meet the requirements of the process.

By contrast, measures of ineffectiveness include:

- defective products;
- customer complaints;
- high warranty costs;
- decreased market share; and
- percent of activities that customers perceive to be non-value-added.

Some measures of adaptability are:

- the average time it takes to respond to special customer requests compared to routine requests;
- the percent of time special customer requests are denied compared to the denial of routine requests;
- the percent of special customer requests that have to be escalated to higher levels of management compared to the escalation of routine requests; and
- the capability to respond to product changes versus process changes.

Organizations should establish baselines for efficiency, effectiveness, and adaptability metrics. In other words, they should determine their current performance levels. Then they should benchmark best-in-class or world-class organizations and set aggressive goals or targets for improvement. Finally, they should determine root causes of problems and eliminate them or minimize their impact.

Generally, management and non-management employees have not had experience with the concepts and tools that will help them evaluate the processes which they own. In this case, training and opportunities to apply the concepts and tools should be provided. Examples of concepts and tools are:

- statistical process control, which measures variability in a process;
- trend charts, which measure performance over time;
- pie charts, which depict measurements compared to each other;
- process flow charts, which allow staff to quickly identify serial versus simultaneous processes, items which do not add value (like too many signatures, unnecessary travel and handling, long queues, etc.), and sub-processes that do not meet the needs of internal customers.

In addition to process concepts and tools, people should learn interrelationship concepts such as teamwork and communication as well as leadership skills in order to streamline relationships as well as processes and organizations.

Efficiency and *effectiveness* are often considered synonyms, but they mean different things when applied to process management. Efficiency is doing things right, while effectiveness is doing the right things. A third related concept is adaptability, which is flexibility or the capability to respond fast. In some respects, it is this capability for an organization to reinvent itself that ensures its long-term survival and success.

Organizational leaders can't comprehend the extent to which their organizations and processes are efficient, effective, and flexible unless they choose and use the right metrics. Of course, the results of those measurements should be fed back to the process owners so that they can improve the organization and the processes. This includes management processes as well as lower-level work processes. By their very nature, management processes can positively or negatively impact other work processes because they quite often deal with approvals (signature cycles) including requisitions for the purchase of essential equipment.

Answers to who, what, where, when, and how questions can be used to determine if the work should be done at all, who should do it, where and when it should be done, and how the work should be done. If these

questions are answered truthfully, many activities in a process will be eliminated because they do not add value. Sometimes, entire processes will be eliminated.

Employees need to learn about and use various concepts and tools which will help them and their processes to be more efficient, effective, and flexible. For example, flow-charting the curriculum process mentioned above would have highlighted the need to replace serial sub-processes with sub-processes that were simultaneous and the need to eliminate duplications of effort and long waiting times. In addition, workers should learn interpersonal and leadership skills in order to be able to refine relationships as well as processes and organizations.

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EFFICIENCY

SEE: Effectiveness and Efficiency

ELECTRONIC COMMERCE

Electronic commerce consists of the buying and selling of products and services via the Internet. It includes business-to-business, business-to-consumer, and consumer-to-consumer transactions. These transactions can include online retail sales, supplier purchases, online bill paying, and Web-based auctions. Electronic commerce utilizes a variety of technologies including electronic data interchange, electronic fund transfers, credit cards, and e-mail.

The term e-commerce is often used interchangeably with e-business. The common element is the effective implementation of business activities using Internet technologies. However, e-business is the broader, more encompassing strategy and related activities. In addition to retail sales it includes vendor-partner communication, electronic procurement, customer relationship management, data-mining, and numerous other business functions.

HISTORY

The development of the World Wide Web during the early 1990s dramatically changed the use of the Internet. The expansion of the Web, and along with it the Web browser, opened the Internet to anyone with basic computer experience and an online connection. As online activity increased, companies quickly saw the Internet's marketing potential. Subsequently, there was a rush to take products and services into this expanding electronic realm, and to redefine business itself.

According to studies demonstrating the growth of the Internet and electronic commerce:

- Fewer than 40 million people around the world were connected to the Internet during 1996. By the end of 2002, more than 605 million were connected.
- Approximately 627,000 Internet domain names had been registered as of December 1996. By the end of 2004 the number of domain names had reached 48 million.
- Internet traffic doubled approximately every 100 days for three consecutive years in the late 1990s. It is expected to grow between 100 and 150 percent annually through 2007.

To meet this demand, representatives from numerous industries—including consumer electronics companies, media corporations, telecommunications companies, hardware suppliers, software firms, satellite system designers, mobile phone networks, Internet service providers, television broadcasters and cable companies, and electric utilities—made aggressive Internet-related investments.

The downside of this impressive expansion was the Internet stock market bubble of 1999–2000, which had a significantly negative impact on the development of e-commerce on the Internet. Hundreds of companies with an idea and a business plan were able to gain access to a tremendous amount of venture capital and initial public offer funding. This resulted in many poor ideas being sold as profitable businesses, including pet food and grocery delivery services, as well as numerous application service providers just to name a few. The expansion, hype, and subsequent crash cooled many on the power and value in e-commerce. Coupled with the

recession that followed the September 11, 2001 terrorist attacks, it was not until nearly 2005 that the e-commerce market began to exhibit a more realistic, normal, and steady rate of growth.

MARKET SIZE/OPPORTUNITY BASE

According to Forrester Research, the U.S. e-commerce market for retail sales was more than $95 billion in 2003, with five-year projections exceeding $200 billion. In Europe the retail segment totaled $53 billion in 2004. This amount was projected to reach $177 billion. The European and Asian markets show significant growth potential. North America does as well, but at a slower rate. China is viewed as an especially lucrative market for Western companies to penetrate with goods and services, in spite of the potential hurdles and hazards.

Based on U.S. Department of Commerce data, in May 2003 the market research firm eMarketer revealed that business-to-business e-commerce revenues were at approximately $720 billion in 2003, and were projected to hit $1.3 trillion by 2005. Computers and peripherals, aerospace and defense, and healthcare and pharmaceuticals were projected to be the largest industry segments.

Standard definitions of e-commerce must still be established. Current market research estimates of aggregate online retail trade generally purport to include only those transactions ordered and paid for online. However, they must rely on data supplied by individual companies that may not define it in the same way. Individual companies sometimes include as online sales transactions those that were conducted substantially online, but which also include a critical non-Internet component.

The Internet plays an important role in a much larger number of transactions than those completed online. In addition to the shoppers who choose items online but pay for them off-line, the Internet is an important source of research that influences off-line ordering and purchasing, particularly for big-ticket items such as automobiles. However, by the early 2000s, research indicated that consumers were beginning to visit brick-and-mortar stores and then go online to make their actual purchase. A September 2004 survey from the USC Annenberg Center for the Digital Future showed that approximately 69 percent of online shoppers browse traditional stores prior to making a purchase over the Internet.

STRATEGIES

One of the first challenges involved in moving to online commerce is how to compete with other e-commerce sites. A common problem in addressing this challenge is that e-commerce is often analyzed from a technical standpoint, not a strategic or marketing perspective. E-commerce provides several technical advantages over off-line commerce. It is much more convenient for the buyer and the seller, as there is no need for face-to-face interaction and Web-based stores are open 24 hours a day. Also, e-commerce purchasing decisions can be made relatively quickly, because a vendor can present all relevant information immediately to the buyer. These factors lend themselves to a transactional approach, where e-commerce is seen as a way to reduce the costs of acquiring a customer and completing a sale.

In contrast, most successful e-commerce Web sites take a relational view of e-commerce. This perspective views an e-commerce transaction as one step among many in building a lasting relationship with the buyer. This approach requires a long-term, holistic view of the e-commerce purchasing experience, so that buyers are attracted by some unique aspect of an e-commerce Web site, and not by convenience. Since consumers can easily switch to a competing Web site, customer loyalty is the most precious asset for an e-commerce site.

While the primary focus of most Internet activity is on the business-to-business and business-to-consumer facets of e-commerce, other transaction methods are included. The success of eBay and its consumer-to-consumer portal for auction-based transactions has dramatically changed how people and companies conduct business. In addition to having a significant effect on business-to-business transactions, retailers are beginning to tap into this new and dynamic approach to commerce. In a 2004 *Marketing* article, Amanda Aldridge reported that while eBay's revenue from collectibles was $1.4 billion, its total revenue was $2.2 billion.

BARRIERS TO SUCCESS

Despite the growing number of e-commerce success stories, plenty of e-commerce Web sites do not live up to their potential. There were three primary causes of e-commerce failures during the early 2000s.

First, most Web sites offer a truncated e-commerce model, meaning that they do not give Web users the capability to complete an entire sales cycle from initial inquiry to purchase. As analyzed by Forrester Research, the consumer sales cycle has four stages. First, consumers ask questions about what they want to buy. Second, they collect and compare answers. Third, the user makes a decision about the purchase. If the purchase is made, the fourth phase is order payment and fulfillment (delivery of the goods or services). The problem is that many Web sites do not provide enough information or options for all four phases. For example, a site may provide answers about a product, but

not answers to the questions that the consumer has in mind. In other cases, the consumer gets to the point where he or she wants to make a purchase, but is not given an adequate variety of payment options to place the actual order.

The second problem occurs when e-commerce efforts are not integrated properly into the corporate organization. A survey by *Inter@ctiveWeek* magazine found that in most companies e-commerce is treated as part of the information system (IS) staff's responsibility, and not as a business function. While sales and marketing staff generally assist in the development of e-commerce Web sites, final profit and loss responsibility rests with the IS staff. This is a major source of breakdowns in e-commerce strategy because the units that actually make products and services do not have direct responsibility for selling them on the Web. One promising trend is that more companies are beginning to decentralize the authority to create e-commerce sites to individual business units, in the same way that each unit is responsible for its part of a corporate intranet.

SUCCESS FACTORS

After studying many aspects of electronic commerce, several consulting and analytic firms created guidelines on how to implement and leverage it successfully. In particular, two organizations have developed lists of critical success factors that seem to capture the state of thinking on this topic. First is the Patricia Seybold Group, which publishes trade newsletters and provides consulting services related to using information technology in corporations. This firm identified five critical e-commerce success factors:

1. Support customer self-service. If they so desire, Web users should be enabled to complete transactions without assistance.
2. Nurture customer relationships. Up-front efforts should focus on increasing customer loyalty, not necessarily on maximizing sales.
3. Streamline customer-driven processes. Firms should use Web technology to reengineer back-office processes as they are integrated with e-commerce systems.
4. Target a market of one. Each customer should be treated as an individual market, and personalization technology should be employed to tailor all services and content to the unique needs of each customer.
5. Build communities of interest. A company should make its e-commerce Web site a destination that customers look forward to visiting, not simply a resource people use because they have to conduct a transaction.

American Management Systems, a Vienna, Virginia, IT consulting firm, developed a list of recommendations that reflect similar thinking:

1. Focus on relationships and relationship pricing (price to maximize overall revenue per customer, not to maximize each transaction).
2. Create innovative bundles of products and services (including bundling products and services from other companies).
3. Provide superior customer service.
4. Develop a compelling experience for customers (use diverse and interesting content to make each transaction interesting and pleasurable).
5. Customize and personalize.
6. Convince customers that they need to return (make the site an information and/or entertainment resource, as well as a business tool).
7. Make routine tasks simple (reengineer so that customers can complete basic transactions and tasks with minimal effort).
8. Strive to match constant increases in customer expectations (utilize cutting-edge technology and benchmark the e-commerce Web site against those of all other firms, not simply those of direct competitors).

A quick review of two successful e-commerce sites, the Amazon.com bookstore site and Dell Computer's Web site, illustrate how many of these principles combine to help develop a strategic e-commerce capability.

Amazon.com, which has one of the highest sales volumes of any Web-based business, has optimized its site for the nature of its products and the preferences of its customers. The site is highly personalized; each visitor to the site, once registered, is greeted by name. The site content also is customized. Using software based on pattern recognition, Amazon.com compares a particular customer's purchase history to its overall record of transactions and generates a list of recommended books that seem to fit his or her interests and tastes. The company has a very integrated customer service support system, so that any customer service representative can access all data on the transactions, purchasing information, and security measures of each customer. The system also supports communications using e-mail, fax, and telephone.

Finally, Amazon.com helps to build a community of users through its Associates Program. Under this program, a Web site can host a hyperlink directly to the Amazon.com site. Any time that a visitor to that site buys books through Amazon.com, the Web site owner

receives a share of the transaction revenues. This is a very inexpensive way for Amazon.com to extend its marketing and advertising reach across the Web.

Dell Computer also uses personalization and customization tools. For every major corporate customer, Dell creates a special Premier Page, which shows all products covered under purchasing contracts with that firm, as well as the special pricing under those contracts. This ensures that employees of that firm always get the right price for each purchase. Ford Motor Company reports that by encouraging employees to buy PCs from its Premier Page, the company saved $2 million in one year.

Dell also has integrated its e-commerce Web site with all back-office systems, so that when a customer orders a custom-configured PC, that information is automatically transferred to the production system to ensure that the unit is built according to specifications. This also improves customer service; Dell will proactively notify any customer if a production problem or inventory shortage will delay delivery.

These cases and analyses reflect some common lessons learned about the right way to approach electronic commerce:

1. First, no company can be successful in e-commerce by itself. Oftentimes, a firm must integrate its Web site with those of its trading partners, including suppliers, customers, and sometimes even competitors. Thus, each firm must create its own "value Web" that delivers the maximum benefit to its customers.
2. Second, site content is as important as product quality for firms engaging in e-commerce. A visit to an e-commerce site should create a lasting experience and strengthen a company's relationship with the customer. This involves much more than simply discussing the advantages of a company's products and services.
3. Third, firms must take advantage of all opportunities to use e-commerce for reengineering systems outside of the Web. One interesting consequence of this is that increased automation of business processes increases the value of human contact. If customers are used to completing transactions without human intervention, rapid and personal assistance during a problem will be much more memorable and valuable.
4. Finally, personalization is becoming an expectation of Web users. This does not mean that each Web site should be all things to all people. Instead of designing a Web site that appeals to a generic customer or a broad demographic segment, firms should create dynamic content that can target itself to match the tastes of each visitor separately. This maximizes the opportunity to use each Web visit to build the relationship with a particular customer, even if that visit does not result in a sale.

Electronic commerce, as used by U.S. firms, has already undergone several generations of evolution. Early experiences helped to stabilize e-commerce technology and set the development path for more sophisticated and useful technologies. Later experiences provided guidelines on strategic approaches and operational models that will help to improve e-commerce success.

There are two other key areas where more progress is needed to ensure the healthy growth of e-commerce. First, the emergence of the so-called digital economy is dependent on the creation of a robust infrastructure for all e-commerce, which in turn requires the development of standards. Second, government policy is having an increasing impact on e-commerce activities, and therefore policy needs to begin to catch up with the latest technology. Some of the policy issues that governments must address in regulating e-commerce, as identified by the U.S. government, are:

1. Financial issues, including customs and taxation, as well as electronic payment systems.
2. Legal issues, including the uniform commercial code for electronic commerce, intellectual property protection, privacy, and security.
3. Market access issues, including telecommunications infrastructure and interoperability, content, and technical standards.

Three key issues will determine the long-term viability of electronic commerce. These are:

1. Technological feasibility, or the extent to which technology—bandwidth availability and information reliability, tractability, and security—will be able to sustain exponentially increasing demands worldwide.
2. Socio-cultural acceptability, or the extent to which different global cultures and ways of doing business will accommodate this new mode of transacting, in terms of its nature (not face-to-face), speed, asynchronicity, and unidimensionality.
3. Business profitability, or the extent to which this way of doing business will allow for profit margins to exist at all (e.g., no intermediaries, instant access to sellers, global reach of buyers).

As technology continues to develop and mature, the ability to assess the impact of electronic commerce will become more cogent. Moreover, the significance of privacy, security, and intellectual property rights protection as prerequisites for the successful worldwide diffusion, adoption, and commercial success of Internet-related technologies—especially in places with less democratic political institutions and highly regulated economies—is continually increasing. The differentiation between the Internet (the global network of public computer networks) and intranets (corporate-based computer networks that involve well-defined communities and potentially more promising technology platforms for fostering Internet-related commerce) became significant in the late 1990s and early 2000s. Intranet development has surpassed the Internet in terms of revenue—by 2005 more than half of the world's Web sites were commercial in nature.

SEE ALSO: Consumer Behavior; Customer Relationship Management

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ELECTRONIC DATA INTERCHANGE AND ELECTRONIC FUNDS TRANSFER

Electronic data interchange (EDI), or electronic data processing, is the electronic transmission of data between computers in a standard, structured format. Electronic funds transfer (EFT) is the term used for electronic data interchanges that involve the transfer of funds between financial institutions.

EDI has allowed companies to process routine business transactions, such as orders and invoices, more rapidly, accurately and efficiently than they could through conventional methods of transmission. While EDI has been around for decades, it wasn't until the late 1990s that this basic principle became a driving force in the rollout of electronic commerce, corporate extranets linking suppliers and customers, and related network-based technologies.

HISTORY

EDI has been present in the United States in some form since the mid-1960s. Businesses had been trying to resolve the difficulties intrinsic to paper-dependent commercial transactions. These difficulties include transmission speed (because of delays in entering the data onto paper and transporting the paper from sender to receiver); accuracy (because the data had to be recreated with each paper entry); and labor costs (labor-based methods of transmitting data are more expensive than computer-based methods).

In 1968 a group of railroad companies concerned with the accuracy and speed of intercompany transportation data transmissions formed an organization called the Transportation Data Coordinating Committee (TDCC) to study the problem and recommend solutions. Large companies such as General Motors and Kmart also reviewed the problems, which arose when they used their intracompany proprietary formats to send electronic data transmissions to outside parties. Because each company had its own proprietary format, there was no common standard among transmitting parties. A company doing business electronically with three other companies would need three different formats, one for each company.

By the 1970s several industries had developed common EDI programs for their companies within those industries, and a third-party network often administered these systems. Some examples of these systems include ORDERNET, which was developed for the pharmaceutical industry, and IVANS, which was developed for the property and casualty insurance industry. While these systems were standardized for each industry, they likewise could not communicate with other industries' proprietary systems. By 1973 the TDCC began developing set of standards for generic formats to handle this problem.

HOW EDI WORKS

EDI is quite different from other types of electronic communication. It is unlike a facsimile transmission (fax), which is the transfer of completely unstructured data through a digitized image. EDI also differs from other types of electronic communications

among computers, such as electronic mail, network file sharing, or downloading information through a modem. In order to access electronic mail messages, shared network files, or downloaded information, the format of the computer applications of both the sender and the receiver must agree.

Since EDI uses a defined set of standards for transmitting business information, these standards allow data to be interpreted correctly, independent of the platforms used on the computers that transmit the data. When a sender transmits data, such as a purchase order, the EDI translation software converts the proprietary format of the sender's document processing software into a mutually recognized standard format. When the receiver obtains the data, the EDI translation software automatically converts the standard format into the receiver's proprietary document processing format. Because of the speed and accuracy of an EDI, users find that the system saves time and reduces costs over paper-based business transactions.

MODERN EDI

By the 2005, major retailers relied heavily on EDI to exchange purchase orders, invoices, and other information with their trading partners. In a June 2004 poll of 20 retailers, the majority said that they were either adding new trading partners or increasing the number of EDI transactions. It is estimated that between 80 and 90 percent of business-to-business traffic is conducted through EDI, and this number is growing 3 to 5 percent annually. Retail giants such as Wal-Mart Stores Inc., J.C. Penney Co., Supervalu Inc., and Hallmark Cards Inc. have been regular users of EDI. In fact, Wal-Mart has been one of the most influential companies driving new technology trends.

Since 2003, many companies have turned to a new technology in which data is transmitted over the Internet using the Applicability Statement 2 (AS2) protocol. The AS2 rules describe how to send data securely and ensure that the messages are received.

In September 2002, Wal-Mart asked its suppliers to switch from value-added networks (VANs) to AS2. Other companies have followed suit. One company claimed to have cut its costs by 70 percent after switching from a VAN to AS2. However, others have decided not to make the switch because of the costs involved.

Retailers are not the only businesses to take advantage of this technology. The healthcare industry also uses EDI to exchange patient information between medical providers and insurance companies. EDI is such a reliable means of transmitting data that a growing number of third-party payers, including Medicare, Medicaid, and commercial insurers, have started to require providers to submit claims electronically.

The Electronic Data Interchange rule was developed as part of the Health Insurance Portability and Accountability Act (HIPAA) and required compliance by October 16, 2003. This law requires all entities that transmit clinical data (including claims, referrals, and eligibility verification) to use the same electronic data file format. This can be accomplished by purchasing and maintaining a HIPAA-compliant practice management system (PMS) or by transmitting the data through a clearinghouse. The PMS is not the most cost-effective option for smaller entities, as it usually requires an administrator to maintain and upgrade the system as necessary. With the clearinghouse option, the entity sends data to a clearinghouse. The clearinghouse then sends the data to the appropriate recipients in the appropriate format.

ELECTRONIC FUNDS TRANSFER

An electronic funds transfer (EFT) is an EDI among financial institutions in which money is transferred from one account to another. Some examples of EFTs include electronic wire transfers; automatic teller machine (ATM) transactions; direct deposit of payroll; business-to-business payments; and federal, state, and local tax payments.

In general, EFT transactions are transferred through an automated clearing house (ACH) operator. An ACH operator is a central clearing facility operated by a private organization or a Federal Reserve bank on behalf of participating financial institutions, to or from which financial institutions transmit or receive ACH transactions. The ACH network is a nationwide system for interbank transfers of electronic funds. It serves a network of regional Federal Reserve banks processing the distribution and settlement of electronic credits and debits among financial institutions.

ACH transactions are stored in an ACH file, which is a simple ASCII-format file that adheres to ACH specifications. A single ACH file holds multiple electronic transactions, each of which carries either a credit or debit value. Typically, a payroll ACH file contains many credit transactions to employees' checking or savings accounts, as well as a balancing debit transaction to the employer's payroll account. An originating bank sends electronic payment instructions to a receiving bank. In those instances, the electronic transfers are processed in batches and settled within a few days.

The National Automated Clearing House Association (NACHA) oversees the ACH network and is primarily responsible for establishing and maintaining its operating rules. All financial institutions moving electronic funds through the ACH system are bound by the NACHA Operating Rules, which cover everything from participant relationships and responsibilities to implementation, compliance, and liabilities. While the NACHA rules are specific and quite detailed, adhering

to a strict set of rules is crucial to the smooth and successful operation of the ACH system.

As the use of home computers becomes more and more a part of everyday life, the popularity of online banking and online bill payments continues to grow. Many banks allow their customers to access account information over the Internet and to transfer funds between accounts. Many credit card companies and utility companies allow customers to pay their bills online through EFTs. Online bill payments can save the consumer time and money. The customer can pay a bill in a matter of minutes over the Internet instead of spending money on postage to send a paper check and risking the chance that the bill may arrive past the due date.

On October 28, 2004, the Check Clearing for the 21st Century Act, also known as Check 21, took effect. This federal law allows banks to transmit checks electronically and substitute electronic images for original paper checks. Check 21 provides many advantages for banks and financial institutions. By transmitting checks electronically, banks can reduce the amount of time it takes to receive funds. This is because they no longer have to wait for another bank to receive paper checks before they send the funds. In addition to saving time, Check 21 saves banks millions of dollars in transportation and storage costs.

While Check 21 has made the banks happy, it has made many consumers unhappy. Many people write checks thinking that it will take at least two or three days for them to clear, thus giving them time to deposit the appropriate funds to cover the check. However, with Check 21 banks can clear checks within 24 hours of receiving them, cutting this safety net by days in many cases. In addition, although banks can process checks and debit the customer's accounts right away, they can still hold out-of-state checks for five days or more.

Consumer groups complain that this law increases the chances of fraud, error, bounced check fees, and inconvenience. There may be times when a bank cannot accept an electronic check image. In that case, the other bank could create a substitute check that has the same legal weight as the paper check. Having both the original check and a substitute check around could result in both checks being cashed, either fraudulently or by an honest mistake.

SEE ALSO: Distribution and Distribution Requirements Planning; Electronic Commerce; The Internet

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Revised by Rhoda L. Wilburn

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ELECTRONIC FUNDS TRANSFER

SEE: Electronic Data Interchange and Electronic Funds Transfer

EMPATHY

Empathy is generally defined as the extent to which one has the ability to understand and accept another's feelings and emotions. Some view empathy simply as one's ability to "put themselves in another's shoes," or view an issue from another's perspective. However, some researchers suggest that perspective-taking is a cognitive process that precedes empathy, which is an affective or emotionally-based response to perspective-taking.

Empathy has been a subject of interest in a variety of different fields, but has only begun to be examined by those in the management area. Early childhood development researchers have concluded that empathy is a function of cognitive maturity; that is, the ability to take another's point of view requires a certain degree of cognitive complexity. Yet, from a moral development perspective, people are thought to progress from an egocentric form of morality toward a level of moral development where one examines issues from a variety of perspectives. Empathy is an attractive subject for researchers interested in the study of management because cognitive complexity and morality are generally considered to be important aspects of effective leadership.

Interest in empathy in the field of management stems from the growing popularity of the emotional intelligence concept, which has been popularized by Daniel Goleman's book *Emotional Intelligence.* According to Goleman, empathy—one of the basic components of emotional intelligence—is a critical

part of social awareness, and, as such, key to success in life. Goleman extends the definition of empathy to include not only understanding others' feelings and behavior, but also intelligently using that understanding to forge stronger interpersonal relationships and make better decisions. Empathy is a particularly important factor in the success of those people who work in jobs where there is a high degree of interaction with other people—such as nursing, teaching, or management.

Although technical skills are considered less important as a person rises within an organizational hierarchy, the ability to empathize, on the other hand, is thought to be a more important determinant of success. Empathy is considered to be a quintessential managerial competence because it is a fundamental people skill.

Empathy is thought to have both a genetic and an experiential foundation. However, Goleman stresses that as a capability, empathy can be enhanced through desire and training. Research indicates that self-awareness is positively related to empathy, suggesting that empathy may be a function of the degree to which a person can read and manage his own emotions. Training that focuses on empathy building has been suggested as a means of fostering this social skill.

A person who is skillful at empathizing makes others feel respected and worthy of attention. The development of this skill requires effective communication. Thus, training managers in communication techniques such as active listening may contribute to building empathic competence.

Research examining empathy has largely been embedded within efforts to gain a greater understanding of emotional intelligence. Studies indicate that empathy is positively related to intrinsic motivation and effective problem-solving, supporting the view that empathy is an important aspect of effective leadership. The need for empathy is increasingly important in the workplace as the use of teams and self-directed work groups, where social competencies are a critical factor in success, are on the rise. Globalization, and the difficulties associated with intercultural relationships, also make empathy an increasingly critical managerial competence.

SEE ALSO: International Management; Teams and Teamwork

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EMPLOYEE ASSISTANCE PROGRAMS

Employee assistance programs (EAPs) are employer-sponsored benefit programs designed to improve productivity by helping employees to identify and resolve personal concerns. Most EAPs employ mental health professionals (usually on a contract basis) to provide confidential counseling and referral services to workers who are experiencing personal problems that interfere with their work attendance or productivity. For example, an EAP might help employees to resolve problems such as drug or alcohol abuse, emotional distress, child or elder care issues, anxiety, marital or family relationship concerns, emotional distress, depression, or financial difficulties. Employees may seek help on a voluntary, confidential basis, or may be referred by a supervisor who suspects that declining job performance is being caused by personal problems.

Companies that implement EAPs have documented improvements in worker health, functioning, productivity, and performance. They also have seen significant reductions in absenteeism, medical benefits costs, disability and worker's compensation claims, workplace accidents, and employee turnover. Surveys indicate that between 50 and 80 percent of large companies offer EAPs. The potential payoff of an EAP is evidenced by a study which found that every dollar spent on an EAP returned an estimated $3-$5 to the company in reduced absenteeism and greater productivity. "Divorce, drug addiction, alcohol abuse, caregiving for a disabled relative, and uncontrolled gambling can all cause employee disabilities and absences that exact a high workplace toll," wrote Kevin M. Quinley in *Compensation and Benefits Report.* "Addressing these problems—even if they are rooted in nonoccupational causes—can boost employee productivity and curb disability costs" (2003).

EAPs AND WELLNESS PROGRAMS

EAPs are often instituted as part of an employee wellness program. Employee wellness is a relatively new human resource management focus that seeks to eliminate certain debilitating health problems (e.g., cancer, heart disease, respiratory problems, hypertension) that can be caused by poor lifestyle choices (e.g., smoking, poor nutrition, lack of exercise, obesity, stress). Stress, for instance, is being called the fastest-growing occupational disease in the United States by some experts. Excessive amounts of stress can have debilitating health effects, leading to problems like ulcers, colitis, hypertension, headaches, lower back pain, and cardiac conditions. Stressed workers may perform poorly, quit their jobs, suffer low morale, generate

conflicts among coworkers, miss work, or exhibit indifference toward coworkers and customers. These stress-induced outcomes cost U.S. businesses somewhere between $150 and $300 billion per year.

Lifestyle-related health problems have become quite prevalent: cancer, heart, and respiratory illnesses alone account for 55.5 percent of all hospital claims, and they can cause workplace problems such as absenteeism, turnover, lost productivity, and increased medical costs. For instance, people who have high blood pressure are 68 percent more likely than others to have medical claims of more than $5,000 per year, and the cost of medical claims for smokers is 18 percent higher than it is for nonsmokers.

To combat these problems, employee wellness programs provide employees with physical fitness facilities, on-site health screenings, and programs to help them quit smoking, manage stress, and improve nutritional habits. The employee wellness program at Apple Computer offers fitness facilities, health education, and preventative medicine that includes:

- A smoking cessation program
- Seminars on nutrition and weight management
- Health assessments that measure blood pressure and resting pulse
- Fitness evaluations that assess cardiopulmonary fitness level, strength, flexibility, body composition, and nutritional status
- Medical examinations that include physical exams and exercise strength tests to determine cardiovascular fitness

Employee wellness programs can be quite effective. Research indicates that participation in a wellness program increases productivity and reduces both absenteeism and turnover. A study conducted at Mesa Petroleum, for example, found that the productivity difference between participants and non-participants amounted to $700,000 in the program's first year and $1.3 million in the second.

If they are to work, wellness programs must successfully enlist "high-risk" individuals—those in greatest need of the program. Unfortunately, most employees who participate in wellness programs exhibit fewer risk factors to begin with, while employees at high-risk tend to stay away. Because at-risk individuals do not seek help, many employee wellness programs fail to meet their objectives.

Employers must, then, find some way to motivate high-risk individuals to participate. Some companies offer incentives such as cash bonuses to individuals who participate, while others impose certain penalties on non-participants. Examples of penalties include higher insurance premiums and deductibles.

OTHER FUNCTIONS OF EAPS

EAPs also play an important role in the prevention of and intervention in workplace violence incidents. Workplace violence and crisis intervention have received increased emphasis in EAPs since the terrorist attacks of September 11, 2001. Not only can counselors help employees to deal with the emotional impact of crises, they also can provide ongoing preparedness training for companies.

Many EAPs also provide management consultation services. In such cases, a supervisor may request assistance in dealing with a problem employee. EAP counselors might help the supervisor develop initiatives to change the employee's disruptive behavior. "Having an EAP sends a message to employees that the employer cares," noted Quinley. "Just knowing that can be a powerful incentive and hasten an employee's desire to return to work" (2003).

SEE ALSO: Human Resource Management; Safety in the Workplace; Stress

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Revised by Laurie Hillstrom

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EMPLOYEE BENEFITS

Employee benefits, sometimes called fringe benefits, are indirect forms of compensation provided to employees as part of an employment relationship. To compete for quality employees in today's marketplace, employers must do more than offer a "fair day's pay." Workers also want a good benefits package. In fact, employees have grown accustomed to generous benefits programs, and have come to expect them.

Employee benefits exist in companies worldwide, but the types and levels of benefits vary greatly from country to country. Generally speaking, companies in industrialized countries in Europe and North America offer employees the most generous benefit packages. Even within the industrialized world, however, employee benefits can vary significantly. For example, employees in Germany and other European countries receive more vacation days than the average U.S. employee. Conversely, most employers in the U.S. offer some form of medical/health insurance to employees. But most companies in European countries don't offer this employee benefit, because it is provided through government-sponsored socialized medicine programs.

HISTORICAL OVERVIEW

Employee benefits were not a significant part of most employees' compensation packages until the mid-twentieth century. In the U.S., for example, benefits comprised only about 3 percent of total payroll costs for companies in 1929. According to U.S. Chamber of Commerce, however, employee benefits in the U.S. now comprise approximately 42 percent of total payroll costs. Several things account for the tremendous increase in the importance of employee benefits in the U.S. In the 1930s, the Wagner Act significantly increased the ability of labor unions to organize workers and bargain for better wages, benefits, and working conditions. Labor unions from the 1930s to 1950s took advantage of the favorable legal climate and negotiated for new employee benefits that have since become common in both unionized and non-union companies. Federal and state legislation requires companies to offer certain benefits to employees. Finally, employers may find themselves at a disadvantage in the labor market if they do not offer competitive benefit packages.

LEGALLY REQUIRED BENEFITS

In the U.S., legislation requires almost all employers to offer the social security benefit, unemployment insurance, and workers' compensation insurance. Larger companies (those with 50 or more employees) are also required to offer employees an unpaid family and medical leave benefit. Each of these legally required benefits is discussed briefly below.

SOCIAL SECURITY. The Social Security Act of 1935, as amended, provides monthly benefits to retired workers who are at least 62 years of age, disabled workers, and their eligible spouses and dependents. Social Security is financed by contributions made by the employee and matched by the employer, computed as a percentage of the employee's earnings. As of 2005, the combined contribution of employer and employee for retirement, survivors', and disability benefits was 12.4 percent of the first $90,000 of employee income. Monthly benefits are based on a worker's earnings, which are adjusted to account for wage inflation. The Social Security Act also provides Medicare health insurance coverage for anyone who is entitled to retirement benefits. Medicare is funded by a tax paid by the employer and employee. The tax rate for Medicare is a combined 2.9 percent of the employee's total wage or salary income.

UNEMPLOYMENT INSURANCE. Unemployment compensation provides income to unemployed individuals who lose a job through no fault of their own. Eligible workers receive weekly stipends for 26 weeks. The specific amount of the stipend is determined by the wages the claimant was paid during the previous year. Unemployment compensation laws in most states disqualify workers from receiving benefits under the following conditions:

1. Quitting one's job without good cause. Workers who voluntarily quit their jobs are not eligible for unemployment compensation unless they can show good cause for quitting. Good cause exists only when the worker is faced with circumstances so compelling as to leave no reasonable alternative.
2. Being discharged for misconduct connected with work. If employees are discharged for misconduct, they are not eligible for unemployment, unless they can show that the discharge was unfair. To ensure fair discharges, employers should make employees aware of work rules through employee handbooks, posting of rules, and job descriptions. Employers must also provide workers with adequate warnings prior to discharge (unless a serious violation, such as stealing, has occurred).
3. Refusing suitable work while unemployed. Eligibility for unemployment compensation is revoked if an employee refuses suitable work while unemployed. Individuals must actively seek work and make the required number of search contacts each week. Benefits are terminated if the claimant refuses a bona fide job offer or job referral.

WORKERS' COMPENSATION INSURANCE. Millions of workers are hurt or become sick for job-related reasons each year. All 50 states have workers compensation insurance laws that are designed to provide financial protection for such individuals. Specifically, these laws require the creation of a no-fault insurance system, paid for by employers. When workers suffer job-related injuries or illnesses, the insurance system provides compensation for medical expenses; lost wages from the time of injury until their return to the job (employees are given a percentage of their income, the size of which varies from state to state); and death (paid to family members), dismemberment, or permanent disability resulting from job-related injuries.

Nationwide, payouts for workers' compensation are relatively high and curbing costs is a priority for many U.S. companies. The increase in costs is primarily due to rising medical costs that now account for as much as 60 percent of total workers' compensation costs in some states. Fraudulent claims also increase costs.

OPTIONAL EMPLOYEE BENEFITS

Other employee benefits are quite common, but are not required by federal law in the U.S. Some of the more significant optional benefits are summarized below.

HEALTH INSURANCE. Basic health-care plans cover hospitalization, physician care, and surgery. Traditional fee-for-service health care coverage became increasingly expensive in the late twentieth century. As a result, many U.S. companies adopted "managed care" health care plans. In general, managed care plans cut health care costs for employers by requiring them to contract with health care providers to perform medical services for their employees at an agreed upon fee schedule, in exchange for the employer encouraging (sometimes requiring) the employees to receive their medical care within the approved network of health care providers.

Health Maintenance Organizations (HMOs) are one type of managed care plan. HMOs are organizations of physicians and other health-care professionals who provide a wide range of services for a fixed fee. When participants need medical services, they pay a nominal per-visit charge of $5 or $10. Because members visit their health care facility more frequently, potential problems can be discovered and eliminated before they can become major health threats. Thus, HMOs can save money through preventative medicine. However, employees have a limited number of doctors from which to choose and must get approval from a primary care physician for specialized treatment.

Preferred Provider Organizations (PPOs) provide services at a discounted fee in return for the company's participation, which creates increased business for the health facility. Employees may choose any member facility of their choice. PPOs are somewhat less restrictive of patient choice than HMOs, since they allow employees to receive health care outside the approved network if the employee is willing to shoulder a higher percentage of their health care expenses.

Employers are not legally required to offer health insurance to employees. If they do, however, the Consolidated Omnibus Budget Reconciliation Act (COBRA) provides for a continuation of health insurance coverage for a period of up to three years for employees who leave a company through no fault of their own. Such employees are required to pay the premiums themselves, but at the company's group rate.

LONG-TERM DISABILITY (LTD) INSURANCE. This benefit provides replacement income for an employee who cannot return to work for an extended period of time due to illness or injury. An LTD program may be temporary or permanent. The benefits paid to employees are customarily set between 50 and 67 percent of that person's income.

PENSIONS. Pensions, or retirement incomes, may be the largest single benefit most employees receive. In most instances, employees become eligible to participate in company pension plans when they reach 21 years of age and have completed one year of service. After they have satisfied certain age and time requirements, employees become vested, meaning that the pension benefits they have earned are theirs and cannot be revoked. If they leave their jobs after vesting, but before retirement, employees may receive these benefits immediately or may have to wait until retirement age to collect them, depending on the provisions of their specific pension plan.

Employers may choose from two types of pension plans-defined benefit plans or defined contribution plans. Defined benefit plans specify the amount of pension a worker will receive on retirement. Defined contribution plans specify the rate of employer and employee contributions, but not the ultimate pension benefit received by the employee. If a defined benefit plan is chosen, an employer is committing itself to an unknown cost that can be affected by rates of return on investments, changes in regulations, and future pay levels. Consequently, most employers have adopted defined contribution plans.

Companies establish pension plans voluntarily, but once established, the Employee Retirement Income Security Act of 1974 (ERISA) requires that employers follow certain rules. ERISA ensures that employees will receive the pension benefits due them, even if the company goes bankrupt or merges with another firm. Employers must pay annual insurance premiums to a government agency in order to provide funds from which guaranteed pensions can be paid. Additionally, ERISA requires that employers inform workers what their pension-related benefits include.

LIFE INSURANCE PLANS. These employee benefits are very common. The premiums for basic life insurance plans are usually paid by the employer. Employee contributions, if required, are typically a set amount per $1,000 in coverage based on age. Employees are often given the opportunity to expand their coverage by purchasing additional insurance.

PERQUISITES AND SERVICES. A host of possible perquisites and services may be offered to employees as benefits, such as pay for time not worked (e.g., vacation, holidays, sick days, personal leave), reimbursement for educational expenses, discount on company products or services, automobile and homeowner insurance, employee savings plans, tax-sheltered annuities, employer-sponsored child day care and sick child care, stock options, and so forth. Executives are frequently offered a variety of perquisites not offered to other employees. The logic is to attract and keep good managers and to motivate them to work hard in the organization's interest.

BENEFITS ADMINISTRATION

Two issues that are crucial to the management of employee benefits are flexible benefit plans and cost containment. Many employers now offer flexible benefit plans, also known as cafeteria plans. These plans allow employees to choose among various benefits and levels of coverage. Under a cafeteria plan, employees may choose to receive cash or purchase benefits from among the options provided under the plan. Flexible benefit plans present a number of advantages:

- Such plans enable employees to choose options that best fit their own needs. New workers, for example, may prefer cash; parents may prefer to invest their benefit dollars in employer-sponsored childcare programs; and older workers may decide to increase their pension and health care coverage.
- Deciding among the various options makes employees more aware of the cost of the benefits, giving them a real sense of the value of the benefits their employers provide.
- Flexible benefit plans can lower compensation costs because employers no longer have to pay for unwanted benefits.
- Employers and employees can save on taxes. Many of the premiums may be paid with pretax dollars, thus lowering the amount of taxes to be paid by both the employee and the employer.

Because of these advantages, flexible benefit plans have become quite popular: such plans are now being offered by many U.S. companies. However, some companies are shying away from cafeteria plans because they create such an administrative burden. Moreover, the use of such plans can lead to increased insurance premiums because of adverse selection. Adverse selection means that people at high risk are more inclined than others to choose a particular insurance option. For instance, a dental plan option would be chosen primarily by employees with a history of dental problems. Consequently, insurance rates would increase because the number of low-risk individuals enrolled in the programs would be insufficient to offset the claims of high-risk individuals.

Companies can contain costs in several ways. Because an employer's workers' compensation premiums increase with each payout, firms can prevent unnecessary costs by scrutinizing the validity of each claim. Some employers cut costs by deleting or reducing some of the benefits they offer employees. This approach, however, can negatively affect both recruitment and retention. A more viable approach is to offer benefits that are less costly, but equally desirable. Companies can continue to offer attractive benefits by implementing some of the cost containment strategies discussed next.

Many companies implement utilization review programs in order to cut health care costs by ensuring that each medical treatment is necessary before authorizing payment, and ensuring that the medical services have been rendered appropriately at a reasonable cost. These programs require hospital pre-admission certification, continued stay review, hospital discharge planning, and comprehensive medical case management for catastrophic injuries or illnesses.

Employers also closely examine their firm's health insurance carriers in order to address the following questions:

1. Is the program tailored to company needs?
2. Are the prices competitive?
3. Will there be a good provider/vendor relationship?
4. Will payouts be accurate (e.g., will the correct amount be paid to the right person)?
5. How good is the customer service?
6. Is the insurance carrier financially secure?

Some employers have been able to increase the attractiveness of their benefit programs while holding costs constant, allowing an organization to get more of a "bang for its buck" from these programs.

SEE ALSO: Employee Assistance Programs; Employment Law and Compliance

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Revised by Tim Barnett

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EMPLOYEE COMPENSATION

Employees receive compensation from a company in return for work performed. While most people think compensation and pay are the same, the fact is that compensation is much more than just the monetary rewards provided by an employer. According to Milkovitch and Newman in *Compensation,* it is "all forms of financial returns and tangible services and benefits employees receive as part of an employment relationship" The phrase "financial returns" refers to an individual's base salary, as well as short- and long-term incentives. "Tangible services and benefits" are such things as insurance, paid vacation and sick days, pension plans, and employee discounts.

An organization's compensation practices can have far-reaching effects on its competitive advantage. As compensation expert Richard Henderson notes, "To develop a competitive advantage in a global economy, the compensation program of the organization must support totally the strategic plans and actions of the organization." Labor costs greatly affect competitive advantage because they represent a large portion of a company's operating budget. By effectively controlling these costs, a firm can achieve cost leadership. The impact of labor costs on competitive advantage is particularly strong in service and other labor-intensive organizations, where employers spend between 40 and 80 cents of each revenue dollar on such costs. This means that for each dollar of revenue generated, as much as 80 cents may go to employee pay and benefits.

Compensation costs have risen sharply in recent years, primarily because of escalating benefit costs. Employers now spend more than $1 trillion on employee benefits. In 2003 the Society for Human Resource Management reported that benefit costs averaged 39 percent of total payroll in 2001, up from 37.5 percent in 2000. This means that, on average, employers provide about $18,000 in benefits to each employee annually. The biggest cost increases have been in health benefits, which have been rising at an average of 12 percent annually for the past several years.

An organization must contain these spiraling costs if it is to get a proper return on its human resource investment, and thus gain a competitive advantage. When compensation-related costs escalate, the organization must find a way to offset them. In the past, companies passed along these increases in costs to the customer in the form of higher prices. However, most U.S. companies now find it very difficult to raise prices. Thus, to remain competitive in light of fierce domestic and foreign competition, unfavorable exchange rates, and cheaper foreign labor costs, it is imperative that companies find ways to control labor costs. Unless this can be done, organizations may be forced to implement such adverse actions as pay freezes, outsourcing/offshoring, and/or massive layoffs.

A host of laws such as the Equal Pay Act, Fair Labor Standards Act, and the Employment Retirement Income Security Act, regulate corporate compensation practices. Some pertain to pay issues such as discrimination, minimum wages, and overtime pay; others pertain to benefits, such as pensions, unemployment compensation, and compensation for work-related injuries. Organizations must understand and fully follow these laws in order to avoid costly lawsuits and/or government fines.

Pay and benefits are extremely important to both new applicants and existing employees. The compensation received from work is a major reason that most people seek employment. Compensation not only provides a means of sustenance and allows people to satisfy their materialistic and recreational needs, it also serves their ego or self-esteem needs. Consequently, if a firm's compensation system is viewed as inadequate, top applicants may reject that company's employment offers, and current employees may choose to leave the organization. With the aging of the U.S. workforce and the impending retirement of the "baby boomers," employers must be more concerned than ever before about retaining skilled, productive workers. Moreover, disgruntled employees choosing to remain with the organization may begin to behave unproductively (e.g., become less motivated, helpful, or cooperative).

INFLUENCE OF PAY ON EMPLOYEE ATTITUDES AND BEHAVIOR

Because compensation practices heavily influence recruitment, turnover, and employee productivity, it is important that applicants and employees view these practices in a favorable light. In the following section, we discuss how people form perceptions

about a firm's compensation system and how these perceptions ultimately affect their behavior.

One would expect that an individual's satisfaction with his or her compensation would simply be a function of the amount of compensation received: the higher the compensation rate, the greater the satisfaction. However, in reality things are not that simple. In fact, the amount of pay is less important than its perceived fairness or equity. To put this finding in perspective, consider the behavior of many professional athletes when negotiating a new contract. The average NBA salary in 2003 was $4.9 million; the average baseball salary was $2.4 million; the average NFL salary was $1.3 million. Yet, ball players continue to ask for more money. In many instances, these demands stem from neither need nor greed. Rather, the demand for greater salaries often stems from perceptions of inequity. For instance, despite a $15 million salary, a player may feel that his pay is inequitable because a less capable player (or someone he perceives as being less capable) is earning an equal or greater salary.

Because equity is such an important concern, individuals responsible for developing a firm's compensation system need to understand how perceptions of equity are formed. Equity theory, formulated by J. Stacy Adams, attempts to provide such an understanding. The theory states that people form equity beliefs based on two factors: inputs and outcomes. Inputs (I) refer to the perceptions that people have concerning what they contribute to the job (e.g., skill and effort). Outcomes (O) refer to the perceptions that people have regarding the returns they get (e.g., pay) for the work they perform. People judge the equity of their pay by comparing their outcome-to-input ratio (O/I) with another person's ratio. This comparison person is referred to as one's "referent other." People feel equity when the O/I ratios of the individual and his or her referent other are perceived as being equal. A feeling of inequity occurs when the two ratios are perceived as being unequal. For example, inequity occurs if a person feels that he or she contributes the same input as a referent other, but earns a lower salary.

A person's referent other could be any one of several people. People may compare themselves to others:

- Doing the same job within the same organization
- Working in the same organization, but performing different jobs
- Doing the same job in other organizations

For example, an assistant manager at a Wal-Mart department store might compare her pay to other assistant managers at Wal-Mart, to Wal-Mart employees in other positions (either above or below her in the organizational hierarchy), or to assistant managers at Kmart department stores.

While the mechanism for choosing a referent other is largely unknown, one study found that people do not limit their comparisons to just one person; they have several referent others. Thus, people make several comparisons when they assess the fairness of their pay; perceived fairness is achieved only when all comparisons are viewed as equitable. When employees' O/I ratios are less than that of their referent others, they feel they are being underpaid; when greater, they feel they are being overpaid. According to equity theory, both conditions produce feelings of tension that employees will attempt to reduce in one of the following ways:

1. Decrease inputs by reducing effort or performance.
2. Attempt to increase outcomes by seeking a raise in salary.
3. Distort perceptions of inputs and/or outcomes by convincing themselves that their O/I ratio already is equal to that of their referent other.
4. Attempt to change the inputs and/or outcomes of their referent other(s). For example, they may try to convince their referent other(s) to increase inputs (e.g., work harder for their pay).
5. Choose a new referent other whose O/I ratio already is equal to their own.
6. Escape the situation. This response may be manifested by a variety of behaviors, such as absenteeism, tardiness, excessive work-breaks, or quitting.

While equity theory poses six possible responses to inequity, only two of them typically occur (namely, numbers 1 and 6). Research findings, for example, have linked underpayment to increases in absenteeism and turnover and to decreases in the amount of effort exerted on the job. These linkages are especially strong among individuals earning low salaries.

Contrary to equity theory's predictions, these responses occur only when employees believe they are underpaid. Overpaid individuals do not respond because they feel little, if any tension, and thus have no need to reduce it. (The research findings on the issue of overpayment find overpayment to be either just as satisfying as equity, or somewhat dissatisfying but not nearly as dissatisfying as underpayment.) When feeling underpaid, why do some people choose to decrease their inputs, while others choose to escape the situation? A recent study sheds some light on this issue. The study found that reaction to inequity depends on the source of the comparison; people react differently depending on whether they judge equity on the basis of external (referents outside of the organization) or internal (referents employed by the individual's

own organization) comparisons. When perceptions of inequity are based on external comparisons, people are more likely to quit their jobs. For instance, a nurse working for Hospital A may move to Hospital B if the latter pays a higher salary. When based on internal comparisons, people are more likely to remain at work, but reduce their inputs (e.g., become less willing to help others with problems, meet deadlines, and/or take initiative).

From the previous discussion, one may conclude that employees will believe their pay is equitable when they perceive that it:

- Is fair relative to the pay received by coworkers in the same organization (internal consistency)
- Is fair relative to the pay received by workers in other organizations who hold similar positions (external competitiveness)
- Fairly reflects their input to the organization (employee contributions)

ACHIEVING INTERNAL CONSISTENCY

To achieve internal consistency, a firm's employees must believe that all jobs are paid what they are "worth." In other words, they must be confident that company pay rates reflect the overall importance of each person's job to the success of the organization. Because some jobs afford a greater opportunity than others to contribute, those holding such jobs should receive greater pay. For instance, most would agree that nurses should be paid more than orderlies because their work is more important; that is, it contributes more to patient care, which is a primary goal of hospitals.

For pay rates to be internally consistent, an organization first must determine the overall importance or worth of each job. A job's worth typically is assessed through a systematic process known as job evaluation. In general, the evaluation is based on "informed judgments" regarding such things as the amount of skill and effort required to perform the job, the difficulty of the job, and the amount of responsibility assumed by the jobholder.

Job evaluation judgments must be accurate and fair, given that the pay each employee receives is so heavily influenced by them. Most firms create a committee of individuals, called a job evaluation committee, for the purpose of making the evaluations. Because those serving on the committee represent the organization's various functional areas, collectively they are familiar will all the jobs being evaluated. Such individuals typically include department managers, vice presidents, plant managers, and HR professionals (e.g., employee relations specialists and compensation managers). The committee chair usually is an HR professional or an outside consultant.

Perhaps the two most serious problems with job evaluation ratings are subjectivity and the rapidity with which jobs fundamentally change, both of which can cause inaccurate and unreliable ratings. In order to minimize subjectivity, the rating scales used to evaluate jobs must be clearly defined, and evaluators should be thoroughly trained on how to use them. Moreover, the evaluators should be provided with complete, accurate, and up-to-date job descriptions. The second issue is more difficult to address. Due largely to changes in technology, jobs now change so rapidly and so fundamentally that evaluation results quickly become out of date.

Job evaluation process is analogous to performance appraisal in that evaluators are asked to provide certain ratings on a form. Job evaluation ratings, however, focus on the requirements of the job rather than on the performance of the individual jobholder. Although several methods may be used to evaluate jobs, the most common approach is the point-factor method. Using this method, jobs are evaluated separately on several criteria, called compensable factors. These factors represent the most important determinants of a job's worth. A list of some commonly used factors and the criteria upon which they are judged appear in Exhibit 1.

The development of a point-factor rating scale consists of the following steps:

1. Select and carefully define the compensable factors that will be used to determine job worth.
2. Determine the number of levels or degrees for each factor. The only rule for establishing the number of degrees is that some jobs should fall at each level.
3. Carefully define each degree level. Each adjacent level must be clearly distinguishable.
4. Weight each compensable factor in terms of its relative importance for determining job worth.
5. Assign point values to the degrees associated with each compensable factor. Factors assigned greater weights in Step 4 would be allotted a greater number of possible points for each degree level.

When completing the job evaluation ratings, the evaluators use job descriptions to rate each job, one factor at a time until all jobs have been evaluated on all factors. They then calculate a total point value for a job by summing the points earned on each compensable factor.

Exhibit 1

Compensable Factors Used in the Point-Factor Method of Job Evaluation

COMPENSABLE FACTOR	RATING CRITERIA
Skill/know-how	Education Experience Knowledge
Effort	Physical effort Mental effort
Responsibility	Judgement/decision-Making Internal business contacts Consequence of error Degree of influence Supervisory responsibilities Responsibility for independent action Responsibility for machinery/equipment Fiscal responsibility Responsibility for confidential information
Working conditions	Risks Comfort Physical demands Personal demands

This approach to job evaluation is difficult and time-consuming. However, most organizations believe that it is well worth the effort. If properly conducted, the overall score for each job should reflect its relative worth to the organization, thus enabling the firm to establish internal consistency.

When job evaluations have been completed, jobs are grouped into pay grades based on the total number of points received. Jobs with the same or similar point values are placed in the same grade. For example, consider jobs that are rated on a scale from one to one thousand. All jobs earning up to one hundred points could be assigned to pay grade one, jobs earning 101-200 to pay grade two, and so forth.

Administrators use pay grades because, without them, firms would need to establish separate pay rates for each job evaluation point score. Once jobs are classified into grades, all jobs within the same grade are treated alike for pay purposes; that is, the same range of pay applies to each job in a grade.

As companies develop pay grade systems, they must decide how many pay grades to establish. Most firms use thirty to fifty pay grades. However, some use as many as one hundred or more, while others use as few as five or six. The practice of limiting the number of pay grades eases the firm's administrative burdens. However, using a limited number of grades creates a situation in which jobs of significantly different worth fall into the same grade and receive the same pay. This outcome could lead to equity problems. For instance, registered nurses may feel underpaid if classified in the same pay grade as nursing aids.

ACHIEVING EXTERNAL COMPETITIVENESS

A firm achieves external competitiveness when employees perceive that their pay is fair in relation to what their counterparts in other organizations earn. To become externally competitive, organizations must first learn what other employers are paying and then make a decision regarding just how competitive they want to be. They then establish pay rates consistent with this decision. Following is an examination of how these steps are carried out.

The firm begins by conducting or acquiring a salary survey. This survey provides information on pay rates offered by a firm's competitors for certain benchmark jobs (i.e., jobs that are performed in a similar manner in all companies and can thus serve as a basis for making meaningful comparisons). Some firms gather this information from existing surveys already conducted by others, such as those produced by the Bureau of Labor Statistics. Trade associations also conduct surveys routinely for their members, or companies may hire consulting firms to gather such information. Salary surveys conducted by others should be used when they contain all the information needed

by the company in question. When no such surveys exist, companies generally conduct their own.

After the pay practices of other companies have been identified, the organization must determine how competitive it wants to be (or can afford to be). Specifically, it must set a pay policy stipulating how well it will pay its employees relative to the market (i.e., what competitors pay for similar jobs). The determination of a pay policy is a crucial step in the design of a pay system. If pay rates are set too low, the organization is likely to experience recruitment and turnover problems. If set too high, however, the organization is likely to experience budget problems that ultimately may lead to higher prices, pay freezes, and layoffs.

The majority of firms pay at the market rate, which is the rate offered by most of the competitors for labor. Those paying above market are referred to as "market leaders." These typically are companies with the ability to pay and the desire to attract and retain top-notch employees (e.g., "cream of the crop"). Those paying below market ("market laggards") generally do so because they are unable to pay higher salaries. Such companies often attempt to attract employees by linking pay to productivity or profits so that the employees can earn more if the company does well.

When setting its pay policy, a company must consider its strategic plan. For example, if long-term employee commitment is a strategic goal, then the organization should attempt to develop compensation strategies that will enhance retention, such as establishing a generous retirement plan for long-service employees or adopting a profit-sharing system tied to tenure.

Once market rates for jobs are determined and a pay policy is established, an organization must price each of its jobs. Since market rates identified by a salary survey usually are restricted to benchmark jobs, how do organizations determine these rates for their non-benchmark jobs? Using the data collected on the benchmark jobs, an organization would determine the statistical relationship (i.e., simple linear regression) between job evaluation points and prevailing market rates. This regression line is referred to as the pay policy line. The appropriate pay rates for non-benchmark jobs are set based on this line.

ACHIEVING EMPLOYEE CONTRIBUTIONS EQUITY

Employee contributions equity is achieved when employees believe their pay fairly reflects their level of contribution to the organization. To achieve this aim, an organization must first establish a range of pay for each pay grade; it must then place each employee within that range based on his or her contribution to the organization.

A pay range specifies the minimum and maximum pay rates for all jobs within a grade. When establishing pay ranges, most employers set the market rate at the midpoint of the range. The spread from the midpoint usually varies, becoming larger as one progresses to higher pay grades. Most organizations establish a range spread of 10-25 percent for office and production work, 35-60 percent for professional and lower-level management positions, and 60-120 percent for top-level management positions.

The mechanism for recognizing employee contributions differs for new and existing employees. Contributions made by new employees are recognized by varying the level of starting pay they receive. New employees usually are paid at the minimum rate unless their qualifications exceed the minimum qualifications of the job. Those exceeding minimum qualifications are paid more because they can make a greater contribution, at least initially. Existing employees' contributions usually are recognized in the form of pay raises, typically granted on the basis of seniority and performance.

CONTEMPORARY COMPENSATION ISSUES

Modern organizations are making very significant changes in their compensation systems in order to better fit the dynamic, highly competitive business environment. Firms increasingly are using things such as skill-based pay, which compensates employees for the number and types of skills they possess instead of the type of job they have. Similarly, there is a strong movement to "at-risk" compensation, where employee pay is tied to performance. Under this system, the employee's bonus does not become part of his or her base pay. Instead, the bonus must be re-earned each year. These changes, and numerous others, are designed to help offset compensation costs by gains in productivity, and to develop more flexible workforces.

SEE ALSO: Employee Benefits; Employee Evaluation and Performance Appraisals; Human Resource Management

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EMPLOYEE EVALUATION AND PERFORMANCE APPRAISALS

Most companies have a formal performance appraisal system in which employee job performance is rated on a regular basis, usually once a year. A good performance appraisal system can greatly benefit an organization. It helps direct employee behavior toward organizational goals by letting employees know what is expected of them, and it yields information for making employment decisions, such as those regarding pay raises, promotions, and discharges.

Developing and implementing an effective system is no easy task, however. For instance, one study found that a majority of companies—65 percent—are dissatisfied with their performance appraisal systems. Analysts have found that a fairly low degree of reliability and validity remains a major bug in most appraisal systems. Many such systems are met with considerable resistance by those whose performance is being appraised, thus hampering the possibilities for effectiveness. While accurate and informative appraisal systems can be a major asset to a business, they are too often an unrealized goal.

There are three major steps in the performance appraisal process: identification, measurement, and management. With identification, the behaviors necessary for successful performance are determined. Measurement involves choosing the appropriate instrument for appraisal and assessing performance. Management, which is the ultimate goal, is the reinforcing of good performance and the correction of poor performance. Each step is described below. Additionally, management by objectives, which involves evaluating performance without a traditional performance appraisal, is described.

IDENTIFICATION

The organization must determine for each job family the skills and behaviors that are necessary to achieve effective performance. The organization should identify dimensions, which are broad aspects of performance. For instance, "quality of work" is a dimension required in many jobs. To determine which dimensions are important to job performance, the organization should rely on an accurate and up-to-date job analysis. Job descriptions written from job analyses should offer a detailed and valid picture of which job behaviors are necessary for successful performance.

In the identification stage, the company must also choose who will rate employee performance. Supervisors, peers, and the employees themselves may provide performance ratings. In most instances, performance appraisals are the responsibility of the immediate supervisor of an employee. Supervisors rate performance because they are usually the ones most familiar with the employee's work. Additionally, appraisals serve as management tools for supervisors, giving them a means to direct and monitor employee behavior. Indeed, if supervisors are not allowed to make the appraisals, their authority and control over their subordinates could be diminished.

While supervisory ratings can be quite valuable, some companies have added peer appraisals to replace or supplement those given by the supervisor. Naturally, peers and supervisors each view an individual's performance from different perspectives. Supervisors usually possess greater information about job requirements and performance outcomes. On the other hand, peers often see a different, more realistic view of the employee's job performance because people often behave differently when the boss is present. Using peer ratings to supplement supervisory ratings may thus help to develop a consensus about an individual's performance. It may also help eliminate biases and lead to greater employee acceptance of appraisal systems.

Potential problems may limit the usefulness of peer ratings, however, especially if they are used in lieu of supervisory ratings. First, the company must consider the nature of its reward system. If the system is highly competitive, peers may perceive a conflict of interest. High ratings given to a peer may be perceived as harming an individual's own chances for advancement. Second, friendships may influence peer ratings. A peer may fear that low ratings given to a colleague will harm their friendship or hurt the cohesiveness of the work group. On the other hand, some peer ratings may be influenced by a dislike for the employee being rated.

Some organizations use self-ratings to supplement supervisory ratings. As one might expect, self-ratings are generally more favorable than those made by supervisors and peers and therefore may not be effective as an evaluative tool. However, self-ratings may be used for employee development. Their use may uncover areas of subordinate-supervisor disagreement,

encourage employees to reflect on their strengths and weaknesses, lead to more constructive appraisal interviews, and make employees more receptive to suggestions.

MEASUREMENT

Once the appropriate performance dimensions have been established for jobs, the organization must determine how best to measure the performance of employees. This raises the critical issue of which rating form to use. In the vast majority of organizations, managers rate employee job performance on a standardized form. A variety of forms exist, but they are not equally effective. To be effective, the form must be relevant and the rating standards must be clear. Relevance refers to the degree to which the rating form includes necessary information, that is, information that indicates the level or merit of a person's job performance. To be relevant, the form must include all the pertinent criteria for evaluating performance and exclude criteria that are irrelevant to job performance.

The omission of pertinent performance criteria is referred to as criterion deficiency. For example, an appraisal form that rates the performance of police officers solely on the basis of the number of arrests made is deficient because it fails to include other aspects of job performance, such as conviction record, court performance, number of commendations, and so on. Such a deficient form may steer employee behavior away from organizational goals; imagine if police officers focused only on arrests and neglected their other important duties.

When irrelevant criteria are included on the rating form, criterion contamination occurs, causing employees to be unfairly evaluated on factors that are irrelevant to the job. For example, criterion contamination would occur if an auto mechanic were evaluated on the basis of personal cleanliness, despite the fact that this characteristic has nothing to do with effective job performance.

Performance standards indicate the level of performance an employee is expected to achieve. Such standards should be clearly defined so that employees know exactly what the company expects of them. For instance, the standard "load a truck within one hour" is much clearer than "work quickly." Not only does the use of clear performance standards help direct employee behavior, it also helps supervisors provide more accurate ratings; two supervisors may disagree on what the term "quickly" means, but both attribute the same meaning to "one hour."

To meet the standards described in the previous section, a firm must use an effective rating form. The form provides the basis for the appraisal, indicating the aspects or dimensions of performance that are to be evaluated and the rating scale for judging that performance. Human Resources (HR) experts have developed a variety of instruments for appraising performance. A description of the most commonly used instruments, along with their strengths and weaknesses, is given in the following paragraphs. A summary of these instruments appears in Exhibit 1. It should be noted, however, that companies can create additional types of instruments. For instance, they can rate employees on job task performance using graphic or behavior rating scales.

EMPLOYEE COMPARISON SYSTEMS. Most appraisal instruments require raters to evaluate employees in relation to some standard of excellence. With employee comparison systems, however, employee performance is evaluated relative to the performance of other employees. In other words, employee comparison systems use rankings, rather than ratings. A number of formats can be used to rank employees, such as simple rankings, paired comparisons, or forced distributions. Simple rankings require raters to rank-order their employees from best to worst, according to their job performance. When using the paired comparison

Exhibit 1

Rating Errors and their Likely Causes

	Causes					
Errors	A	B	C	D	E	F
Leniency		X		X		X
Severity		X		X		
Central tendency	X	X				
Halo		X				X
Implicit personality theory					X	
Recency			X			

Key:
A administrative procedures
B poorly defined rating standards
C memory decay
D political considerations
E incomplete information
F rater's lack of conscientiousness

approach, a rater compares each possible pair of employees. For example, Employee 1 is compared to Employees 2 and 3, and Employee 2 is compared to Employee 3. The employee winning the most "contests" receives the highest ranking. A forced distribution approach requires a rater to assign a certain percentage of employees to each category of excellence, such as best, average, or worst. Forced distribution is analogous to grading on a curve, where a certain percentage of students get As, a certain percentage get Bs, and so forth.

Employee comparison systems are low cost and practical; the ratings take very little time and effort. Moreover, this approach to performance appraisal effectively eliminates some of the rating errors discussed earlier. Leniency is eliminated, for instance, because the rater cannot give every employee an outstanding rating. In fact, by definition, only 50 percent can be rated as being above average. By forcing raters to specify their best and worst performers, employment decisions such as pay raises and promotions become much easier to make.

Employee comparison systems are plagued with several weaknesses. Because the rating standards for judging performance are vague or nonexistent, the accuracy and fairness of the ratings can be seriously questioned. Moreover, employee comparison systems do not specify what a worker must do to receive a good rating and, thus, they fail to adequately direct or monitor employee behavior. Finally, companies using such systems cannot compare the performance of people from different departments fairly. For example, the sixth-ranked employee in Department A may be a better performer than the top-ranked employee in Department B.

GRAPHIC RATING SCALE. A graphic rating scale (GRS) presents appraisers with a list of dimensions, which are aspects of performance that determine an employee's effectiveness. Examples of performance dimensions are cooperativeness, adaptability, maturity, and motivation. Each dimension is accompanied by a multi-point (e.g., 3, 5, or 7) rating scale. The points along the scale are defined by numbers and/or descriptive words or phrases that indicate the level of performance. The midpoint of the scale is usually anchored by such words as "average," "adequate," "satisfactory," or "meets standards."

Many organizations use graphic rating scales because they are easy to use and cost little to develop. HR professionals can develop such forms quickly, and because the dimensions and anchors are written at a general level, a single form is applicable to all or most jobs within an organization. Graphic rating scales do present a number of problems, however. Such scales may not effectively direct behavior; that is, the rating scale does not clearly indicate what a person must do to achieve a given rating, thus employees are left in the dark as to what is expected of them. For instance, an employee given a rating of 2 on "attitude" may have a difficult time figuring out how to improve.

Graphic rating scales also fail to provide a good mechanism for providing specific, non-threatening feedback. Negative feedback should focus on specific behaviors rather than on the vaguely defined dimensions the GRSs describe. For example, if told that they are not dependable, most employees would become angered and defensive; they would become less angry and defensive if such feedback were given in behavioral terms: "Six customers complained to me last week that you did not return their phone calls."

Another problem with GRSs concerns rating accuracy. Accurate ratings are not likely to be achieved because the points on the rating scale are not clearly defined. For instance, two raters may interpret the standard of "average" in very different ways. The failure to clearly define performance standards can lead to a multitude of rating errors (as noted earlier) and provides a ready mechanism for the occurrence of bias. U.S. courts consequently frown on the use of GRSs. One court noted that ratings made on a graphic rating scale amounted to no more than a "subjective judgment call," and ruled that such rating scales should not be used for promotion decisions because of the potential bias inherent in such a subjective process.

BEHAVIORALLY-ANCHORED RATING SCALES. A behaviorally-anchored rating scale (BARS), like a graphic rating scale, requires appraisers to rate employees on different performance dimensions. The typical BARS includes seven or eight performance dimensions, each anchored by a multi-point scale. But the rating scales used on BARS are constructed differently than those used on graphic rating scales. Rather than using numbers or adjectives, a BARS anchors each dimension with examples of specific job behaviors that reflect varying levels of performance.

The process for developing a BARS is rather complex. Briefly, it starts with a job analysis, using the critical incident technique. This involves having experts generate a list of critical incidents—or specific examples of poor, average, and excellent behaviors—that are related to a certain job. The incidents are then categorized by dimension. Finally, a rating scale is developed for each dimension, using these behaviors as "anchors" to define points along the scale.

When initially formulated, BARS were expected to be vastly superior to graphic rating scales. HRM experts thought the behavioral anchors would lead to more accurate ratings because they enabled appraisers to better interpret the meaning of the various points along the rating scale. That is, rather than having the rater try to pinpoint the meaning of a vague anchor such as "excellent," the rater would have improved

accuracy by having a critical incident as an anchor. As we shall see, however, this expectation has not been met. Perhaps the greatest strength of BARS is its ability to direct and monitor behavior. The behavioral anchors let employees know which types of behavior are expected of them and gives appraisers the opportunity to provide behaviorally-based feedback.

The superiority of BARS over graphic rating scales has not been substantiated by research. In fact, the great majority of studies on this topic have failed to provide evidence that justifyies the tremendous amount of time and effort involved in developing and implementing BARS. The failures of BARS may lie in the difficulty raters experience when trying to select the one behavior on the scale that is most indicative of the employee's performance level. Sometimes an employee may exhibit behaviors at both ends of the scale, so the rater does not know which rating to assign.

BEHAVIOR OBSERVATION SCALES. A behavior observation scale (BOS) contains a list of desired behaviors required for the successful performance of specific jobs, which are assessed based on the frequency with which they occur. The development BOS, like BARS, also begins with experts generating critical incidents for the jobs in the organization and categorizing these incidents into dimensions. One major difference between BARS and BOS is that, with BOS, each behavior is rated by the appraiser.

When using BOS, an appraiser rates job performance by indicating the frequency with which the employee engages in each behavior. A multi-point scale is used ranging from "almost never" to "almost always." An overall rating is derived by adding the employee's score on each behavioral item. A high score means that an individual frequently engages in desired behaviors, and a low score means that an individual does not often engage in desired behaviors.

Because it was developed more recently, the research on BOS is far less extensive than that on BARS. The available evidence, however, is favorable. One study found that both managers and subordinates preferred appraisals based on BOS to both BARS and graphic rating scales. The same study found that equal employment opportunity attorneys believed BOS is more legally defensible than the other two approaches.

Because raters do not have to choose one behavior most descriptive of an employee's performance level, the problem noted earlier regarding BARS does not arise. Moreover, like BARS, BOS is effective in directing employees' behavior because it specifies what they need to do in order to receive high performance ratings. Managers can also effectively use BOS to monitor behavior and give feedback in specific behavioral terms so that the employees know what they are doing right and which behavior needs to be corrected. Like BARS, however, a BOS instrument takes a great deal of time to develop. Moreover, a separate instrument is needed for each job (since different jobs call for different behaviors), so the method is not always practical. Developing a BOS for a particular job would not be cost-efficient unless the job had many incumbents.

ACCURACY OF THE RATINGS. Accurate ratings reflect the employees' actual job performance levels. Employment decisions that are based on inaccurate ratings are not valid and would thus be difficult to justify if legally challenged. Moreover, employees tend to lose their trust in the system when ratings do not accurately reflect their performance levels, and this causes morale and turnover problems. Unfortunately, accurate ratings seem to be rare. Inaccuracy is most often attributable to the presence of rater errors, such as leniency, severity, central tendency, halo, and recency errors. These rating errors occur because of problems with human judgment. Typically, raters do not consciously choose to make these errors, and they may not even recognize when they do make them.

Leniency error occurs when individuals are given ratings that are higher than actual performance warrants. Leniency errors most often occur when performance standards are vaguely defined. That is, an individual who has not earned an excellent rating is most likely to receive one when "excellent" is not clearly defined. Why do appraisers distort their ratings in an upward or downward direction? Some do it for political reasons; that is, they manipulate the ratings to enhance or protect their self-interests. In other instances, leniency and severity come about from a rater's lack of conscientiousness. Raters may allow personal feelings to affect their judgments; a lenient rating may be given simply because the rater likes the employee.

Severity error occurs when individuals are given ratings that are lower than actual performance warrants. Severe ratings may be assigned out of a dislike for an individual, perhaps due to personal bias. A male appraiser may, for example, underrate a highly-performing female employee because she threatens his self-esteem; a disabled employee may receive an unduly low rating because the employee's presence makes the appraiser feel embarrassed and tense; or an appraiser may provide harsh ratings to minorities out of a fear and distrust of people with different nationalities or skin color. Alternately, a severe rating may be due to the very high standards of a rater, or to "send a message" to motivate employees to improve.

When raters make leniency and severity errors, a firm is unable to provide its employees with useful feedback regarding their performance. An employee who receives a lenient rating may be lulled into thinking that performance improvement is unnecessary. Severity errors, on the other hand, can create morale

and motivation problems and possibly lead to discrimination lawsuits.

Central tendency error occurs when appraisers purposely avoid giving extreme ratings even when such ratings are warranted. For example, when rating subordinates on a scale that ranges from one to five, an appraiser would avoid giving any ones or fives. When this error occurs, all employees end up being rated as average or near average, and the employer is thus unable to discern who its best and worst performers are. Central tendency error is likely the result of administrative procedures. That is, it frequently occurs when an organization requires appraisers to provide extensive documentation to support extreme ratings. The extra paperwork often discourages appraisers from assigning high or low ratings. Central tendency errors also occur when the end points of the rating scale are unrealistically defined (e.g., a 5 effectively means "the employee can walk on water" and a 1 means "the employee would drown in a puddle").

Appraisals are also subject to the halo effect, which occurs when an appraiser's overall impression of an employee is based on a particular characteristic, such as intelligence or appearance. When rating each aspect of an employee's work, the rater may be unduly influenced by his or her overall impression. For example, a rater who is impressed by an employee's intelligence may overlook some deficiencies and give that employee all fives on a one-to-five scale; an employee perceived to be of average intelligence may be given all threes. The halo effect acts as a barrier to accurate appraisals because those guilty of it fail to identify the specific strengths and weaknesses of their employees. It occurs most often when the rating standards are vague and the rater fails to conscientiously complete the rating form. For instance, the rater may simply go down the form checking all fives or all threes.

Most organizations require that employee performance be assessed once a year. When rating an employee on a particular characteristic, a rater may be unable to recall all of the employee's pertinent job behaviors that took place during that rating period. The failure to recall such information is called memory decay. The usual consequence of memory decay is the occurrence of recency error; that is, ratings are heavily influenced by recent events that are more easily remembered. Ratings that unduly reflect recent events can present a false picture of the individual's job performance during the entire rating period. For instance, the employee may have received a poor rating because he or she performed poorly during the most recent month, despite an excellent performance during the preceding eleven months.

MANAGEMENT

In the management phase of performance appraisal, employees are given feedback about their performance and that performance is either reinforced or modified. The feedback is typically given in an appraisal interview, in which a manager formally addresses the results of the performance appraisal with the employee. Ideally, the employee will be able to understand his or her performance deficiencies and can ask questions about the appraisal and his or her future performance. The manager should give feedback in a way that it will be heard and accepted by the employee; otherwise, the appraisal interview may not be effective.

The appraisal interview may also have an appeals process, in which an employee can rebut or challenge the appraisal if he or she feels that it is inaccurate or unfair. Such a system is beneficial because it:

- allows employees to voice their concerns.
- fosters more accurate ratings—the fear of a possible challenge may discourage raters from assigning arbitrary or biased ratings.
- often prevents the involvement of outside third parties (e.g., unions, courts).

The downside of using an appeals system is that it tends to undermine the authority of the supervisor and may encourage leniency error. For example, a supervisor may give lenient ratings to avoid going through the hassle of an appeal.

MANAGEMENT BY OBJECTIVES

Management by objectives (MBO) is a management system designed to achieve organizational effectiveness by steering each employee's behavior toward the organization's mission. MBO is often used in place of traditional performance appraisals. The MBO process includes goal setting, planning, and evaluation. Goal setting starts at the top of the organization with the establishment of the organization's mission statement and strategic goals. The goal-setting process then cascades down through the organizational hierarchy to the level of the individual employee. An individual's goals should represent outcomes that, if achieved, would most contribute to the attainment of the organization's strategic goals. In most instances, individual goals are mutually set by employees and their supervisors, at which time they also set specific performance standards and determine how goal attainment will be measured.

As they plan, employees and supervisors work together to identify potential obstacles to reaching goals and devise strategies to overcome these obstacles. The two parties periodically meet to discuss the

employee's progress to date and to identify any changes in goals necessitated by organizational circumstances. In the evaluation phase, the employee's success at meeting goals is evaluated against the agreed-on performance standards. The final evaluation, occurring annually in most cases, serves as a measure of the employee's performance effectiveness.

MBO is widely practiced throughout the United States. The research evaluating its effectiveness as a performance appraisal tool has been quite favorable. These findings suggest that the MBO improves job performance by monitoring and directing behavior; that is, it serves as an effective feedback device, and it lets people know what is expected of them so that they can spend their time and energy in ways that maximize the attainment of important organizational objectives. Research further suggests that employees perform best when goals are specific and challenging, when workers are provided with feedback on goal attainment, and when they are rewarded for accomplishing the goal.

MBO presents several potential problems, however, five of which are addressed here.

1. Although it focuses an employee's attention on goals, it does not specify the behaviors required to reach them. This may be a problem for some employees, especially new ones, who may require more guidance. Such employees should be provided with action steps specifying what they need to do to successfully reach their goals.
2. MBO also tends to focus on short-term goals, goals that can be measured by year's end. As a result, workers may be tempted to achieve short-term goals at the expense of long-term ones. For example, a manager of a baseball team who is faced with the goal of winning a pennant this year may trade all of the team's promising young players for proven veterans who can win now. This action may jeopardize the team's future success (i.e., its achievement of long-term goals).
3. The successful achievement of MBO goals may be partly a function of factors outside the worker's control. For instance, the baseball manager just described may fail to win the pennant because of injuries to key players, which is a factor beyond his control. Should individuals be held responsible for outcomes influenced by such outside factors? For instance, should the team owner fire the manager for failing to win the pennant? While some HRM experts (and baseball team owners) would say "yes," because winning is ultimately the responsibility of the manager, others would disagree. The dissenters would claim that the team's poor showing is not indicative of poor management and, therefore, the manager should not be penalized.
4. Performance standards vary from employee to employee, and thus MBO provides no common basis for comparison. For instance, the goals set for an "average" employee may be less challenging than those set for a "superior" employee. How can the two be compared? Because of this problem, the instrument's usefulness as a decision-making tool is limited.
5. MBO systems often fail to gain user acceptance. Managers often dislike the amount of paperwork these systems require and may also be concerned that employee participation in goal setting robs them of their authority. Managers who feel this way may not properly follow the procedures. Moreover, employees often dislike the performance pressure that MBO places on them and the stress that it creates.

SEE ALSO: Human Resource Management; Job Analysis

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EMPLOYEE HANDBOOK AND ORIENTATION

The employee handbook is a document compiled by an organization that is used to inform employees of rules, regulations, and policies. It is a consistent, formalized way in which organizations can communicate

with employees, and it is one of the most important forms of information that the company can provide its employees. Employees can refer to the handbook to answer basic questions throughout their tenure with the organization. Additionally, managers in the organization can use the handbook to help them make uniform and consistent decisions regarding employees. By avoiding arbitrary or uninformed decisions by managers, the company may prevent problems that stem from the unfair or even illegal treatment of employees, such as reduced worker motivation, lower performance, or even litigation.

Orientation is a training program that introduces new employees to the company, their work units, and their particular jobs; it is used to familiarize employees with the organization's rules, policies, and procedures. Often the employee handbook is used as a reference during a company's orientation sessions. The typical elements of both the employee handbook and orientation are described in detail below.

THE EMPLOYEE HANDBOOK

Employee handbooks are likely to include information on the following topics: employee compensation and benefits, performance appraisal procedures, smoking restrictions, drug-testing procedures, leave policies, dress codes, sexual harassment, workplace dating, disciplinary procedures, and safety rules.

COMPENSATION AND BENEFITS. An employee handbook should provide information about compensation and benefits, and in particular, fringe benefits. Employees need to know how often they will receive paychecks and when and if pay raises will be given. Any variable pay (e.g., merit pay or incentive pay) should also be explained, since this pay is dependent upon employee performance. Employees should also be informed about who is eligible for which fringe benefits, what options they have, and when they are allowed to make changes to their benefits package. Additionally, detailed information about the benefits that are available is often included in employee handbooks.

PERFORMANCE APPRAISAL PROCEDURES. Employee handbooks should inform the employee about the procedure for performance appraisal. In addition to providing details about the instruments and required documentation in general, several questions should be answered. First, when will the appraisals be conducted? Some organizations conduct appraisals annually, and others do so more often (e.g., every six months). Additionally, will appraisals take place on a common date for everyone in a work unit (or company-wide) or are they conducted on the anniversary of an employee's hire date? Second, who will conduct the appraisal? Third, when and how will results be communicated to the employee? That is, will there be an appraisal meeting in which the employee is told the results of the performance appraisal? Fourth, what options are available to employees who disagree with their appraisal? These questions and any other details about the procedure should be addressed in this section of the handbook.

SMOKING RESTRICTIONS. Most organizations have a policy on smoking that indicates whether smoking is allowed in the physical facility, outside of the physical facility (and how far away from the building smokers must be), or outside of work altogether. Any restrictions on smoking should be detailed in the employee handbook. In some organizations, smoking inside or around physical facilities may be hazardous, such as when flammable substances are present. In other organizations, smoking may be prohibited within a building for the comfort of non-smokers. While restrictions on smoking in the workplace are fairly common, some employers are now prohibiting smoking even when employees are not on the job. This is in response to average increased health care costs for smokers and this restriction is legal in some states.

DRUG TESTING PROCEDURES. If a company tests its employees for illegal drug use, then the policies and procedures associated with the tests should be included in the employee handbook. The organization should inform employees of the type of test—urinalysis, hair analysis, or blood analysis—and of the specific sample collection procedures. Additionally, the handbook should indicate when tests will be used. Testing may occur before employment begins, or it may occur randomly, for a cause, or after an accident. Finally, details about possible actions associated with positive test results, and procedures to appeal test results, should be provided.

LEAVE POLICIES. Paid leave—such as sick leave, vacation days, and personal days—requires rules for administration. The employee handbook should detail the number of sick or personal days available to each employee; the reasons for which this leave may be taken; any documentation or verification that may be required to take a sick day; and who to contact in the event of an illness.

Employees must also be informed as to how and when vacations can be scheduled, how the time can be taken (e.g., intermittently or all at once), and whether days not taken in one year are carried over into the next year, or lost, or paid back to the employee in the form of cash. Additionally, the handbook should inform employees about the number of vacation days they have, particularly if the number increases with an employee's tenure.

The handbook should also detail information about who is eligible for unpaid leave under the Family and Medical Leave Act (FMLA), and what the

Exhibit 1

Sample Casual Friday Dress Code

Although professional dress is required at the workplace Monday through Thursday, on Fridays employees may wear more casual clothing. Please follow these guidelines when deciding how to dress on Fridays.

All casual Friday clothing should be clean, unwrinkled, and conservative in nature. Men may wear slacks, khaki pants, or high quality blue jeans. Men's shirts must have a collar, but may be short- or long-sleeved. Men may wear loafers, but may not wear athletic shoes or sandals. As with the professional dress code, men may not wear earrings.

Women may wear slacks, khaki pants, high quality jeans, skirts (high quality denim skirts are acceptable), or dresses. Women may wear sleeveless tops, but may not wear spaghetti straps, halter tops, or strapless tops. Women may wear open-toed shoes, but may not wear flip-flop sandals or athletic shoes.

No employees, male or female, may wear the following items: shorts, athletic clothing (e.g., track pants, sweat pants, sweatshirts), t-shirts, hats, flip-flop sandals, or athletic shoes.

Even on Fridays, clothing should still be office appropriate. It should not be dirty, stained, have tears or holes, or be threadbare. Additionally, clothes should not have unprofessional prints (e.g., animal prints, neon colors) or advertisements on them. Finally, clothing should not be too revealing. Women's skirts must not be too short, and no employee's clothing should be too tightly fitted to their body.

If you are unsure about whether a clothing item is appropriate for this office, please consult with your manager or with a member of the human resources management department before you wear it.

procedure is for requesting such leave. Some organizations may not be covered by this act because of their size, but for those that are, informing employees of their rights under this law is important. Some employers require that employees exhaust their other paid leave (e.g., sick days and vacation days) before taking FMLA leave, and if this is the case, it should be detailed in the employee handbook.

DRESS CODE. Many employee handbooks include a dress code that informs employees which type of clothing is appropriate for the office. This is particularly important if an employer has a "casual Friday" policy that allows employees to dress less formally on Fridays. Employees are often confused or unsure as to what is appropriate for casual Friday, so a detailed dress code is important. A dress code should provide specific detailed information about what employees may and may not wear in the workplace. See Exhibit 1 for a sample, casual Friday dress code.

SEXUAL HARASSMENT POLICY. A typical sexual harassment policy includes definitions as to what constitutes sexual harassment, a procedure for reporting claims of sexual harassment within the company, the process the organization follows for investigating a sexual harassment claim, and the penalties for engaging in sexual harassment. First, the policy should explain the two types of sexual harassment: quid pro quo and hostile environment. This will help employees to understand which behaviors are acceptable or unacceptable in the workplace. Second, the policy should indicate reporting procedures, or how an employee should go about reporting a claim of sexual harassment. Typically, employees are encouraged to report to their direct supervisor and to present evidence of the alleged harassment. However, the organization should have an exception in the policy for those employees who are being harassed by their supervisor and therefore do not want to report to that person. Third, the details of the investigation of sexual harassment claims should be included in the policy: what evidence is necessary, which parties will be involved, the steps taken to resolve the problem. Finally, the policy should detail the disciplinary procedures for sexual harassment violations as some types of sexual harassment may be punishable by immediate dismissal.

WORKPLACE DATING. Many organizations are creating workplace dating policies that may restrict personal relationships between employees. Workplace dating has increased dramatically due to a number of factors, including the presence of more women in the workforce, an older average age for first marriage in the U.S., and the longer working hours of many employees. Companies often choose to limit workplace romance because of concerns of favoritism and/or sexual harassment. Despite their legality, many workplace dating policies have come under fire because some employees feel that these policies are an invasion of privacy. Additionally, because some couples may keep their relationship secret while other couples do not, there are concerns that such policies may be enforced inconsistently.

There are many different forms of workplace dating policies; they range in degree of restrictiveness. The least restrictive allows dating between anyone at any level of the organization. A slightly more strict policy would require that, if a relationship is established, a manager must be informed of such a relationship.

Some policies allow for dating employees in other work units or at the same level of hierarchy, but prohibit relationships between a supervisor and subordinate. The most restrictive policies prohibit any dating relationships whatsoever between any employees of the company.

DISCIPLINARY PROCEDURES. The employee handbook should include information about the disciplinary procedures that will be used if work rules are broken. This means that specific work rules will need to be listed, if they are not presented elsewhere in the employee handbook. Then, the company must identify actions that result in immediate termination, such as proof of theft, drug use on the job, quid pro quo sexual harassment, violence toward an employee or customer, or other types of extreme behavior. Additionally, the company must detail the procedures by which it will discipline less severe rule infractions.

Many organizations use progressive discipline, in which harsher punishments are given for each subsequent rule violation. The typical progression of punishments is a verbal warning, a written warning, a short suspension, then termination of employment. Progressive disciplinary procedures allow the employee to change his or her behavior on minor issues before they result in termination; thus, this type of discipline provides appropriate due process for employees. Managers find the prescribed steps of a progressive discipline procedure easy to follow, particularly because they do not have to determine the punishment to give.

One element of a successful disciplinary procedure, which should be documented in the employee handbook, is the right to appeal disciplinary decisions. If an employee feels that he or she has been unfairly disciplined, the organization should have a procedure by which the employee can have others examine the process to make sure that it is free from bias. Two of the most useful procedures for an appeals process are an open-door management policy and the use of an employee relations representative.

SAFETY RULES. Any rules related to safety and security need to be detailed in the employee handbook, not only to inform employees of proper procedures but also to protect the company from liability. This section of the handbook should identify any required safety clothing or equipment, proper use of machinery and other equipment, and any necessary security measures (e.g., locking exterior doors of the building).

LEGAL CONCERNS WITH EMPLOYEE HANDBOOKS

There are two major legal concerns associated with the employee handbook: (1) when organizations do not follow their own documented policies and procedures, and (2) a possible implied contract exception to employment-at-will. When an employee handbook details procedures for discipline, for investigation of sexual harassment or other topics on which improper procedures may result in litigation from employees, it is crucial that managers closely follow the handbook procedures. If managers deviate from procedures, they may be susceptible to claims of wrongful discharge or sexual harassment. For instance, if an employee is fired after only one minor rule violation, yet the handbook indicates that the first step with such a violation is a verbal warning, the employee is likely to have a viable claim for wrongful discharge. Similarly, if managers do not follow their own printed policies for the investigation of sexual harassment claims and an employee suffers continued harassment, the organization is likely to be found liable for that harassment. Thus, it is critical that managers be aware of the policies and procedures documented in the employee handbook particularly if there has been a recent change to them.

The second major legal issue associated with employee handbooks is the possibility that they may be seen as implied contracts and thus exempt employees from employment-at-will. Employment-at-will is a common employment agreement that allows employers to release an employee from the organization at any time for any non-discriminatory reason, and allows the employee to quit at any time. Most U.S. workers are at-will employees; those who are not have employment contracts that specify job duties, the length of employment, and possible reasons for termination of employment.

There are three major exceptions to the employment-at-will doctrine for which the employer is not legally able to terminate employment at their discretion. One is the implied contract exception in which an employee is led to believe that he or she has an employment contract with the employer and is therefore not an at-will employee. This issue comes into play with the employee handbook because the handbook details specific, possible rule violations and because many employers now ask employees to sign a document indicating that they have read and understand the information provided in the employee handbook. By requiring a signature, the company can indicate at a later date that the employee was aware of certain rules and regulations that they violated, thus protecting the company from employee claims of ignorance. However, while requiring a signature on the employee handbook has become very popular in many organizations, the company must make evident that the signature does not create an employment contract. That is, an employee may perceive their signature to indicate that he or she is no longer an at-will employee and will only be terminated if the rules in the handbook are violated. If the employer does not

intend that an employment contract exist, then a statement such as "I understand that I am an at-will employee and can be terminated for any reason at any time" can be useful to protect the employer from claims of wrongful discharge.

ORIENTATION

Orientation is a training session intended to familiarize an employee with the workplace and its rules. An orientation session typically takes place within the first few working days that an employee is on the job, although it may occur before the job begins. A typical orientation program includes information about the company, the work unit, and other miscellaneous areas. To be effective, the orientation program should provide key information without overwhelming individuals and prepare them for their first work experience with the company. The employee handbook is a key supporting document throughout orientation.

COMPANY-LEVEL ORIENTATION INFORMATION. Orientation programs often include information about the company as a whole. This information may be a company overview, such as the origination and history of the company, its mission, and its values. This allows the employee to put the information about the current organization into its historical context.

Policies and procedures (regarding work rules, disciplinary procedures, etc.) should be reviewed in the orientation session so that employees are sure to be aware of them and so that they can ask questions if necessary.

Compensation and benefits should be reviewed, from the basics of when paychecks are issued to more detailed information about incentives and benefits. Many organizations provide detailed information about fringe benefits because new employees often need guidance in understanding their benefits or in selecting from a list of benefit options.

Safety and accident prevention should be addressed in orientation and depending on the type of work done in the company, further safety training programs may also be required. In many office settings, safety regulations are brief and easy to cover. However, in manufacturing settings, a great deal of time may need to be spent on educating employees about safe behaviors and the proper use of equipment. In such circumstances, orientation is likely to provide only an overview of safety issues before further training is offered.

Employee relations information should cover any employee assistance programs or wellness plans. It should also review employee rights, such as the right to appeal disciplinary actions or other managerial decisions related to human resources.

Orientation often includes an overview of the company's physical facilities and may include a tour of those facilities. New employees need to know which entrances and exits to use, how to maintain building security, where to park vehicles, where different work units are located, and even where the restrooms are. Such information will reduce new employees' anxiety and may prevent other problems—having a car towed, leaving an exterior door unlocked, or getting lost in a large building.

WORK UNIT ORIENTATION INFORMATION. In orientation, employees need to know specific information about the particular work unit in which they will be employed. This portion of the orientation may begin with an overview of the departmental functions and continue with information about the new employee's specific job duties and responsibilities, and the performance expectations of that position. Employees should then be told any policies or procedures that may be specific to the work unit. Finally, work unit orientation should include a tour of the department (where offices are, where supplies are kept, etc.), and an introduction to other employees and managers.

MISCELLANEOUS INFORMATION. Many orientation programs go beyond company and work unit information to provide new employees with details about the community, housing options, or other issues associated with adjusting a new location. This is particularly important if the organization hires employees who relocate from a distance, especially if new employees arrive from overseas.

NEWCOMER SOCIALIZATION

Both the employee handbook and the orientation session aid the organization in socializing newcomers. Socialization is the process by which new employees learn the values, norms, and necessary behaviors to effectively participate as members of the organization. Socialization may begin even before a person is hired and may continue for weeks or even months after the person is on the job. Formal socialization occurs when employees review the employee handbook and attend new employee orientation. Socialization continues informally through advice from co-workers, the employee's observation of the workplace, and by trial-and-error.

Socialization involves three phases: anticipatory socialization, encounter phase, and settling in. Anticipatory socialization occurs before an individual begins work at an organization. Through interactions with representatives of the company during the recruitment and selection process, the job applicant learns a lot about an organization. The encounter phase of socialization starts when an employee begins the new job, and typically the employee learns a great deal of new

information. Regardless of how well-prepared an employee may feel to begin a new job with a new employer, there is likely to be something unexpected or even shocking that occurs when the employee is actually on the job. Finally, when the employee reaches the settling in stage of socialization, he or she begins to feel comfortable with both the job demands and the interpersonal relationships with others in the workplace.

The employee handbook and new employee orientation training are critical elements in preparing employees to be effective members of an organization. Thus, it is important that the handbook and orientation sessions include information that employees need to know about workplace policies and procedures In addition, attention to the stages of newcomer socialization will help managers to ease the difficulties in transition that new employees may face.

SEE ALSO: Employee Assistance Programs; Employee Benefits; Employee Compensation; Employee Evaluation and Performance Appraisals; Employee Recruitment Planning; Employee Screening and Selection; Employment Law and Compliance; Human Resource Management

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EMPLOYEE RECRUITMENT PLANNING

Recruitment is the process used by an organization to locate and attract job applicants in order to fill a position. An effective approach to recruitment can help a company successfully compete for limited human resources. To maximize competitive advantage, a company must choose the recruiting method that produces the best pool of candidates quickly and cost effectively. There are five steps to the process.

STEP 1: IDENTIFY THE JOB OPENING

This step would appear to be an easy one-just wait until an employee turns in a notice of resignation. Many job openings are, in fact, identified in this way. A major problem with this approach is that it may take the company a long time to fill the opening. For instance, it usually takes six to eight weeks to notify and screen applicants, and a week or more to make a decision regarding a job offer. After the decision is made, the selected candidate must give notice (usually about two weeks) to his or her previous employer. Thus, the job in question is likely to remain vacant for months, even if the process runs smoothly.

Ideally, organizations should attempt to identify job openings well in advance of an announced resignation. The HRM department should plan for future openings in both the short and long term. The projection of future openings provides organizations with the time needed to plan and implement recruitment strategies so that they do not fall prey to the "must-hire-by-last-week" syndrome. The HR plan should answer at least the following questions:

- Are any newly budgeted positions opening soon?
- Is a contract under negotiation that may result in the need for additional hires?
- What is the amount of expected turnover in the next several months?

STEP 2: DECIDE HOW TO FILL THE JOB OPENING

The first question to ask after determining that an opening exists is "Do we need to find a new person to fill the vacant position?" Sometimes it is unnecessary to staff a vacant position because the firm can rely on other alternatives. For instance, it may be more prudent to provide overtime opportunities to current workers to complete the needed work. Other alternatives include job elimination and job redesign (i.e., incorporating the tasks of the vacant position into currently existing positions). If the firm chooses to fill the vacancy, it must address two issues: (1) whether to outsource, and (2) in the absence of outsourcing, whether to recruit candidates internally or externally.

STEP 3: IDENTIFY THE TARGET POPULATION

Now the organization must determine what types of individuals it is looking for to fill the vacant positions. To address this question, an organization must define its target population. Two issues arise here: (1) specifying worker requirements and (2) deciding whether to target a certain segment of the applicant population.

An organization must identify specific requirements of the job: the duties, reporting relationships, salary range for hiring, and competencies required of a new worker (e.g., education, experience, knowledge, skills, and abilities). Ideally, much of this information will have been gathered during a job analysis and thus be contained in the job description. If not, the recruiter should gather it from the hiring manager. An organization must also decide at this point whether to target all qualified applicants or to focus its recruitment efforts on certain segments of the qualified applicant population.

When recruiting internally, the issue is this: Should the company post the job so that all qualified employees can be considered? Or should the company select certain high-potential employees and groom them for the position? When recruiting externally, the company must decide whether to inform all potential applicants or target certain types. Companies may reap advantages when they target members of certain groups. Another strategy is to target graduates of specific schools that have exceptionally strong programs in the functional areas of concern. Additionally, some companies target top-performing employees working for other companies. Recruitment of such individuals poses some unique problems, however; these individuals may be difficult to reach because they are not actively seeking a new job. Moreover, the practice of pirating employees from other firms raises some serious ethical questions.

STEP 4: NOTIFY THE TARGET POPULATION

Once an applicant population has been targeted, the company must determine how to notify these individuals of the vacant position. A variety of recruitment methods may be used for communicating vacancies. A firm can benefit from both low-involvement and high-involvement strategies at this stage of the recruitment process. Low-involvement strategies are things such as corporate sponsorship or advertisements of the company's product or service may influence applicants' positive perceptions of that firm and therefore increase applicant attraction, but do not specifically identify a job opening. High-involvement recruitment strategies involve things such as detailed recruitment advertisements or employee endorsements, which occur when potential applicants meet with current employees to hear more about their experiences with that company. Both low-involvement and high-involvement strategies have a positive effect on the number of applicants who apply for jobs with an organization and on the quality of the applicants who apply.

When choosing a specific way to notify the target population, different recruitment methods may be used. Some popular options are internal job postings; newspaper, radio, and television advertisements; trade magazine advertisements; Internet job sites; college campus interviews; and current employee referrals. The choice of which to use depends on the number of positions to be filled, the cost of each recruitment method, the characteristics of the target audience, and economic conditions.

The more positions to be filled, the more widely the firm may choose to advertise, perhaps using a newspaper or radio advertisement. Costs differ for recruitment methods and a firm may be willing to invest more in recruitment when suitable applicants are difficult to find or when poor hiring decisions may be costly. The characteristics of the target audience influence recruitment method; for example, using an Internet posting would be fruitless if most of the applicant pool is unlikely to have access to a computer. Poor economic conditions, where unemployment is high, will result in higher numbers of job applicants and possibly a lower average level of quality of applicants. In this situation, to avoid spending an inordinate amount of time weeding through applications, firms must discourage all but the best applicants from applying.

STEP 5: MEET WITH THE CANDIDATES

Finally, the most qualified candidates are brought in for interviews and other assessment procedures. These serve both selection and recruitment purposes. From a selection perspective, they give the firm a chance to further assess the candidates' qualifications. From a recruitment perspective, they provide the candidates with an opportunity to learn more about the employment opportunity.

Candidates should be provided with information about the company and the job. Failure to provide a sufficient amount of information could be detrimental to the recruiting process. For example, it may be interpreted by the candidates as an attempt to evade discussion of unattractive job attributes, or it may be viewed as an indication of the recruiter's disinterest in them. Without specific information, applicants might accept a job offer without knowing about aspects of it that might affect their long-term job satisfaction, or they may refuse an offer without knowing about some of the job's attractive attributes.

SEE ALSO: Employee Screening and Selection; Human Resource Management

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EMPLOYEE SCREENING AND SELECTION

According to R.D. Gatewood and H.S. Field, employee selection is the "process of collecting and evaluating information about an individual in order to extend an offer of employment." Employee selection is part of the overall staffing process of the organization, which also includes human resource (HR) planning, recruitment, and retention activities. By doing human resource planning, the organization projects its likely demand for personnel with particular knowledge, skills, and abilities (KSAs), and compares that to the anticipated availability of such personnel in the internal or external labor markets. During the recruitment phase of staffing, the organization attempts to establish contact with potential job applicants by job postings within the organization, advertising to attract external applicants, employee referrals, and many other methods, depending on the type of organization and the nature of the job in question. Employee selection begins when a pool of applicants is generated by the organization's recruitment efforts. During the employee selection process, a firm decides which of the recruited candidates will be offered a position.

Effective employee selection is a critical component of a successful organization. How employees perform their jobs is a major factor in determining how successful an organization will be. Job performance is essentially determined by the ability of an individual to do a particular job and the effort the individual is willing to put forth in performing the job. Through effective selection, the organization can maximize the probability that its new employees will have the necessary KSAs to do the jobs they were hired to do. Thus, employee selection is one of the two major ways (along with orientation and training) to make sure that new employees have the abilities required to do their jobs. It also provides the base for other HR practices—such as effective job design, goal setting, and compensation—that motivate workers to exert the effort needed to do their jobs effectively, according to Gatewood and Field.

Job applicants differ along many dimensions, such as educational and work experience, personality characteristics, and innate ability and motivation levels. The logic of employee selection begins with the assumption that at least some of these individual differences are relevant to a person's suitability for a particular job. Thus, in employee selection the organization must (1) determine the relevant individual differences (KSAs) needed to do the job and (2) identify and utilize selection methods that will reliably and validly assess the extent to which job applicants possess the needed KSAs. The organization must achieve these tasks in a way that does not illegally discriminate against any job applicants on the basis of race, color, religion, sex, national origin, disability, or veteran's status.

AN OVERVIEW OF THE SELECTION PROCESS

Employee selection is itself a process consisting of several important stages, as shown in Exhibit 1. Since the organization must determine the individual KSAs needed to perform a job, the selection process begins with job analysis, which is the systematic study of the content of jobs in an organization. Effective job analysis tells the organization what people occupying particular jobs "do" in the course of performing their jobs. It also helps the organization determine the major duties and responsibilities of the job, as well as aspects of the job that are of minor or tangential importance to job performance. The job analysis often results in a document called the job description, which is a comprehensive document that details the duties, responsibilities, and tasks that make up a job. Because job analysis can be complex, time-consuming, and expensive, standardized job descriptions have been developed that can be adapted to thousands of jobs in organizations across the world. Two examples of such databases are the U.S. government's *Standard Occupational Classification* (SOC), which has information on at least 821 occupations, and the Occupational Information Network, which is also known as O*NET. O*NET provides job descriptions for thousands of jobs.

An understanding of the content of a job assists an organization in specifying the knowledge, skills, and abilities needed to do the job. These KSAs can be expressed in terms of a job specification, which is an

Exhibit 1

Selection Process

1. Job Analysis	**The systematic study of job content in order to determine the major duties and responsibilities of the job. Allows the organization to determine the important dimensions of job performance. The major duties and responsibilities of a job are often detailed in the job description.**
2. The Identification of KSAs or Job Requirements	**Drawing upon the information obtained through job analysis or from secondary sources such as O*NET, the organization identifies the knowledge, skills, and abilities necessary to perform the job. The job requirements are often detailed in a document called the job specification.**
3. The Identification of Selection Methods to Assess KSAs	**Once the organization knows the KSAs needed by job applicants, it must be able to determine the degree to which job applicants possess them. The organization must develop its own selection methods or adapt methods developed by others. Selection methods include, but are not limited to, reference and background checks, interviews, cognitive testing, personality testing, aptitude testing, drug testing, and assessment centers.**
4. The Assessment of the Reliability and Validity of Selection Methods	**The organization should be sure that the selection methods they use are reliable and valid. In terms of validity, selection methods should actually assess the knowledge, skill, or ability they purport to measure and should distinguish between job applicants who will be successful on the job and those who will not.**
5. The Use of Selection Methods to Process Job Applicants	**The organization should use its selection methods to make selection decisions. Typically, the organization will first try to determine which applicants possess the minimum KSAs required. Once unqualified applicants are screened, other selection methods are used to make distinctions among the remaining job candidates and to decide which applicants will receive offers.**

Source: Adapted from Gatewood and Field, 2001.

organizational document that details what is required to successfully perform a given job. The necessary KSAs are called job requirements, which simply means they are thought to be necessary to perform the job. Job requirements are expressed in terms of desired education or training, work experience, specific aptitudes or abilities, and in many other ways. Care must be taken to ensure that the job requirements are based on the actual duties and responsibilities of the job and that they do not include irrelevant requirements that may discriminate against some applicants. For example, many organizations have revamped their job descriptions and specifications in the years since the passage of the Americans with Disabilities Act to ensure that these documents contain only job-relevant content.

Once the necessary KSAs are identified the organization must either develop a selection method to accurately assess whether applicants possess the needed KSAs, or adapt selection methods developed by others. There are many selection methods available to organizations. The most common is the job interview, but organizations also use reference and background checking, personality testing, cognitive ability testing, aptitude testing, assessment centers, drug tests, and many other methods to try and accurately assess the extent to which applicants possess the required KSAs and whether they have unfavorable characteristics that would prevent them from successfully performing the job. For both legal and practical reasons, it is important that the selection methods used are relevant to the job in question and that the methods are as accurate as possible in the information they provide. Selection methods cannot be accurate unless they possess reliability and validity.

VALIDITY OF SELECTION METHODS

Validity refers to the quality of a measure that exists when the measure assesses a construct. In the selection context, validity refers to the appropriateness, meaningfulness, and usefulness of the inferences made about applicants during the selection process. It is concerned with the issue of whether applicants will actually perform the job as well as expected based on the inferences made during the selection process. The closer the applicants' actual job performances match their expected performances, the greater the validity of the selection process.

ACHIEVING VALIDITY

The organization must have a clear notion of the job requirements and use selection methods that reliably and accurately measure these qualifications. A list of typical job requirements is shown in Exhibit 2. Some qualifications—such as technical KSAs and nontechnical skills—are job-specific, meaning that each job has a unique set. The other qualifications

listed in the exhibit are universal in that nearly all employers consider these qualities important, regardless of the job. For instance, employers want all their employees to be motivated and have good work habits.

Exhibit 2
A Menu of Possible Qualities Needed for Job Success

- A. Technical KSAs or aptitude for learning them
- B. Nontechnical skills, such as
  1. Communication
  2. Interpersonal
  3. Reasoning ability
  4. Ability to handle stress
  5. Assertiveness
- C. Work habits
  1. Conscientiousness
  2. Motivation
  3. Organizational citizenship
  4. Initiative
  5. Self-discipline
- D. Absence of dysfunctional behavior, such as
  1. Substance abuse
  2. Theft
  3. Violent tendencies
- E. Job-person fit; the applicant
  1. is motivated by the organization's reward system
  2. fits the organization's culture regarding such things as risk-taking and innovation
  3. would enjoy performing the job
  4. has ambitions that are congruent with the promotional opportunities available at the firm

The job specification derived from job analysis should describe the KSAs needed to perform each important task of a job. By basing qualifications on job analysis information, a company ensures that the qualities being assessed are important for the job. Job analyses are also needed for legal reasons. In discrimination suits, courts often judge the job-relatedness of a selection practice on whether or not the selection criteria was based on job analysis information. For instance, if someone lodges a complaint that a particular test discriminates against a protected group, the court would (1) determine whether the qualities measured by the test were selected on the basis of job analysis findings and (2) scrutinize the job analysis study itself to determine whether it had been properly conducted.

SELECTION METHODS

The attainment of validity depends heavily on the appropriateness of the particular selection technique used. A firm should use selection methods that reliably and accurately measure the needed qualifications. The reliability of a measure refers to its consistency. It is defined as "the degree of self-consistency among the scores earned by an individual." Reliable evaluations are consistent across both people and time. Reliability is maximized when two people evaluating the same candidate provide the same ratings, and when the ratings of a candidate taken at two different times are the same. When selection scores are unreliable, their validity is diminished. Some of the factors affecting the reliability of selection measures are:

- *Emotional and physical state of the candidate.* Reliability suffers if candidates are particularly nervous during the assessment process.
- *Lack of rapport with the administrator of the measure.* Reliability suffers if candidates are "turned off" by the interviewer and thus do not "show their stuff" during the interview.
- *Inadequate knowledge of how to respond to a measure.* Reliability suffers if candidates are asked questions that are vague or confusing.
- *Individual differences among respondents.* If the range or differences in scores on the attribute measured by a selection device is large, that means the device can reliably distinguish among people.
- *Question difficulty.* Questions of moderate difficulty produce the most reliable measures. If questions are too easy, many applicants will give the correct answer and individual differences are lessened; if questions are too difficult, few applicants will give the correct answer and, again, individual differences are lessened.
- *Length of measure*. As the length of a measure increases, its reliability also increases. For example, an interviewer can better gauge an applicant's level of interpersonal skills by asking several questions, rather than just one or two.

In addition to providing reliable assessments, the firm's assessments should accurately measure the required worker attributes. Many selection techniques are available for assessing candidates. How does a company decide which ones to use? A particularly effective approach to follow when making this decision is known as the behavior consistency model. This model specifies that the best predictor of future job behavior is past behavior performed under similar circumstances. The model implies that the most effective selection procedures are those that focus on the candidates' past or present behaviors in situations that

closely match those they will encounter on the job. The closer the selection procedure simulates actual work behaviors, the greater its validity. To implement the behavioral consistency model, employers should follow this process:

1. Thoroughly assess each applicant's previous work experience to determine if the candidate has exhibited relevant behaviors in the past.
2. If such behaviors are found, evaluate the applicant's past success on each behavior based on carefully developed rating scales.
3. If the applicant has not had an opportunity to exhibit such behaviors, estimate the future likelihood of these behaviors by administering various types of assessments. The more closely an assessment simulates actual job behaviors, the better the prediction.

ASSESSING AND DOCUMENTING VALIDITY

Three strategies can be used to determine the validity of a selection method. The following section lists and discusses these strategies:

1. Content-oriented strategy: Demonstrates that the company followed proper procedures in the development and use of its selection devices.
2. Criterion-related strategy: Provides statistical evidence showing a relationship between applicant selection scores and subsequent job performance levels.
3. Validity generalization strategy: Demonstrates that other companies have already established the validity of the selection practice.

When using a content-oriented strategy to document validity, a firm gathers evidence that it followed appropriate procedures in developing its selection program. The evidence should show that the selection devices were properly designed and were accurate measures of the worker requirements. Most importantly, the employer must demonstrate that the selection devices were chosen on the basis of an acceptable job analysis and that they measured a representative sample of the KSAs identified. The sole use of a content-oriented strategy for demonstrating validity is most appropriate for selection devices that directly assess job behavior. For example, one could safely infer that a candidate who performs well on a properly-developed typing test would type well on the job because the test directly measures the actual behavior required on the job. However, when the connection between the selection device and job behavior is less direct, content-oriented evidence alone is insufficient. Consider, for example, an item found on a civil service exam for police officers: "In the Northern Hemisphere, what direction does water circulate when going down the drain?" The aim of the question is to measure mental alertness, which is an important trait for good police officers. However, can one really be sure that the ability to answer this question is a measure of mental alertness? Perhaps, but the inferential leap is a rather large one.

When employers must make such large inferential leaps, a content-oriented strategy, by itself, is insufficient to document validity; some other strategy is needed. This is where a criterion-related strategy comes into play. When a firm uses this strategy, it attempts to demonstrate statistically that someone who does well on a selection instrument is more likely to be a good job performer than someone who does poorly on the selection instrument. To gather criterion-related evidence, the HR professional needs to collect two pieces of information on each person: a predictor score and a criterion score.

- Predictor scores represent how well the individual fared during the selection process as indicated by a test score, an interview rating, or an overall selection score.
- Criterion scores represent the job performance level achieved by the individual and are usually based on supervisor evaluations.

Validity is calculated by statistically correlating predictor scores with criterion scores (statistical formulas for computing correlation can be found in most introductory statistical texts). This correlation coefficient (designated as r) is called a validity coefficient. To be considered valid, r must be statistically significant and its magnitude must be sufficiently large to be of practical value. When a suitable correlation is obtained ($r > 0.3$, as a rule of thumb), the firm can conclude that the inferences made during the selection process have been confirmed. That is, it can conclude that, in general, applicants who score well during selection turn out to be good performers, while those who do not score as well become poor performers.

A criterion-related validation study may be conducted in one of two ways: a predictive validation study or a concurrent validation study. The two approaches differ primarily in terms of the individuals assessed. In a predictive validation study, information is gathered on actual job applicants; in a concurrent study, current employees are used. The steps to each approach are shown in Exhibit 3.

Concurrent studies are more commonly used than predictive ones because they can be conducted

Exhibit 3
Steps in the Predictive and Concurrent Validation Processes

Predictive Validation

1. **Perform a job analysis to identify needed competencies.**
2. **Develop/choose selection procedures to assess needed competencies.**
3. **Administer the selection procedures to a group of applicants.**
4. **Randomly select applicants or select all applicants.**
5. **Obtain measures of the job performance for the applicant after they have been employed for a sufficient amount of time. For most jobs, this would be six months to a year.**
6. **Correlate job performance scores of this group with the scores they received on the selection procedures.**

Concurrent Validation

1 and 2. These steps are identical to those taken in a predictive validation study.

3. **Administer the selection procedures to a representative group of job incumbents.**
4. **Obtain measures of the current job performance level of the job incumbents who have been assessed in step 3.**
5. **Identical to step 6 in a predictive study.**

more quickly; the assessed individuals are already on the job and performance measures can thus be more quickly obtained. (In a predictive study, the criterion scores cannot be gathered until the applicants have been hired and have been on the job for several months.) Although concurrent validity studies have certain disadvantages compared to predictive ones, available research indicates that the two types of studies seem to yield approximately the same results.

Up to this point, our discussion has assumed that an employer needs to validate each of its selection practices. But what if it is using a selection device that has been used and properly validated by other companies? Can it rely on that validity evidence and thus avoid having to conduct its own study? The answer is yes. It can do so by using a validity generalization strategy. Validity generalization is established by demonstrating that a selection device has been consistently found to be valid in many other similar settings. An impressive amount of evidence points to the validity generalization of many specific devices. For example, some mental aptitude tests have been found to be valid predictors for nearly all jobs and thus can be justified without performing a new validation study to demonstrate job relatedness. To use validity generalization evidence, an organization must present the following data:

- Studies summarizing a selection measure's validity for similar jobs in other settings.
- Data showing the similarity between the jobs for which the validity evidence is reported and the job in the new employment setting.
- Data showing the similarity between the selection measures in the other studies composing the validity evidence and those measures to be used in the new employment setting.

MAKING A FINAL SELECTION

The extensiveness and complexity of selection processes vary greatly depending on factors such as the nature of the job, the number of applicants for each opening, and the size of the organization. A typical way of applying selection methods to a large number of applicants for a job requiring relatively high levels of KSAs would be the following:

1. Use application blanks, resumes, and short interviews to determine which job applicants meet the minimum requirements for the job. If the number of applicants is not too large, the information provided by applicants can be verified with reference and/or background checks.
2. Use extensive interviews and appropriate testing to determine which of the minimally qualified job candidates have the highest degree of the KSAs required by the job.
3. Make contingent offers to one or more job finalists as identified by Step 2. Job offers may be contingent upon successful completion of a drug test or other forms of background checks. General medical exams can only be given after a contingent offer is made.

One viable strategy for arriving at a sound selection decision is to first evaluate the applicants on each individual attribute needed for the job. That is, at the conclusion of the selection process, each applicant could be rated on a scale (say, from one to five) for each important attribute based on all the information collected during the selection process. For example, one could arrive at an overall rating of a candidate's dependability by combining information derived from references, interviews, and tests that relate to this attribute.

Decision-making is often facilitated by statistically combining applicants' ratings on different attributes to form a ranking or rating of each applicant. The applicant with the highest score is then selected.

This approach is appropriate when a compensatory model is operating, that is, when it is correct to assume that a high score on one attribute can compensate for a low score on another. For example, a baseball player may compensate for a lack of power in hitting by being a fast base runner.

In some selection situations, however, proficiency in one area cannot compensate for deficiencies in another. When such a non-compensatory model is operating, a deficiency in any one area would eliminate the candidate from further consideration. Lack of honesty or an inability to get along with people, for example, may serve to eliminate candidates for some jobs, regardless of their other abilities.

When a non-compensatory model is operating, the "successive hurdles" approach may be most appropriate. Under this approach, candidates are eliminated during various stages of the selection process as their non-compensable deficiencies are discovered. For example, some applicants may be eliminated during the first stage if they do not meet the minimum education and experience requirements. Additional candidates may be eliminated at later points after failing a drug test or honesty test or after demonstrating poor interpersonal skills during an interview. The use of successive hurdles lowers selection costs by requiring fewer assessments to be made as the list of viable candidates shrinks.

SEE ALSO: Human Resource Management

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EMPLOYMENT LAW AND COMPLIANCE

Employment law and compliance concerns the legal framework within which organizations must operate in their treatment of employees. Employers must comply with a myriad of federal and state laws and regulations. Laws and regulations exist covering a wide range of human resource practices, including recruiting, hiring, performance appraisal, compensation, health and safety, and labor relations.

The discussion that follows identifies and summarizes the major federal laws that comprise employment law.

MAJOR FEDERAL LAWS

Exhibit 1 provides a summary of some of the more important federal employment laws. The exhibit is divided into four sections: anti-discrimination law, compensation law, health and safety law, and labor relations law. The sections that follow provide additional information on each of these areas, with special emphasis on anti-discrimination laws, which probably have the greatest impact on employers.

ANTI-DISCRIMINATION LAWS

TITLE VII. Without a doubt, the most important anti-discrimination law is Title VII of the Civil Rights Act of 1964. Title VII was initially motivated by the U.S. government's desire to end workplace discrimination against African Americans, which was brought to national attention by the civil rights movement of the 1950s and 1960s. However, by the time the law was passed and signed into law in 1964, it had become a comprehensive workplace anti-discrimination law.

Title VII prohibits workplace discrimination on the basis of race, color, religion, national origin, and sex. Affected organizations must not discrimination in any employment decision or in regard to any term or condition of employment. Title VII applies to all U.S. organizations with fifteen or more employees, as well as labor unions and public sector employers. Only a few U.S. employers with more than fifteen employees are exempt from Title VII.

Title VII was amended in 1972 by the Equal Employment Opportunity Act. This law strengthened the enforcement of Title VII, which up to that time had been largely ineffective in changing workplace practices. The Equal Employment Opportunity Commission, a quasi-independent federal government agency, is in charge of enforcing Title VII, as well as many other anti-discrimination laws.

Exhibit 1
Sampling of Major Federal Employment Laws

Anti-Discrimination Laws	Major Provisions
Title VII of the Civil Rights Act 1964	Prohibits employment discrimination based on race, color, religion, national origin, and sex.
Age Discrimination in Employment Act 1967	Prohibits employment discrimination against applicants or employees aged 40 and older.
Americans with Disabilities Act 1990	Prohibits employment discrimination against qualified applicants or employees with a physical or mental disability.
Civil Rights Act 1991	Codifies the "adverse impact" theory of discrimination. Clarifies and strengthens rules for enforcement of the anti-discrimination provisions in Title VII.
Compensation Laws	
Fair Labor Standards Act 1938	Requires employers to pay a federal minimum wage to non-exempt workers. Requires employers to pay overtime pay to non-exempt workers.
Equal Pay Act 1963	Requires employers to pay men and women equally for doing substantially the same work, unless differences in pay are based on merit, quantity or quality of production, or any other factor other than sex.
Labor Laws	
Wagner Act 1935	Establishes the National Labor Relation Board. Lays out the framework for union organizing activities. Identifies and bans unfair management practices in regard to unionization.
Taft Hartley Act 1947	Identifies and bans unfair labor union practices in regard to union organizing efforts. Bans the closed shop and allows states to pass "right-to-work" laws that give workers the right to refuse to join a union. Allows the president to temporarily stop strikes that imperil the national interest.
Health and Safety Laws	
Occupational Safety and Health Act	Establishes general safety standards and standards for specific industries. Requires employers to record and report accidents that occur in the workplace. Lays out rules for federal workplace inspections and penalties for violations of the act.

Employees alleging workplace discrimination that falls under the purview of the EEOC must report the alleged discrimination to the EEOC or one of the state-level fair employment offices that exist in every state. The EEOC has the right to investigate claims of discrimination or to initiate investigations itself. Many times the EEOC will attempt to work out a solution with the affected organization, which may or may not involve an admission of guilt by the employer. If conciliation fails, the EEOC also has the right to bring class-action discrimination lawsuits against organizations on behalf of a "class" of employees who have allegedly suffered from discrimination.

If the EEOC's investigation does not reveal a strong case of discrimination, the agency can still issue a "right-to-sue" letter to a plaintiff, which gives that person the right to bring their charges of discrimination against an employer to state or federal court, whichever is appropriate in a given case. Some claims of discrimination filed with the EEOC do not have merit and the EEOC often issues findings to that effect—but such findings still do not prevent the individual plaintiff from filing his or her own lawsuit against an employer.

For many years, most discrimination claims filed under Title VII were race discrimination cases. However, with the advent of sexual harassment lawsuits in the late 1970s and 1980s, sex discrimination cases became quite common, as well. Sexual harassment has become such a major employment law issue that it deserves special attention, which is provided in the next section.

SEXUAL HARASSMENT. Sexual harassment at the workplace is a long-standing problem, affecting working women, as well as many men. Sexual harassment came to light during the mid-1970s and has since gained a great deal of national attention. The growing attention to the topic stems from a number of well-publicized cases in the 1990s—the Clarence Thomas hearings, the 1991 Tailhook Convention where several women were severely harassed by naval pilots, and the accusations made by Arkansas state employee Paula Jones about then-governor Bill Clinton.

Sexual harassment is a form of sex discrimination and therefore violates Title VII of the Civil Rights Act. The number of sexual harassment complaints filed with the Equal Employment Opportunity Commission (EEOC) has increased at an alarming rate; it rose from

about 6,000 in 1991 to more than double this number in 2004. The majority of these complaints involve claims of unwanted physical contact, offensive language, sexual propositions, and socialization or date requests.

An employer should establish a written sexual harassment policy. The policy should specify grievance procedures by which employees can bring claims of harassment to management's attention. These procedures should provide employees with opportunities to bypass their supervisor if the supervisor is the one being accused. The company should also provide supervisory training that focuses on the legal definition of sexual harassment.

In addition to holding formal training sessions, top management should also meet with employees to emphasize management's strong commitment to keep the workplace free of harassment. The employer should also have investigative guidelines that maintain employee confidentiality. The EEOC recommends that a committee that consists of both men and women should investigate sexual harassment claims. Committee members should receive investigative training.

AGE DISCRIMINATION IN EMPLOYMENT ACT. The federal government added to employment law in 1967 by passing the Age Discrimination in Employment Act. This law prohibited discrimination in employment decisions on the basis of age, provided the person affected was between 40 and 70 years old. Initially, the law allowed mandatory retirement policies, but was later amended to remove the upper limit on age initially imposed by the law. Thus, as it stands today, the ADEA prohibits discrimination against applicants or employees who are aged 40 and older, with no upper age limit.

For many years, age discrimination suits have been more difficult to prove against organizations because the person alleging discrimination had to show that the employer had a specific intent to discriminate on the basis of age, that there was no other explanation for the employment decision other than age, and that there was a specific employer policy or procedures that was discriminatory. In short, the person had to prove what is called "disparate treatment" under employment law.

However, a 2005 Supreme Court decision involving public workers in the city of Jackson, Mississippi, appears to have changed the interpretation of the law. Although the ramifications of this case remain to be fully determined, and will probably depend on its use in future court rulings, it appears that those alleging age discrimination can now proceed under what is called the "disparate impact" theory of discrimination. This means that the person or persons alleging age discrimination would not have to prove discriminatory intent. Instead, the person would only have to show that some action by the employer had a disproportionately negative effect on workers 40 and older. Once this was done, the employer would have the burden to show that the discriminatory action was job-related or consistent with business necessity. If this ruling's interpretation stands, it will probably increase the number of age discrimination cases filed against employers in the U.S.

AMERICANS WITH DISABILITIES ACT. The Americans with Disabilities Act of 1990 (ADA) prohibits discrimination in any employment decision against qualified applicants or employees with a disability. It also requires employers to reasonably accommodate the disabilities of applicants and employees. The ADA applies to the same set of companies covered by Title VII.

Three definitions are key to understanding the ADA. First, is the definition of disability, which is any physical or mental impairment that prevents the person from engaging in a major life activity. Covered disabilities include both physical and mental impairments. The extent of the disabilities covered is one of the more controversial aspects of the law. Some conditions are specifically excluded from coverage, including pyromania and kleptomania.

A second key definition is that of qualification. Under the ADA, a person with a disability is qualified for a job if he or she can perform the essential functions of the job with or without accommodation. This means that the person does not have to be able to do every single duty of the job, if they are very minor, but that he or she must be able to perform the major responsibilities of the job.

A third important definition under the law is reasonable accommodation. A reasonable accommodation is one that does not cause an undue hardship on the employer. Undue hardship would be determined on a case-by-case basis, and consider the cost and inconvenience to the employer of accommodating the disability.

The ADA has resulted in many disability discrimination complaints with the EEOC, as well as many lawsuits against employers. Although the law, like most, has had unintended consequences, its net effect appears to have been a positive one, as it seems to have increased opportunities for qualified, disabled workers.

CIVIL RIGHTS ACT OF 1991. In the late 1980s, the Supreme Court decided several employment discrimination cases that made it more difficult for employees to prove discrimination cases in court. Concerned about these cases, the U.S. Congress addressed several issues by passing the 1991 Civil Rights Act.

The law did several major things. First, it codified the "disparate impact" theory of discrimination, which

means that employees alleging discrimination can sometimes more easily prove a discrimination case. Second, the law allowed plaintiffs to have jury trials under some circumstances, instead of "bench" trials decided by a federal judge. Juries tend to be sympathetic to plaintiffs, particularly those suing large corporations, so this was a major victory for employees. Third, the law extended Title VII of the Civil Rights Act to certain types of organizations that had not been covered before (for example, the law extended the reach of Title VII to the federal government, which prior to passage had been exempt). Finally, the law banned the "race norming" of employment test scores.

COMPENSATION LAWS

FAIR LABOR STANDARDS ACT. The most important compensation law is the Fair Labor Standards Act (FLSA), passed in 1938. This law provides the basic framework within which millions of U.S. workers are paid. These workers are called "non-exempt" workers. These workers are those that, by virtue of the type of jobs they hold, must be paid in accordance with the FLSA. Exempt workers, who are not covered by the law, are primarily executive, managerial, professional, and highly-paid technical workers.

One important provision of the law is the federal minimum wage provision. Non-exempt workers must be paid a basic minimum wage, which has periodically been raised to higher levels. Non-exempt workers must also be paid overtime for hours worked in excess of a standard workweek, which in most industries is 40 hours per week.

A final provision of the act does not involve compensation directly, but the employment of minors. The law prevents the employment of minors in almost all jobs before the age of fourteen, and places fairly stringent restrictions on the employment of children between the ages of fourteen and eighteen.

EQUAL PAY ACT. The Equal Pay Act was passed in 1963 as an amendment to the FLSA. The Equal Pay Act requires a single employer to pay men and women equally for doing "substantially" the same job for the employer. An employer is allowed to pay men and women differently if the difference is based on merit, quantity of production, quality of production, or any other factor other than gender. Thus, the law does not mean that men and women doing the same work can't be paid differently, only that the difference must not be based on the sex of the worker.

LABOR RELATIONS LAWS

THE WAGNER ACT. The Wagner Act, otherwise known as the National Labor Relations Act, provides the basic framework within which labor union and management interact in the United States. The law was passed in 1935. It guarantees workers' basic right to organize. It created the National Labor Relations Board to oversee union-management relations. It provided for an election process for unionization efforts in U.S. businesses. It prohibited five major "unfair labor practices" on the part of U.S. employers.

THE TAFT-HARTLEY ACT. In 1947, the U.S. Congress enacted the Taft-Hartley Act by overriding President Harry Truman's veto. Whereas the Wagner Act is "pro-labor" in its effect, the Taft-Hartley Act is most decidedly "pro-business" in its provisions.

The Taft-Hartley Act banned the union security arrangement known as the closed shop. In a closed shop, individuals must belong to the appropriate union before they can be hired by a company. This arrangement is now banned in all but a handful of situations.

Taft-Hartley also gave the states the right to pass what are called "right-to-work" laws, which create "open shops." An open shop exists when no individual can be compelled to join a union before or after they are hired, even if the employer's workforce is organized. Labor unions detest open shops, as they make it difficult for unionization efforts to succeed. Twenty-two states are "right-to-work" states; most in the South and Southwest.

Taft-Hartley also laid out several "unfair practices" of labor unions and banned them. Finally, the act gave the U.S. president authority to issue an injunction temporarily stopping a strike, if the strike is deemed to be causing a threat to national security or creating an emergency detrimental to the national interest.

HEALTH AND SAFETY LAWS

The primary law relating to the health and safety of U.S. workers is the Occupational Safety and Health Act , passed in 1970. This law is controversial because it imposes very complex and detailed safety standards on thousands of U.S. businesses. The Occupational Safety and Health Administration (OSHA) was created to administer and enforce the law.

OSHA has general safety standards for almost all employers and specific standards for certain industries. It has workplace inspectors who have the right to, with a search warrant, inspect the conditions in almost any business in the United States. OSHA has the right to respond to employee complaints of unsafe conditions and in fact, the highest priority for OSHA inspections are those situations that pose an imminent threat to the health and safety of workers.

OSHA has the power to impose penalties on employers who violate its provisions. The severity of the penalties will vary based on the seriousness of the

violation, a first or repeat offense, the cooperation of the business, and the size of the business. Although many U.S. companies do not like dealing with OSHA, it does appear that the law and its enforcement has resulted in improvements in the health and safety conditions in U.S. businesses.

OTHER MAJOR LAWS

THE FAMILY AND MEDICAL LEAVE ACT. The Family and Medical Leave Act (FMLA) of 1993 requires all employers with fifty or more employees to grant workers up to twelve weeks of unpaid leave per year for the care of a newborn child, an ill family member, or their own illness. Employees may take the leave all at once or in increments.

While it helps employees, the FMLA can be quite costly to employers when they must replace workers on leave. Because women are more likely to use these leaves, companies that employ a majority of women are especially hard-hit. Consider the case of Sibley Memorial Hospital of Washington, D.C.: The hospital ran into difficulty when trying to replace an employee on leave. Because she worked in an extremely specialized position, the hospital could not find a replacement locally. In addition to paying the on-leave employee's medical benefits, Sibley had to pay for the replacement worker's round-trip airfare, weekly housing, car rental, and salary. At the end of the original employee's leave, she informed the hospital that she would not be returning to work.

The FMLA protects employers from this type of problem in two ways: (1) it allows employers to exempt workers with highest earnings, and (2) it requires employees to reimburse the employer for insurance premiums paid during the leave if they are able to return to work, yet choose not to do so. While Sibley Memorial Hospital was not able to utilize the first protection (the employee's salary was not among the top 10 percent), it was reimbursed for its insurance payments.

EMPLOYEE PRIVACY LAWS. Privacy has become one of the most important workplace issues of the twenty-first century. Privacy concerns surface at the workplace when organizations attempt to collect and/or disseminate information about employees in ways that intrude upon their privacy. Privacy issues also surface when employee behavior is constrained by certain workplace rules and policies, denying employees the right to be "let alone," or to do as they please.

Employees may justifiably lodge an invasion of a privacy claim if the information collected by an employer is irrelevant to the employer's business needs. A company should have a clear business reason for each piece of information collected and maintained on an individual. For example, a company should not collect information about an employee's spouse unless that information is needed for benefits administration or some other useful purpose.

As a general rule, information pertaining to such personal issues as home ownership, previous marriages, sexual orientation, parents' occupations, and previous arrest records are usually of no concern to employers, and efforts to collect such information could pose legal threats to the company.

PRIVACY ACT. Should employees have access to data kept on them? According to the Privacy Act of 1974, public-sector employees must be given access to any information in their files. Specifically, the act states that employees have the right to:

- Determine what information is being kept on them by their employers.
- Review that information.
- Correct erroneous information.
- Prevent the information from being used for a purpose other than that for which it was collected.

While the Privacy Act does not cover private-sector employees, most companies do allow employees to access to their own records as a good employee-relations gesture. Prohibiting employees from seeing their own files may create doubts and suspicions regarding the company's good faith efforts to create business-relevant personnel files.

FREEDOM OF INFORMATION ACT. The release of information maintained by government agencies is regulated by the Freedom of Information Act of 1966. The purpose of the act is to make most government records available to the public. Specifically, the act states that any individual may gain access to these records with proper authorization.

The act makes exceptions for personnel files and medical information. However, the public may still be given access to this information if its right to know outweighs the individual's right to privacy. In the private sector, legal constraints in this area stem from the common law of defamation. When releasing information about an employee, the employer must ensure that the information is given in good faith, no malice is intended, and the receiving party has a legitimate reason for the information.

SEE ALSO: Diversity; Employment Law and Compliance; Human Resource Management; Quality of Work Life; Safety in the Workplace

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Revised by Tim Barnett

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EMPOWERMENT

A primary goal of employee empowerment is to give workers a greater voice in decisions about work-related matters. Their decision-making authority can range from offering suggestions to exercising veto power over management decisions. Although the range of decisions that employees may be involved in depends on the organization, possible areas include: how jobs are to be performed, working conditions, company policies, work hours, peer review, and how supervisors are evaluated.

Many experts believe that organizations can improve productivity through employee empowerment. This occurs in one of two main ways. First, empowerment can strengthen motivation by providing employees with the opportunity to attain intrinsic rewards from their work, such as a greater sense of accomplishment and a feeling of importance. In some cases, intrinsic rewards such as job satisfaction and a sense of purposeful work can be more powerful than extrinsic rewards such as higher wages or bonuses. Motivated employees clearly tend to put forth more effort than those who are less motivated. The second means by which employee empowerment can increase productivity is through better decisions. Especially when decisions require task-specific knowledge, those on the front line can often better identify problems.

Empowering employees to identify problems—combined with higher-level management involvement in coordinating solutions across departmental boundaries within the firm—can enhance the overall decision-making process and increase organizational learning. For example, Toyota Motor Company empowers some of its employees to identify and help remedy problems occurring during product assembly. An automobile coming off Toyota's assembly line with a paint defect is seen as an opportunity to delve into the root cause of the defect, as opposed to merely fixing the defect and passing it on to distributors for resale. Solutions resulting from employee involvement tend to have more employee buy-in when it comes to implementation. Because such solutions are generated from the front lines, this further enhances the potential for productivity improvements by reducing the attitude that solutions are "passed down from above."

A number of different human resource management programs are available that grant employee empowerment to some extent. A number of these are discussed in the following sections, including informal participative decision-making programs, job enrichment, continuous improvement, and self-managed work teams.

INFORMAL PARTICIPATIVE DECISION-MAKING PROGRAMS

Informal participative decision-making programs involve managers and subordinates making joint decisions on a daily basis. Employees do not enjoy blanket authority to make all work-related decisions; managers decide just how much decision-making authority employees should have in each instance. The amount of authority varies depending on such situational factors as decision complexity and the importance of employee acceptance of the decision. While it may seem obvious, one key to empowerment is choosing under what conditions to empower employees. Employees should be empowered in situations where they can make decisions that are as good as, or better than, those made by their managers.

One possible problem is that the interests of workers may not align with those of the organization. For example, at one university a department head delegated the task of determining job performance standards to the faculty. Because the faculty believed that it was not in their own best interest to develop challenging standards, the standards they eventually developed were easily attainable. The success of empowerment also often hinges on whether employees want to participate in decision making. Some employees, for instance, have no desire to make work-related decisions. Suggestions for increasing employee participation levels include work situations where:

1. All possible solutions are equally effective. For example, consider employee vacation schedules. If one solution is as good as another, employee groups can be empowered to work out the scheduling.

2. Managers do not possess sufficient information or expertise to make a quality decision without employee input. Managers should at least consult their employees before a decision is reached to prevent overlooking solutions

that may appear obvious to front-line employees, but which may be more evasive for higher-level managers who are unfamiliar with front-line practices.

3. Managers do not know exactly what information is needed or how to find it. Again, managers should at least consult their employees before a decision is reached to determine whether employees have the information required to make an effective decision.

4. The group's acceptance of or commitment to effective implementation is crucial and the group is unlikely to accept a manager's unilateral decision. If employees' acceptance is crucial, participative decision-making should be used. As alluded to previously, employees tend to accept decisions more willingly if they have had a voice in the decision-making process. One caveat is that the participation should be genuine; managers should not ask for employee input simply to give the appearance of participation. Employees can usually recognize this ploy and, if they do, feelings of distrust will likely develop.

5. Employees' goals are aligned with those of management. If employees do not share management's goals, participative decision-making would be inappropriate, because the two parties would be at odds.

Several studies have examined the effects of informal participative decision-making programs. While the results have been mixed and thus cannot be considered definitive, most studies have found that informal participative decision-making programs do, in fact, have a positive impact on productivity.

JOB ENRICHMENT

Sometimes, employees are not motivated because of the way their jobs are designed. For example, consider the job of an assembly-line worker who does nothing but place a screw in a hole as the product passes by on the production line. Such a job provides little opportunity for workers to gain intrinsic rewards. Job enrichment aims to redesign jobs to be more intrinsically rewarding. Certain job characteristics help managers to build enrichment into jobs. These characteristics (summarized in Exhibit 1) include:

- Skill variety—The various skills needed to perform a given task, where increased skill requirements are associated with increased motivation
- Task identity—The degree to which employees perceive how their job impacts the overall production of a product or service
- Task significance—Whether the task is meaningful beyond the task itself
- Autonomy—Employee discretion over how to perform a task
- Feedback—Input from peers and supervisors regarding the quality of an employee's work

When these characteristics are present in a job, employees tend to be more motivated than when these characteristics are not present. However, there is not a "silver bullet" for motivating employees through empowerment; there is considerable variation in the degree to which each of these empowerment factors motivates individuals. On the other hand, it is a mistake

Exhibit 1

Job Characteristics That Enhance Intrinsic Motivation

1. **Skill Variety: The degree to which a job requires a variety of different activities to carry out the work. A job has high skill variety if it requires a number of different skills and talents.**
2. **Task Identity: The degree to which a job requires completion of the whole and identifiable piece of work. A job has high task identity, if the worker does the job from the beginning to end with a visible outcome.**
3. **Task Significance: The degree to which the job has a substantial impact on the lives of other people, whether these people are in the immediate organization or in the world at large. A job has a task significance if people benefit greatly from results of the job.**
4. **Autonomy: The degree to which the job provides the workers with autonomy. A job has high autonomy if workers are given substantial freedom, independence, and discretion in scheduling the work and determining the procedures to be used in carrying it out.**
5. **Job Feedback: The degree to which the job provides the worker with knowledge of results. A job has high job feedback if carrying out the work activities required by the job provides the individual with direct and clear information about the effectiveness of his or her performance.**

to think that because certain individuals do not respond equally to such job designs, overall productivity will not increase as a result of empowerment through proper job design and enrichment. In general, productivity tends to increase despite the inherent variation of specific effects.

Once a job has been identified as needing enrichment, the organization must redesign it to incorporate these characteristics: skill variety, task identity, task significance, autonomy, and feedback. Some specific job enrichment techniques include:

- Combining tasks. This involves assigning tasks performed by different workers to a single individual. For example, in a furniture factory, rather than working on just one part of the production process, each person could assemble, sand, and stain an entire table or chair. This change would increase skill variety, as well as task identity, as each worker would be responsible for the job from start to finish.
- Establish client relationships. Client relationships could be established by putting the worker in touch with customers. For example, an auto dealership service department could allow its mechanics to discuss service problems directly with customers, rather than going through the service manager. By establishing client relationships, skill variety is increased because workers have a chance to develop interpersonal skills. It also provides them with a chance to do a larger part of the job (task identity), to see how their work impacts customers (task significance), and to have more decision-making authority (autonomy).
- Reduce direct supervision. Workers gain autonomy when they are given responsibility for doing things previously done by supervisors. For instance, clerks could be allowed to check for their own errors or be allowed to order supplies directly.

Many organizations have successfully enriched otherwise dull jobs, thereby empowering employees to have greater control over their work and the decisions affecting them. In addition to increased productivity, empowerment also may lead to improvements in product or service quality, reduced absenteeism rates, and increased employee retention. In situations where enriched jobs become less automated, however, production may become less efficient. Job enrichment would thus be ill-advised in situations where the loss in efficiency cannot be offset by productivity gains stemming from increased motivation. Moreover, employees preferring highly automated, easy jobs are likely to oppose job enrichment efforts.

CONTINUOUS IMPROVEMENT

Companies adopting continuous improvement attempt to build quality into all phases of product or service design, production, and delivery. Often referred to as total quality management, these programs empower workers to trace product or service problems to their root causes and redesign production processes to eliminate them using various problem-solving and statistical techniques. In these situations, empowerment arises from the need to involve employees at nearly all organizational levels in continuous improvement efforts. The use of continuous improvement programs have grown rapidly, built on the successful experiences of numerous companies. Xerox, for example, was able to decrease the number of customer complaints it received by 38 percent after implementing continuous improvement methods, and Motorola reduced the number of defects in its products by 80 percent. Proponents of self-managed work teams claim they succeed because they are customer-focused and promote sound management practices like teamwork, continuous learning, and continuous improvement.

SELF-MANAGED WORK TEAMS

Self-managed work teams have the authority to manage themselves. Rather than having managers control their work, self-managed work teams incorporate group norms to regulate activities. They plan, organize, coordinate, and take corrective actions. Some can hire, fire, and discipline team members with little intervention from higher levels of management. In short, self-managed work teams are given responsibilities usually held by managers, but control comes from the concertive influence of the team rather than from more formal means. Not surprisingly, managers' jobs are minimized and group norms are maximized when self-managed work teams are used. Self-managed work teams are not for all organizations; characteristic needed for success include:

- Technical skills. Cross-training, which allows team members to move from job to job within the team, is essential. Thus, team members should receive training in the specific skills that will broaden their personal contributions to the overall effort.
- Interpersonal skills. Team members must communicate effectively, both one-on-one and in groups. Cooperative decision-making within and among teams demands the skills of group problem solving, influencing others, and resolving conflicts. Team members must learn problem-solving skills that assist in zeroing in on problem areas, gathering facts, analyzing causes, generating alternatives, selecting solutions, and other related facets.

- Administrative skills. Self-managed work teams must perform tasks formerly handled by supervisors. The team must learn how to keep records, report procedures, budget, schedule, monitor, and appraise the performance of team members.

Research findings concerning self-managing teams have been largely positive. Proponents claim that self-managed work teams are effective because they empower employees to make decisions that affect their day-to-day business lives. Thus, these teams radically change the way that employees value and think about their jobs. Other benefits associated with self-managed teams include greater flexibility to respond to market changes and competitive pressures.

However, there are a number of drawbacks. As noted previously, self-managed teams are not for every organization. Some may be better served by other ways of empowerment, rather than the dramatic empowerment seen with self-managed teams. Drawbacks can include:

- Rivalry within and across teams
- A shortage of time and skills on the team to deal with conventional management concerns like hiring, training, and resolving interpersonal disputes
- Difficulty appraising employees in the absence of a traditional management figure

In addition to these concerns, one of the most difficult issues companies face with self-directed work teams is deciding how to effectively implement them. A number of obstacles must be overcome. Sometimes, managers are reluctant to relinquish control and employees are reluctant to accept new responsibilities. To prepare team members f\or self-management, the organization must provide a considerable amount of training. Without proper training, teams are likely to become bogged down permanently in mid-process.

As the previous discussion suggests, empowerment is not a single event or process, but rather takes a variety of forms. The degree of empowerment ranges from asking employees for input to allowing total discretion. Informal participative decision-making programs, job enrichment, continuous improvement, and self-managed work teams are some of the ways that organizations empower employees, giving them more control, but at the same time increasing overall organizational productivity.

SEE ALSO: Continuous Improvement; Human Resource Management; Quality and Total Quality Management; Teams and Teamwork

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ENTERPRISE RESOURCE PLANNING

Enterprise resource planning (ERP) refers to a computer information system that integrates all the business activities and processes throughout an entire organization. ERP systems incorporate many of the features available in other types of manufacturing programs, such as project management, supplier management, product data management, and scheduling. The objective of ERP is to provide seamless, real-time information to all employees throughout the enterprise. Companies commonly use ERP systems to communicate the progress of orders and projects throughout the supply chain, and to track the costs and availability of value-added services.

ERP systems offer companies the potential to streamline operations, eliminate overlap and bottlenecks, and save money and resources. But ERP systems are very expensive and time-consuming to implement, and surveys have shown that not all companies achieve the desired benefits. According to the online business resource *Darwin Executive Guides,* it is "a tall order, building a single software program that serves the needs of people in finance as well as it does the people in human resources and the warehouse. . . To do ERP right, the ways you do business will need to change and the ways people do their jobs will need to change too. And that kind of change doesn't come without pain."

EVOLUTION OF ERP

ERP is a part of an evolutionary process that began with material requirements planning (MRP). MRP is a computer-based, time-phased system for planning and controlling the production and inventory function of a firm-from the purchase of materials to the shipment of finished goods. It begins with the aggregation of demand for finished goods from a number of sources (orders, forecasts, and safety stock). This results in a master production schedule (MPS) for finished goods. Using this MPS and a bill-of-material (a listing for all component parts that make up the finished goods), the MRP logic determines the gross requirements for all component parts and subassemblies. From an inventory status file, the MRP logic deducts the on-hand inventory balance and all open orders to yield the net requirements for all parts. Then all requirements are offset by their lead times to provide a date by which an order must be released in order to avoid delaying the production of finished goods.

From this MRP logic evolved manufacturing resource planning (MRP II). Before MRP II, many firms maintained a separate computer system within each functional department, which led to the overlap in storage of much of the firm's information in several different databases. In some cases, the firm did not even know how many different databases held certain information, making it difficult, if not impossible, to update it. This could also cause confusion throughout the firm if different units (such as engineering, production, sales, and accounting) held different values for the same variables. MRP II expands the role of MRP by linking together such functions as business planning, sales and operations planning, capacity requirements planning, and all related support functions. The output from these MRP II functions can be integrated into financial reports, such as the business plan, purchase-commitment report, shipping budget, and inventory projections. MRP II is capable of addressing operational planning in units or financial planning in dollars, and has a simulation capacity that allows its users to analyze the potential consequences of alternative decisions.

The next step in the evolutionary process was enterprise resource planning (ERP), a term coined by the Gartner Group of Stamford, Connecticut. ERP extends the concept of the shared database to all functions within the firm. By entering information only once at the source and making it available to all employees, ERP enables each function to interact with one centralized database and server. Not only does this eliminate the need for different departments within the firm to reenter the same information over and over again into separate computer systems, but it also eliminates the incompatibility that was created by past practice.

FEATURES OF ERP

ERP is a hybrid of many different types of software, incorporating many of the features available in other programs. ERP provides a way to keep track of materials, inventory, human resources, billing, and purchase orders. It is also useful for managing various types of orders, from mass-customized orders where daily or weekly shifts occur within the plant or multiple plants, to products that are made-to-stock, made-to-order, or assembled-to-order.

Higher-level ERPs employ design engineering and engineering change control modules. These modules facilitate the development of new product-engineering information and provide for modification of existing bills of material, allowing engineers to support working models of items and bills of material prior to their production releases.

It is important to understand that ERPs are not cheap to implement and operate, nor can they be implemented overnight. Owens-Corning spent more than $100 million over the course of two years installing one of the most popular ERP systems, SAP AG's R/3 system. Microsoft spent $25 million over 10 months installing R/3. Chevron also spent $100 million on installation. Apparently, however, the benefits of ERP implementation and use can be enormous. Microsoft used it's ERP system to replace 33 different financial tracking systems used in 26 of its subsidiaries, with an expected savings of $18 million annually. In the same respect, Chevron expected to recoup its $100 million investment within two years.

Owens-Corning's aim was to offer buyers one-stop shopping for insulation, pipes, and roofing material. Use of the R/3 facilitated this goal by allowing sales representatives to quickly see what products were available at any plant or warehouse. Analog Devices use the R/3 to consolidate the products stored at its warehouse, thereby creating an international order-processing system that can calculate exchange rates automatically. ERP and supply chain management.

When ERP systems first appeared, they acted as the connection between front-office operations (e.g., sales and forecasting) and the day-to-day functions of manufacturing. As ERP technology has advanced, the systems have increasingly incorporated logistics and warehousing capabilities, further connecting them with the supply chain. Some ERP systems offer Internet functionality, which can provide real-time connectivity from suppliers to the end customer.

The result of ERP use is more than an automation of existing processes-it is a significantly new way of doing business that enables a firm to respond to market changes more rapidly and efficiently. This can apply to service firms as well as manufacturers. Many ERP

packages also let the user track and cost service products in the same way they compute the cost of making, storing, and shipping physical products.

SEE ALSO: Management Information Systems; Manufacturing Resources Planning

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ENTREPRENEURSHIP

Entrepreneurship is the process of identifying opportunities, marshalling the resources needed to take advantage of the opportunities, and creating a new venture for the purposes of providing needed products/services to customers and achieving a profit. The word "entrepreneurship" is taken from the French word "entreprendre," which means "to undertake." A person who engages in entrepreneurship is called an entrepreneur. Entrepreneurship occurs all over the world, but it is a particular characteristic of free-market economies. Countries with the highest rates of entrepreneurship include the United States, Canada, Israel, Italy, and Great Britain.

Entrepreneurship involves considerable risk, as the failure rate for new ventures is very high. Thus, to be successful, an entrepreneur must be able to tolerate and even thrive under conditions of risk and uncertainty. Successful entrepreneurship also requires innovativeness and creativity, as well as self-confidence, high levels of energy, and a strong need for achievement. Interest in entrepreneurship is at an all-time high. Most colleges and universities offer courses or even entire programs of study in entrepreneurship.

The process of entrepreneurship is complex and requires the aspiring entrepreneur to make many decisions. It begins with recognizing an opportunity and applying innovativeness and creativity to exploit the opportunity. The entrepreneur must engage in strategic thinking and identify a competitive advantage that will set the small business apart and provide customers a unique reason to patronize the business.

The outcomes of this strategic thinking should be a business plan, which is a written statement that provides a comprehensive blueprint for the new venture. Although every business plan should reflect the unique characteristics of the entrepreneur and the proposed new business, there are common elements that exist in most business plans. Typically, the business plan includes some or all of the following components:

- Executive Summary
- Description of the Firm's Product/Service
- Business Strategy
- Forecasted Financial Statement
- Loan or Investment Proposal

The executive summary provides a concise one to two page overview of the entire business plan. The description of the product or service should identify the key features and benefits of the product or service. The business strategy is the most detailed part of the business plan. Here, the plan provides the entrepreneur's vision and what he or she sees as the mission of the new venture. This section must also lay out key strategies in the areas of operations, marketing, and finance. The forecasted financial statements should include monthly and/or quarterly projected cash budgets, income statements, balance sheets, and capital expenditures. The loan or investment proposal should identify the type of financing required and a plan for repayment.

Entrepreneurship is an important, if not the most important, component of a successful market-based economy. Free economies require individuals who are willing to take risks by creating, organizing, and successfully running new businesses. Most entrepreneurs operate in the areas of small business and/or family-owned business. These are the engines of economic growth. If small businesses are defined as those having fewer than 100 employees, 99 percent of businesses in the U.S. are small. Ninety percent of these small businesses employ fewer than 20 employees. Yet, it is estimated that small businesses have created 85 percent of the new jobs in the U.S. since the early 1990s. Further, most of these small businesses are family-owned. Family-owned businesses

employ more than 50 million people and generate more than 50 percent of the nation's GDP. Thus, much emphasis is placed on public policies that will encourage entrepreneurial activity and nurture and sustain new ventures, small businesses, and family-owned businesses.

As a way of life, entrepreneurship has several advantages. It offers individuals the chance to be their own boss and to enjoy an independent lifestyle. It provides individuals the opportunity to develop and grow a new business that makes an impact on their community. And, of course, successful new ventures offer the tantalizing prospect of almost unlimited profit potential. However, as a lifestyle, entrepreneurship also has its downside. It requires a tremendous amount of personal commitment and long work hours, particularly in the early stages of new business startup. Uncertainty of income and the potential for financial loss are also potential negatives.

SEE ALSO: Angels and Venture Capitalists; Business Plan; Initial Public Offering; Strategic Planning Tools; Strategy Formulation; Succession Planning; SWOT Analysis

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ERGONOMICS

According to the U.S. Occupational Safety and Health Agency (OSHA), ergonomics is the science of fitting the job to the worker. The term comes from the Greek words *ergon,* meaning "work," and *nomoi,* meaning "natural laws." The goal of ergonomics is apply scientific information about human capabilities and limitations to design of work environments, systems, and tools in order to make them as safe, comfortable, and efficient as possible. Ergonomics thus seeks to minimize the physical demands on workers and optimize system performance. An ergonomist is a scientist who studies physiological, psychological, and engineering design aspects of a job, including such factors as fatigue, lighting required, tools used, equipment layout, and placement of controls.

PRINCIPLES OF ERGONOMICS

Although ergonomics officially came into being just 50 years ago, the principles have been understood for thousands of years. One just has to look at ancient hand tools to see how our ancestors intuitively understood the concept of physical fit. Even in the early 1900s, scientific management pioneers in time and motion study—such as the Gilbreths—experimented with the design of tools to find the most effective ways to do things. The real impetus for the foundation of ergonomics, however, came during World War I. The rapid development of new technology exceeded the limits of human capabilities in some instances. For example, poor design of controls and instruments in aircraft cockpits meant that pilots often made fatal mistakes.

Today, there are three main areas of specialization within the field of ergonomics: physical (the study of postures, movements, etc.); cognitive (the study of workload, stress, decision making, etc.); and organizational (the study of policies and processes). Experts recommend that companies apply the following basic principles of ergonomics when designing jobs:

- workers should be able to adopt several different postures that are safe and comfortable
- when workers must exert muscular force, they should be encouraged to use the largest possible muscle groups
- whenever possible, workers should be able to perform regular work activities with their joints in the middle of the range of movement

ERGONOMICS PROBLEMS

With the increasingly automated workplace, ergonomics problems are relatively common. One growing area of concern for many organizations is the number of work-related musculoskeletal disorders (MSDs). MSDs represent more than 100 different injuries that occur when there is a mismatch between the physical requirements of the job and the physical capacity of the human body. In 2000, OSHA estimated that more than 600,000 American workers experienced serious injuries due to overexertion or repetitive motion on the job. Back pain and various cumulative trauma disorders (CTDs), such as wrist tendonitis and carpal tunnel syndrome, may all stem from work-related overuse. Specific risk factors associated with MSDs include repetitive motion, heavy lifting, forceful exertion, contact stress, vibration, awkward posture, and rapid hand and wrist movement. Designing the work and the work environment properly through ergonomics can prevent MSDs, or at least reduce their incidence and severity.

The federal government's involvement in ergonomics started in the early 1980s when OSHA began discussing ergonomic issues with labor unions, trade associations, and professional organizations. First focusing on reducing back injuries resulting from manual lifting, OSHA's efforts broadened during the late 1980s to include cumulative trauma disorders. Through the 1990s OSHA signed approximately 15 corporate settlement agreements to bring ergonomic programs to nearly half a million workers. Chrysler, Ford, and General Motors were the first three major companies to sign such agreements. In 1994 OSHA began to work on an ergonomics standard, but tremendous opposition developed that resulted in Congress prohibiting use of OSHA funds to publish any proposed standard during fiscal year 1998. Nonetheless, OSHA made certain ergonomics recommendations, launched an ergonomics page on the Internet, and held stakeholder meetings on ergonomics in several cities through out the country.

OSHA ERGONOMICS STANDARDS

OSHA continued holding discussions with stakeholders while also working to refine its proposed ergonomics standard. The new standard was officially announced in November 2000 and took effect in January 2001. Among more than 1,600 pages of findings and recommendations, OSHA defined repetitive stress as a workplace hazard and ordered employers to take action to protect workers. The standard stated that employees who suffered repetitive stress injuries on the job were entitled to up to 90 days of injury leave at up to 90 percent of their regular pay rate. Representatives of a number of companies and industries criticized the new OSHA ergonomics standard as an undue burden on employers, while worker advocates praised the rules.

OSHA has attempted to assist companies in complying with the rules. For example, it released a video entitled "Ergonomic Programs That Work." The four employers featured in the video are Navistar, Russell Corporation, Woodpro Cabinetry, and Sequins International. Navistar established an effective ergonomics program using educational seminars with the help of a consultant, employee input, and widespread management support. Navistar's program led to a 66 percent reduction in workers' compensation costs. Similarly, Woodpro saved $42,000 in workers' compensation costs by changing conveyor levels and adding additional conveyors to reduce worker lifting. Russell Corporation found that small changes—such as new, adjustable tables and chairs—combined with adequate ergonomic training reduced the number of injuries by 50 percent over a six-year period. At Sequins International, Inc., consultants, workers, management, and the union viewed videotapes of employees working and then discussed ways to improve conditions. By replacing old chairs with ergonomically correct chairs, using new tables with adjustable heights, and launching an extensive educational program to share ergonomic techniques to prevent and correct MSDs, Sequins cut its workers' compensation cost from $96,000 to $4,500, and employee production and satisfaction increased significantly.

Even though statistics show that MSDs occur in large numbers and are costly to businesses; ergonomics remains a complex and controversial issue. Some employer associations and organizations oppose mandated ergonomic guidelines, believe the seriousness of injuries is exaggerated, and question what causes these injuries. Other organizations, however, view ergonomics as a value-added business strategy that can reduce costs and increase productivity.

SEE ALSO: Human Resource Management; Safety in the Workplace

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ETHICS

Webster's Collegiate Dictionary defines "ethics" as the "discipline dealing with what is good and bad and with moral duty and obligation," "a set of moral principles or value" or "a theory or system of moral values." Ethics assists individuals in deciding when an act is moral or immoral, right or wrong. Ethics can be grounded in natural law, religious tenets, parental and family influence, educational experiences, life experiences, and cultural and societal expectations.

Ethics in business, or business ethics as it is often called, is the application of the discipline, principles, and theories of ethics to the organizational context. Business ethics have been defined as "principles and standards that guide behavior in the world of business." Business ethics is also a descriptive term for the field of academic study in which many scholars conduct research and in which undergraduate and graduate students are exposed to ethics theory and practice, usually through the case method of analysis.

Ethical behavior in business is critical. When business firms are charged with infractions, and when employees of those firms come under legal investigation, there is a concern raised about moral behavior in business. Hence, the level of mutual trust, which is the foundation of our free-market economy, is threatened.

Although ethics in business has been an issue for academics, practitioners, and governmental regulators for decades, some believe that unethical, immoral, and/or illegal behavior is widespread in the business world. Numerous scandals in the late 1990s and early 2000s seemed to add credence to the criticism of business ethics. Corporate executives of WorldCom, a giant in the telecommunications field, admitted fraud and misrepresentation in financial statements. WorldCom's former CEO went on trial for alleged crimes related to this accounting ethics scandal.

A similar scandal engulfed Enron in the late 1990s and its former CEO, Ken Lay, also faced trial. Other notable ethical lapses were publicized involving ImClone, a biotechnological firm; Arthur Andersen, one of the largest and oldest public accounting firms; and Healthsouth, a large healthcare firm located in the southeast United States. These companies eventually suffered public humiliation, huge financial losses, and in some cases, bankruptcy or dissolution. The ethical and legal problems resulted in some corporate officials going to prison, many employees losing their jobs, and thousands of stockholders losing some or all of their savings invested in the firms' stock.

Although the examples mentioned involved top management, huge sums of money, and thousands of stakeholders, business ethics is also concerned with the day-to-day ethical dilemmas faced by millions of workers at all levels of business enterprise. It is the awareness of and judgments made in ethical dilemmas by all that determines the overall level of ethics in business. Thus, the field of business ethics is concerned not only with financial and accounting irregularities involving billions of dollars, but all kinds of moral and ethical questions, large and small, faced by those who work in business organizations.

The discussion that follows is organized into three parts: (1) the major theories or "moral philosophies" that are applied to business ethics; (2) a well-established model of ethical decision-making in business; and (3) the factors that affect individual ethical decision-making in the business context.

APPROACHES TO ETHICAL DECISION-MAKING

Philosophers have studied and written about ethics for thousands of years. The moral philosophies or ethical "theories" that have been developed form the foundation for ethics in business. Table 1 shows some of the major ethical philosophies that are applied to business ethics. Each of the ethical philosophies is briefly considered in this section.

TELEOLOGY. Teleological theories of ethics focus on the consequences caused by an action and are often referred to as "consequentialist" theories. By far the most common teleological theories are egoism and utilitarianism.

EGOISM. Egoism defines right and wrong in terms of the consequences to one's self. Egoism is defined by self-interest. An egoist would weigh an ethical dilemma or issue in terms of how different courses of action would affect his or her physical, mental, or emotional well being. Thus, an egoist, when faced with a business decision, would tend to choose the course of action that he or she believes would best serve self-interest.

Although it seems likely that egoism would potentially lead to unethical and/or illegal behavior, this philosophy of ethics is, to some degree, at the heart of a free-market economy. Since the time of political economist Adam Smith, advocates of a free market unencumbered by governmental regulation have argued that individuals, each pursuing their own self-interest, would actually benefit society at large.

This point of view is notably espoused by the famous economist Milton Friedman, who suggested that the only moral obligation of business is to make a profit and obey the law. However, it should be noted that Smith, Friedman, and most others who advocate unregulated commerce, acknowledge that some restraints on individuals' selfish impulses are required.

Table 1
Approaches to Ethics in Business

Approach	Description
Teleological	Actions are judged as ethical or unethical based on their results.
Egoism	Actions are judged as ethical or unethical based on the consequences to one's self. Actions that maximize self-interest are preferred.
Utilitarianism	Actions are judged as ethical or unethical based on the consequences to "others." Actions that maximize the "good" (create the greatest good for the greatest number) are preferred.
Deontological	Actions are judged as ethical or unethical based on the inherent rights of individual and the intentions of the actor. Individuals are to be treated as means and not ends. It is the action itself that must be judged and not its consequences.
Justice	Actions are judged as ethical or unethical based on the fairness shown to those affected. Fairness may be determined by distributive, procedural, and/or interactional means.
Relativism	Actions are judged as ethical or unethical based on subjective factors that may vary from individual to individual, group to group, and culture to culture.

Adapted from: Ferrell, Fraedrich, and Ferrell, 2002, p. 57.

UTILITARIANISM. In the utilitarian approach to ethical reasoning, one emphasizes the utility, or the overall amount of good, that might be produced by an action or a decision. For example, companies decide to move their production facilities from one country to another. How much good is expected from the move? How much harm? If the good appears to outweigh the harm, the decision to move may be deemed an ethical one, by the utilitarian yardstick.

This approach also encompasses what has been referred to as cost-benefit analysis. In this, the costs and benefits of a decision, a policy, or an action are compared. Sometimes these can be measured in economic, social, human, or even emotional terms. When all the costs are added and compared with the results, if the benefits outweigh the costs, then the action may be considered ethical.

One fair criticism of this approach is that it is difficult to accurately measure costs and benefits. Another criticism is that the rights of those in the minority may be overlooked.

Utilitarianism is like egoism in that it advocates judging actions by their consequences, but unlike egoism utilitarianism focuses on determining the course of action that will produce the greatest good for the greatest number of people. Thus, it is the ends that determine the morality of an action and not the action itself (or the intent of the actor).

Utilitarianism is probably the dominant moral philosophy in business ethics. Utilitarianism is attractive to many business people, since the philosophy acknowledges that many actions result in good consequences for some, but bad consequences for others. This is certainly true of many decisions in business.

DEONTOLOGY. Deontological theories of ethics focus on (1) the rights of all individuals and (2) the intentions of the person(s) performing an action. Deontological theories differ substantially from utilitarian views on ethics and would not allow, for example, the harming of some individuals in order to help others. To the deontologist, each person must be treated with the same level of respect and no one should be treated as a means to an end.

Deontology proposes that the principles of ethics are permanent and unchanging—and that adherence to these principles is at the heart of ethical behavior. Many deontologists believe that the rights of individuals are grounded in "natural law." Deontology is most closely associated with the German philosopher Immanuel Kant.

JUSTICE. Justice-based theories of ethics concern the perceived fairness of actions. A just (ethical) action is one that treats all fairly and consistently in accord with ethical or legal standards. Justice theories of ethics are closely associated with the philosopher John Rawls.

To determine the fairness of an action, one often appeals to distributive, procedural, and/or interactional rules. Distributive fairness is based on the outcomes received by individuals and their perceptions of these outcomes. Procedural fairness is based on the processes (policies, procedures, rules) employed to reach decisions. Individuals evaluate the fairness of these processes in addition to (or instead of) the outcomes received.

Finally, interactional fairness relates to the personal treatment one receives in the administration of a decision-making process. Interpersonal fairness has to do with the respect and consideration shown in the administration of decisions. Informational fairness has to do with the explanations and accounts provided for the decisions made.

The study of organizational justice has become a major field within organizational behavior. To date,

however, there has not been a complete integration between justice perceptions and ethical theory.

RELATIVISM. Teleological, utilitarian, and justice theories of ethics are all "universal" theories, in that they purport to advance principles of morality that are permanent and relatively enduring. Relativism states that there are no universal principles of ethics and that right and wrong must be determined by each individual or group.

The relativist believes that standards of right and wrong change over time and are different across cultures—and does not accept that some ethical standards or values are superior to others. The concept of relativism can probably be summarized as "What's right for one may not be right for another," or "When in Rome, do as the Romans do."

INDIVIDUAL ETHICAL DECISION-MAKING

There are many approaches to the individual ethical decision-making process in business. However, one of the more common was developed by James Rest and has been called the four-step or four-stage model of individual ethical decision-making. Numerous scholars have applied this theory in the business context. The four steps include: ethical issue recognition, ethical (moral) judgment, ethical (moral) intent, and ethical (moral) behavior.

ETHICAL ISSUE RECOGNITION. Before a person can apply any standards of ethical philosophy to an issue, he or she must first comprehend that the issue has an ethical component. This means that the ethical decision-making process must be "triggered" or set in motion by the awareness of an ethical dilemma. Some individuals are likely to be more sensitive to potential ethical problems than others. Numerous factors can affect whether someone recognizes an ethical issue; some of these factors are discussed in the next section.

ETHICAL (MORAL) JUDGMENT. If an individual is confronted with a situation or issue that he or she recognizes as having an ethical component or posing an ethical dilemma, the individual will probably form some overall impression or judgment about the rightness or wrongness of the issue. The individual may reach this judgment in a variety of ways, as noted in the earlier section on ethical philosophy.

ETHICAL (MORAL) INTENT. Once an individual reaches an ethical judgment about a situation or issue, the next stage in the decision-making process is to form a behavioral intent. That is, the individual decides what he or she will do (or not do) in regard to the perceived ethical dilemma.

According to research, ethical judgments are a strong predictor of behavioral intent. However, individuals do not always form intentions to behave that are in accord with their judgments, as various situational factors may act to influence the individual otherwise.

ETHICAL (MORAL) BEHAVIOR. The final stage in the four-step model of ethical decision-making is to engage in some behavior in regard to the ethical dilemma. Research shows that behavioral intentions are the strongest predictor of actual behavior in general, and ethical behavior in particular. However, individuals do now always behave consistent with either their judgments or intentions in regard to ethical issues. This is particularly a problem in the business context, as peer group members, supervisors, and organizational culture may influence individuals to act in ways that are inconsistent with their own moral judgments and behavioral intentions.

Some specific factors that influence the individual ethical decision-making process, as outlined above, are presented in the final section of this essay.

FACTORS AFFECTING ETHICAL DECISION-MAKING

In general, there are three types of influences on ethical decision-making in business: (1) individual difference factors, (2) situational (organizational) factors, and (3) issue-related factors.

INDIVIDUAL DIFFERENCE FACTORS. Individual difference factors are personal factors about an individual that may influence their sensitivity to ethical issues, their judgment about such issues, and their related behavior. Research has identified many personal characteristics that impact ethical decision-making. The individual difference factor that has received the most research support is "cognitive moral development."

This framework, developed by Lawrence Kohlberg in the 1960s and extended by Kohlberg and other researchers in the subsequent years, helps to explain why different people make different evaluations when confronted with the same ethical issue. It posits that an individual's level of "moral development" affects their ethical issue recognition, judgment, behavioral intentions, and behavior.

According to the theory, individuals' level of moral development passes through stages as they mature. Theoretically, there are three major levels of development. The lowest level of moral development is termed the "pre-conventional" level. At the two stages of this level, the individual typically will evaluate ethical issues in light of a desire to avoid punishment and/or seek personal reward. The pre-conventional level of moral development is usually associated with small children or adolescents.

The middle level of development is called the "conventional" level. At the stages of the conventional level, the individual assesses ethical issues on the basis

of the fairness to others and a desire to conform to societal rules and expectations. Thus, the individual looks outside him or herself to determine right and wrong. According to Kohlberg, most adults operate at the conventional level of moral reasoning.

The highest stage of moral development is the "principled" level. The principled level, the individual is likely to apply principles (which may be utilitarian, deontological, or justice) to ethical issues in an attempt to resolve them. According to Kohlberg, a principled person looks inside him or herself and is less likely to be influenced by situational (organizational) expectations.

The cognitive moral development framework is relevant to business ethics because it offers a powerful explanation of individual differences in ethical reasoning. Individuals at different levels of moral development are likely to think differently about ethical issues and resolve them differently.

SITUATIONAL (ORGANIZATIONAL) FACTORS. Individuals' ethical issue recognition, judgment, and behavior are affected by contextual factors. In the business ethics context, the organizational factors that affect ethical decision-making include the work group, the supervisor, organizational policies and procedures, organizational codes of conduct, and the overall organizational culture. Each of these factors, individually and collectively, can cause individuals to reach different conclusions about ethical issues than they would have on their own. This section looks at one of these organizational factors, codes of conduct, in more detail.

Codes of conduct are formal policies, procedures, and enforcement mechanisms that spell out the moral and ethical expectations of the organization. A key part of organizational codes of conduct are written ethics codes. Ethics codes are statements of the norms and beliefs of an organization. These norms and beliefs are generally proposed, discussed, and defined by the senior executives in the firm. Whatever process is used for their determination, the norms and beliefs are then disseminated throughout the firm.

An example of a code item would be, "Employees of this company will not accept personal gifts with a monetary value over $25 in total from any business friend or associate, and they are expected to pay their full share of the costs for meals or other entertainment (concerts, the theater, sporting events, etc.) that have a value above $25 per person." Hosmer points out that the norms in an ethical code are generally expressed as a series of negative statements, for it is easier to list the things a person should not do than to be precise about the things a person should.

Almost all large companies and many small companies have ethics codes. However, in and of themselves ethics codes are unlikely to influence individuals to be more ethical in the conduct of business. To be effective, ethics codes must be part of a value system that permeates the culture of the organization. Executives must display genuine commitment to the ideals expressed in the written code—if their behavior is inconsistent with the formal code, the code's effectiveness will be reduced considerably.

At a minimum, the code of conduct must be specific to the ethical issues confronted in the particular industry or company. It should be the subject of ethics training that focuses on actual dilemmas likely to be faced by employees in the organization. The conduct code must contain communication mechanisms for the dissemination of the organizational ethical standards and for the reporting of perceived wrongdoing within the organization by employees.

Organizations must also ensure that perceived ethical violations are adequately investigated and that wrongdoing is punished. Research suggests that unless ethical behavior is rewarded and unethical behavior punished, that written codes of conduct are unlikely to be effective.

ISSUE-RELATED FACTORS. Conceptual research by Thomas Jones in the 1990s and subsequent empirical studies suggest that ethical issues in business must have a certain level of "moral intensity" before they will trigger ethical decision-making processes. Thus, individual and situational factors are unlikely to influence decision-making for issues considered by the individual to be minor.

Certain characteristics of issues determine their moral intensity. In general, the research suggests that issues with more serious consequences are more likely to reach the threshold level of intensity. Likewise, issues that are deemed by a societal consensus to be ethical or unethical are more likely to trigger ethical decision-making processes.

In summary, business ethics is an exceedingly complicated area, one that has contemporary significance for all business practitioners. There are, however, guidelines in place for effective ethical decision making. These all have their positive and negative sides, but taken together, they may assist the businessperson to steer toward the most ethical decision possible under a particular set of circumstances.

SEE ALSO: Goals and Goal Setting; Mission and Vision Statements

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EUROPEAN UNION

The European Union (EU) is an economic and political federation comprising 25 countries. The 15 original member nations are: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Italy, Luxembourg, the Netherlands, Portugal, the Republic of Ireland, Spain, Sweden, and the United Kingdom. Ten new members as of May 2004 are: Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, Slovakia, and Slovenia. The EU represents the latest and most successful in a series of efforts to unify Europe, including many attempts to achieve unity through force of arms such as those seen in the campaigns of Napoleon Bonaparte and World War II.

In the wake of the Second World War, which devastated the European infrastructure and economies, efforts began to forge political union through increasing economic interdependence. In 1951 the European Coal and Steel Community (ECSC) was formed to coordinate the production and trading of coal and steel within Europe. In 1957 the member states of the ECSC ratified two treaties creating the European Atomic Energy Community (Euratom) for the collaborative development of commercial nuclear power, and the European Economic Community (EEC), an international trade body whose role was to gradually eliminate national tariffs and other barriers to international trade involving member countries. Initially the EEC, or, as it was more frequently referred to at the time, the Common Market, called for a twelve to fifteen year period for the institution of a common external tariff among its members, but the timetable was accelerated and a common tariff was instituted in 1967.

Despite this initial success, participation in the EEC was limited to Belgium, France, Germany, Italy, Luxembourg, and the Netherlands. Immediately following the creation of the EEC a rival trade confederation known as the European Free Trade Association (EFTA) was created by Austria, Britain, Denmark, Finland, Norway, Portugal, Sweden, and Switzerland. Although its goals were less comprehensive than those of the EEC, the existence of the EFTA delayed European economic and political unity.

By 1961 the United Kingdom indicated its willingness to join the Common Market if allowed to retain certain tariff structures which favored trade between Britain and its Commonwealth. Negotiations between the EEC and the United Kingdom began, but insurmountable differences arose and Britain was denied access to the Common Market in 1963. Following this setback, however, the Common Market countries worked to strengthen the ties between themselves, culminating in the merger of the ECSC, EEC, and Euratom to form the European Community (EC) in 1967. In the interim the importance of the Commonwealth to the British economy waned considerably and by 1973 Britain, Denmark, and the Republic of Ireland had joined the EC. Greece followed suit in 1981, followed by Portugal and Spain in 1986 and Austria, Finland, and Sweden in 1995.

Even as it expanded the EC worked to strengthen the economic integration of its membership, establishing a European Monetary System (EMS), featuring the European Currency Unit (ECU, later known as the Euro), in 1979 and passing the Single European Act, which strengthened the EC's ability to regulate the economic, social, and foreign policies of its members, in 1987. The EC took its largest step to date toward true economic integration among its members with the 1992 ratification of the Treaty of European Union, after which the EC changed its name to the European Union (EU). The Treaty of European Union also created a central banking system for EU members, established the mechanisms and timetable for the adoption of the Euro as the common currency among members, and further strengthened the EU's ability to influence the public and foreign policies of its members.

Although the EU has accomplished a great deal in its first four years of existence, many hurdles must still be crossed before true European economic unity

can be achieved. Many EU nations experienced great difficulty in meeting the provisions required by the EU for joining the EMS, although eleven countries met them by the 1 January 1999 deadline. Meeting these provisions forced several EU members, including Italy and Spain, to adopt politically unpopular domestic economic policies. Others, such as the United Kingdom, chose not to take politically unpopular action and thus failed to qualify for participation. Even though the Euro was introduced according to schedule, economic unity has far outstripped political cooperation among EU members to date and real and potential political disagreements within the EU remain a threat to its further development.

STRUCTURE

The EU maintains four administrative bodies dealing with specific areas of economic and political activity.

COUNCIL OF MINISTERS. The Council of Ministers comprises representatives, usually the foreign ministers, of member states. The presidency of the council rotates between the members on a semiannual basis. When issues of particular concern arise, members may send their heads of state to sit on the council. At such times the council is known as the European Council, and has final authority on all issues not specifically covered in the various treaties creating the EU and its predecessor organizations. The Council of Ministers also maintains the Committee of Permanent Representatives (COREPER), with permanent headquarters in Brussels, Belgium, to sit during the intervals between the council's meetings; and operates an extensive secretariat monitoring economic and political activities within the EU. The Council of Ministers and European Council decide matters involving relations between member states in areas including administration, agriculture and fisheries, internal market and industrial policy, research, energy, transportation, environmental protection, and economic and social affairs. Members of the Council of Ministers or European Council are expected to represent the particular interests of their home country before the EU as a whole.

EUROPEAN COMMISSION. The European Commission serves as the executive organization of the EU. Currently each country has one commissioner except for the five largest countries that have two. The Commission enlarges as more countries join. The European Commission seeks to serve the interests of Europe as a whole in matters including external relations, economic affairs, finance, industrial affairs, and agricultural policies. The European Commission maintains twenty-three directorates general to oversee specific areas of administration and commerce within the EU. It also retains a large staff to translate all EU documents into each of the EU's twenty official languages. Representatives sitting on the European Commission are expected to remain impartial and view the interests of the EU as a whole rather than the particular interests of their home countries.

EUROPEAN PARLIAMENT. The European Parliament comprises representatives of the EU member nations who are selected by direct election in their home countries. Although it serves as a forum for the discussion of issues of interest to the individual member states and the EU as a whole, the European Parliament has no power to create or implement legislation. It does, however, have some control over the EU budget, and can pose questions for the consideration of either the Council of Ministers or the European Commission.

COURT OF JUSTICE. The Court of Justice comprises thirteen judges and six advocates general appointed by EU member governments. Its function is to interpret EU laws and regulations, and its decisions are binding on the EU, its member governments, and firms and individuals in EU member states.

NOTABLE PROGRAMS

From its creation the EU has maintained the Economic and Social Committee (ESC), an appointed advisory body representing the interests of employers, labor, and consumers before the EU as a whole. Although many of the ESC's responsibilities are now duplicated by the European Parliament, the committee still serves as an advocacy forum for labor unions, industrial and commercial agricultural organizations, and other interest groups.

One ongoing area of contention among the members of the EU is agricultural policy. Each European nation has in place a series of incentives and subsidies designed to benefit its own farmers and ensure a domestically grown food supply. Often these policies are decidedly not beneficial to the EU as a whole, and lead to conflict between rival national organizations representing agricultural and fisheries industries. The degree of contention on agricultural and fisheries issues within the EU can be seen in the fact that nearly 70 percent of EU expenditures are made to address agricultural issues, even though agriculture employs less than 8 percent of the EU workforce. In an attempt to reduce conflict between national agricultural industries while still supporting European farmers, the EU adopted a Common Agricultural Policy (CAP) as part of the Treaty of European Union.

The CAP seeks to increase agricultural productivity, ensure livable wages for agricultural workers, stabilize agricultural markets, and assure availability of affordable produce throughout the EU. Although the

CAP has reduced conflicts within the EU, it has also led to the overproduction of many commodities, including butter, wine, and sugar, and has led to disagreements involving the EU and agricultural exporting nations including the United States and Australia.

The European Social Fund (ESF) and the European Regional Development Fund (ERDF) were established to facilitate the harmonization of social policies within EU member states. The ESF focuses on training and retraining workers to ensure their employability in a changing economic environment, while the ERDF concentrates on building economic infrastructure in the less-developed countries of the EU.

The European Investment Bank (EIB) receives capital contributions from the EU member states, and borrows from international capital markets to fund approved projects. EIB funding may be granted only to those projects of common interest to EU members that are designed to improve the overall international competitiveness of EU industries. EIB loans are also sometimes given to infrastructure development programs operating in less-developed areas of the EU.

LANGUAGES

The EU recognizes twently official languages: Danish, Dutch, English, Finnish, French, German, Greek, Italian, Portuguese, Spanish, and Swedish. Other languages spoken in Europe, such as Irish Gaelic, are considered "treaty languages" or "working languages," while dialects such as Catalan are considered "minority languages." Treaty or working languages are those into which the EU translates only its basic legal texts; it is up to each member state to translate whatever EU documents it deems important into minority languages. All EU documents are available in the twenty official languages.

RECENT EVENTS

The EU added ten new members on May 1, 2004: Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania, Poland, Slovakia and Slovenia. There are obstacles to inclusion of new members to the EU, however, in both the political and economic spheres. Any new members must conform to the national economic policy stipulations of the 1992 Treaty of European Union signed at Maastricht, and must also meet acceptable standards of internal political freedom. Turkey, for instance, was denied admission to the EU in 1997 due to its repression of its Kurdish minority, among other considerations. Similarly, Croatia was denied consideration for entrance due to its participation in ethnic cleansing activities during the Bosnian conflicts of the early to mid-1990s.

The major future event facing the EU since the adoption of the Treaty of European Union has been the adoption of the Euro as a single currency for members, which occurred in 2002.

THE EURO

The 1992 Maastricht Agreement established conditions that EU member nations would be expected to meet before they would be allowed to participate in the introduction of the single European currency. These conditions were designed to create a "convergence" among the various national economies of Europe to ease the transition to a single currency and ensure that no single country would benefit or be harmed unduly by its introduction. Such a convergence would also create greater uniformity among the various national economies of the EU, making administration of economic activity within the single-currency area more feasible. The conditions set for participation in the introduction of the Euro and inclusion in the single-currency area include:

- Maintaining international currency exchange rates within a specified range (called the Exchange Rate Mechanism or ERM) for at least two years prior to the introduction of the Euro.
- Maintaining long-term interest rates with 2 percent of the national inflation rate and within 1.5 percent of the three best-performing EU member states in terms of price stability.
- Maintaining public debt at no more than 3 percent of the gross domestic product.
- Maintaining total government debt at no more than 60 percent of gross domestic product.

These conditions have proven very difficult to meet for many EU members, and the United Kingdom was rejected for participation in the introduction of the Euro due to its failure to meet the provisions of the ERM in September 1992.

Despite these difficulties, implementation of the Euro has gone ahead on schedule through the three phases set forth at Maastricht. Phase one began in 1998 with an EU summit in Brussels, Belgium, that determined which of the fifteen member states had achieved sufficient convergence to participate in the introduction of the Euro. The selected participants were Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, the Netherlands, Portugal, and Spain (exceptions were Demark, Greece, Sweden and the UK). Phase two, which commenced on 1 January 1999, introduced the Euro as legal tender within the eleven selected countries, referred to as the single-currency area, although the new currency would only exist as a "currency of account," that is, it would exist only

Table A

Progress Toward Convergence
Number of Criteria Met (out of 5)

Country	1990	1991	1992	1993	1994	Approved for Participation in Euro Introduction
Austria	4	4	3	2	3	Y
Belgium	2	3	3	3	3	Y
Denmark	5	4	4	3	3	N
Finland	2	2	1	1	2	Y
France	5	5	4	4	4	Y
Germany	5	4	4	3	5	Y
Greece	0	0	0	0	0	N
Italy	0	0	0	0	0	Y
Luxembourg	5	5	5	4	5	Y
The Netherlands	3	4	3	3	3	Y
Portugal	0	0	0	0	0	Y
Republic of Ireland	4	4	4	3	3	Y
Spain	1	1	1	1	0	Y
Sweden	2	3	2	1	1	N
United Kingdom	3	3	2	2	3	N

on paper or for electronic transactions, as no Euro notes or coins were yet in circulation. Instead, the existing currencies of the participating countries functioned as fixed denominations of the Euro. Phase two also included the subordination of the eleven national banks in the single-currency area to the European Central Bank. Phase three, which began on 1 January 2002 set the Euro banknotes and coins into circulation and by July 2002 it became the legal tender of the EMU countries replacing the national currencies. At the time of introduction there were twelve countries in the Euro area are: Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain and Greece. Demark, Sweden and the UK are not using the Euro.

The initial introduction of the Euro as a currency of account began with a resounding success, as the new currency rose immediately to an exchange rate of 1.17 U.S. dollars to the Euro. Uncertainties about the further progress of European Union raised by conflicts in the Balkans in 1999 soon dampened investor interest in the Euro, however, and its value fell to 1.04 U.S. dollars per Euro by the summer of that year. In fact there was a steady decline of the value of the Euro compared to the dollar. On January 1999 the value of the Euro was set at U.S. $1.18, but by mid-1999 it had dropped to $1.08 and by the end of the year it dropped to $1.01 and by mid 2000 it had fallen to $0.95.

Future implications of the adoption of a single currency within the twelve selected EU countries are a matter of speculation, but a few general observations can be made. Surveys conducted by the international accounting firm KPMG in the late 1990s reveal that major European corporations feel that the introduction of the Euro will cause prices to fall and wages to rise within the single-currency area, since corporations will no longer have to allow for fluctuations in currency exchange rates when establishing their prices.

Other implications of the adoption of a single currency are also foreseeable. International trade within the single currency area will be greatly facilitated by the establishment of what amounts to a single market, complete with uniform pricing and regulation, in place of twelve national markets. The creation of a single market will also spur increased competition and the development of more niche products, and ease the acquisition of corporate financing, particularly in what would formerly have been international trade among members of the single currency area. Finally, in the long term, the establishment of the single currency area should simplify European corporate structures, since in time nearly all regulatory statutes within the single currency area should become uniform.

THE UNITED KINGDOM AND THE EURO

Another question regarding the Euro's future involves the exclusion of the United Kingdom from the single-currency area. Although the U.K. continues to attempt to meet the Maastricht provisions, its entry

Table B
Chronology

Year	Event
1952	Six countries - Belgium, France, the Federal Republic of Germany, Italy, Luxembourg and the Netherlands - create the European Coal and Steel Community (ECSC) by pooling their coal and steel resources in a common market controlled by an independent supranational authority.
1958	The Rome Treaties set up the European Economic Community (EEC) and the European Atomic Energy Community (Euratom), extending the common market for coal and steel to all economic sectors in the member countries.
1965	The Merger Treaty is signed in Brussels on April 8. It provides for a Single Commission and a Single Council of the then three European Communities.
1967	The Merger Treaty enters into force on July 1.
1973	The United Kingdom, Ireland, and Denmark join the European Community (EC).
1979	The European Parliament is elected, for the first time, by direct universal suffrage and the European Monetary System (EMS) becomes operative.
1981	Greece becomes the 10th member state.
1985	The program to complete the Single Market by 1992 is launched.
1986	Spain and Portugal become the 11th and 12th member states.
1987	The Single European Act (SEA) introduces majority voting on Single Market legislation and increases the power of the European Parliament.
1989	The Madrid European Council launches the plan for achievement of Economic and Monetary Union (EMU).
1990	East and West Germany are reunited after the fall of the Berlin Wall.
1991	Two parallel intergovernmental conferences produce the Treaty on European Union (Maastricht) which EU leaders approve at the Maastricht European Council.
1992	Treaty on European Union signed in Maastricht and sent to member states for ratification. First referendum in Denmark rejects the Treaty.
1993	The Single Market enters into force on January 1. In May, a second Danish referendum ratifies the Maastricht Treaty, which takes effect in November.
1994	The EU and the 7-member European Free Trade Association (EFTA) form the European Economic Area, a single market of 19 countries. The EU completes membership negotiations with EFTA members Austria, Finland, Norway and Sweden.
1995	Austria, Finland and Sweden join the EU on January 1. Norway fails to ratify its accession treaty. The EU prepares the 1996 Intergovernmental Conference on institutional reform.
1997	The Treaty of Amsterdam, resulting from the 1996 Intergovernmental Conference, is signed on October 2.
1999	The Euro is introduced on January 1 electronically in 12 participating member states, with complete introduction to occur in 2002. The Amsterdam Treaty enters into force on May 1.
2001	The Treaty of Nice results from the 2000 Intergovernmental Conference.
2002	The Euro is fully launched on January 1. The European Convention begins, as part of the debate on the future of Europe, to propose a new framework and structures for the European Union--geared to changes in the world situation, the needs of the citizens of Europe and the future development of the European Union. On October 9, the European Commission recommends that candidate countries Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic and Slovenia be the first to join the EU under the latest enlargement process, possibly in time for the elections to the European Parliament scheduled for June 2004.
2003	The Treaty of Nice enters into force on February 1.
2004	Ten countries (Cyprus, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Malta, Poland, the Slovak Republic and Slovenia) join the European Union on May 1. (Bulgarian and Romanian accession are anticipated for 2007. At the summit on December 16 and 17, the European Council decides whether Turkey is ready to begin accession negotiations. On June 18, the European Council accepted Croatia as a candidate country. On March 22, the Former Yugoslav Republic of Macedonia [FYROM] applied for EU membership.) A new European Parliament is elected on June 10 to 13. A new European Commission takes office on November 22.

Adpated from: http://www.eurunion.org/profile/brief.htm

into the single-currency area is unlikely in the near future. Having said this, British financial and insurance institutions, some of which are among the largest in the world, have already made provisions to trade in euros, as have many other financial institutions world-wide. Furthermore, the London and Frankfurt stock exchanges announced a planned alliance in 1998, to which the Spanish, Italian, and Dutch exchanges also

Table C
Member States

EU15 Member States:	Member States as of May 1, 2004: EU25:	Candidate Countries:
• Austria	• Cyprus	• Bulgaria
• Belgium	• Czech Republic	• Croatia
• Denmark	• Estonia	• Romania
• Finland	• Hungary	• Turkey
• France	• Latvia	**Application Pending:**
• Germany	• Lithuania	• Former Yugoslav Republic of Macedonia
• Greece	• Malta	
• Ireland	• Poland	
• Italy	• Slovakia	
• Luxembourg	• Slovenia	
• The Netherlands		
• Portugal		
• Spain		
• Sweden		
• United Kingdom		

expressed an interest in joining. As such, it appears clear that the United Kingdom will eventually join the single-currency area.

OBSTACLES FACING THE EU

Although the single-currency area, also referred to as "Euroland," represents a formidable force in international trade, the EU faces several grave challenges as it strives to form an ever closer linkage of its national constituents.

Among the most intractable problems faced by Euroland is the fact that while economic interconnection has gone forward at a rather rapid pace throughout the history of the EU, political integration has progressed relatively slowly. For example, despite the fact that the Treaty of European Union created a central bank to supercede the national banks of its members, responsibility for the creation of fiscal policies remains in the hands of each national government. As such, there is great potential for the central authority and national economic policy making agencies to adopt conflicting programs. Furthermore, national political institutions within the EU are likely to be more responsive to the desires of their national constituencies than to the well being of Euroland as a whole, especially in times of economic instability. It is difficult to see how voters in the nations of the EU will be able to put the good of Euroland ahead of their own particular interests, but it must also be said that the EU has surmounted similar obstacles in its history to date.

A second problem also arises out of the composition of Euroland. According to the optimal currency theory first posed by American Robert Mundell in 1961, in order for a single currency to succeed in a multinational area several conditions must be met. There should be no barriers to the movement of labor forces across national, cultural, or linguistic borders within the single-currency area; wage stability throughout the single currency area; and an area-wide system to stabilize imbalanced transfers of labor, goods, or capital within the single-currency area. These conditions do not exist in present-day Europe, where labor mobility is small and wages vary widely among EU member countries.

Furthermore, the present administrative structure of the EU is not powerful enough to redress imbalanced transfers, which are bound to occur periodically. Such imbalances would engage the sort of political response discussed previously, to the detriment of the EU as a whole.

Optimal currency theory also holds that for a single currency area to be viable it must not be prone to asymmetric shocks, that is, economic events that lead to imbalanced transfers. Ideally, a single-currency area should comprise similar economies that are likely to be on similar cycles, thus minimizing imbalances. Similarly, the need for a freely transferable labor force within the single-currency area is also necessary to minimize imbalances, since each national member of the area must be able to respond flexibly to changes in wage and price structures.

The EU has made remarkable progress during its first forty-seven years. Although the further strengthening of the EU, especially in political matters, faces major obstacles, the continued enhancement of economic ties binding members is likely to increase the

political unity of EU members over time. That this is feasible is evidenced by the efforts of EU nations to conform to the stipulations of the Maastricht Agreement. Maintaining stable currency exchange rates, reducing public and overall government debt, and controlling long-term interest rates are all areas in which national governments and fiscal agencies had exercised complete autonomy in the past. Before the implementation of the Euro's second phase, many doubted that the EU member states could put aside their own internal interests to meet the Maastricht provisions; however, eleven of the fifteen managed to do so. Significantly, many had to experience economic slowdowns and increased unemployment in order to do so. Such resolve bodes well for continued strengthening of European unification in both political and economic areas. In fact, the history of the EU to date has been one of overcoming obstacles similar to those faced during the first two phases of the introduction of the Euro, and a unified Europe is and will remain a fact of international economic life for the foreseeable future.

SEE ALSO: Free Trade Agreements and Trading Blocs; International Business; International Management

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EXECUTIVE COMPENSATION

Executive employees, such as chief executive officers (CEOs), chief financial officers (CFOs), company presidents, and other upper level managers are often compensated differently than those at lower levels of an organization. Executive compensation consists of base salary, bonuses, long-term incentives, benefits, and perquisites. In addition to understanding the components of executive compensation, there are issues of pay equity and ethics associated with pay for these types of employees.

BASE SALARY OF EXECUTIVES

Base salary is the regular annual salary of the executive. While job evaluation is typically used to set employee pay in organizations, executive base salary levels are often more influenced by the opinion of the compensation committee (which consists of some or all of the members of the company's board of directors), which is often dependent on information from salary surveys of similar companies. Typically, pay of CEOs and other executives is set to be competitive with other executive salaries in the market and thus may be very high in comparison to the pay of employees in their own company. Recent data indicates that salaries for executives are on the rise. A survey of 100 major U.S. corporations conducted by Mercer Human Resource Consulting indicates that median total direct compensation for the chief executive officers in these corporations was $4,419,300 in 2004.

EXECUTIVE BONUSES

In the base salary of executives, most receive variable pay, a compensation that fluctuates according to some level of performance. The use of compensation beyond base salary is intended to motivate executives to reach certain organizational performance goals, for example, specific profit levels, and reward them for reaching these goals. One very popular type of variable pay is the executive bonus, which is a one-time payment tied to some short-term performance goal. The bonus may be based on any number of performance outcomes, ranging from judgments of executive performance by the board of directors, to levels of company profits or market share. Nearly all executives now receive some sort of bonus as a part of their compensation package. The Mercer study, described above, indicates that the CEOs of 100 major American corporations had a median bonus of $1.14 million in 2004, which equaled 141 percent of their annual salaries. In other words, bonuses accounted for more money than the CEO's annual salary in this sample.

LONG-TERM INCENTIVES

In recent years, incentives have become important for rewarding the performance of executives, and now make up about one half of total executive compensation. Incentives are rewards that are linked to

specific long-term goals of the organization. The most common long-term incentive is the stock option, which either gives the executive free company stock, or allows him or her to purchase company stock at a reduced price for a period of time. These stocks become more valuable as the company improves financially, and therefore, ownership of stock is intended to encourage the executive to make the organization more profitable. Executives can then sell these stocks at a later time when they have appreciated in value, therefore providing compensation beyond the employee's tenure with the organization. Recent news stories detailing company failures in which unethical accounting practices and artificial inflation of stock prices caused lower-level employees to lose investments in company stock have raised concerns about the ethics of granting large numbers of stock options to executives.

EXECUTIVE BENEFITS AND PERQUISITES

Benefits for executive-level employees are also likely to be different than those offered to lower-level employees. Executives will often receive high levels of typical company fringe benefits, like health insurance, life insurance, and pension plans. Additionally, some executives may also have a contract for large severance packages, paying cash and stock options to a CEO fired from a company. Many executives negotiate generous severance packages at the time of hire, so that even if they are unable to deliver upon promises to the company, they can collect compensation upon exit.

Executive perquisites, or "perks," are special benefits and services for executives and other top employees of companies. Perks may be things such as a car service, an executive dining room, special parking, membership in clubs, and other such amenities. It is customary for many U.S. executives to receive perks as a part of their total compensation. Some of these perks, like car service or a company airplane, may serve to improve an executive's ability to do his or her job. Additionally, some perks bring with them a certain level of status, for example company-paid membership to an exclusive country club that is appealing to executive employees.

PAY EQUITY

Pay equity, or the fairness of pay, can be evaluated both internally and externally. These ideas are based on equity theory, a theory of motivation. Equity theory, briefly, indicates that a person examines what he brings to a job (inputs) and what he receives from a job (outcomes) and compares that to a reference person, evaluating the other person's inputs and outcomes. An employee might determine that she brings a certain level of education, experience, and effort to her job and that those inputs result in a certain level of salary and benefits. She would then compare this relationship to the education, experience, and effort, and the subsequent salary and benefits of another person. If these ratios are not equal, then the employee will feel unfairly treated. If this employee determines that her inputs are far greater than her counterpart's inputs, but their pay is the same, this employee will feel unfairly compensated.

External equity is the assessment of the fairness of pay in similar jobs in different organizations. Executives who compare their pay to executives in other similar firms are making an assessment of external equity. External equity can be determined through market pay surveys, in which companies share information about the pay and benefits in their jobs. Additionally, the pay levels of executives may be public knowledge, either in company publications to shareholders or in trade organizations. If an executive is compensated highly as compared to others in similar companies, he or she is likely to feel positively about this situation; however, executives who are compensated at a lower rate than comparable executives in other companies may attempt to have their salary raised or may look for another position.

Internal equity is an assessment of the fairness of pay in different jobs within the same organization. Executives and employees compare their inputs and their pay to one another's to determine if they are fairly treated. Internal equity is often referred to as pay structure, and there are two types of pay structures: egalitarian and hierarchical. In egalitarian pay structures, the range of pay from the lowest paid employee to the highest paid employee is not very big; there are not large differences in pay. Egalitarian structures tend to be preferred by the lower-paid employees, because they feel that executive pay is not too high. However, executives may become dissatisfied in organizations with egalitarian pay structures, because they feel that their pay may not be commensurate with their skills or job duties. Hierarchical pay structures, conversely, have a fairly wide range of pay between the lowest and highest paid employees. In hierarchical pay structures, upper-level employees are likely to be paid very high salaries, which they are likely to find satisfying. However, in hierarchical structures, employees in low-level jobs may feel unfairly treated because of their relatively lower pay rate.

The pay level of U.S. executives is very high as compared to the pay of executives in other countries, as compared to pay of U.S. executives in the past, and as compared to U.S. employees at lower levels of the organization. Currently, U.S. executives earn about 400 times the pay of the lowest paid workers in their own companies. In Europe and Asia, the pay of executives is about 10 times that of the lowest paid worker.

Additionally, many U.S. executives have generous stock option or severance packages that increase the value of their compensation. The high pay rates of American executives have garnered much media attention, particularly when organizations with high pay rates for CEOs and other top employees have layoffs or plant closings. Many critics argue that executive pay is far too high, and that these pay rates invite ethical problems.

To examine the fairness of executive pay, several factors must be assessed. First, the executive pay package should be responsible to shareholders, which means that it is not so high that it detracts from company profits or that its incentives discourage unethical influence of stock prices. Second, pay packages must be competitive with those of other similar organizations so that executives can be recruited, rewarded, and retained successfully. If a pay package is not competitive, there may be motivation problems or turnover. Third, executive pay should fit with the company's strategy so that it encourages overall company success. This is particularly relevant in regards to short-term bonuses and long-term incentives which can be used to steer the performance of the executive and the organization. Finally, compensation for executives must be in compliance with regulations. There are a number of laws regarding retirement plans, stock options, and other compensation components which must be followed when designing executive pay plans.

ETHICAL CONCERNS WITH EXECUTIVE COMPENSATION

The base salary, bonuses, incentives, and benefits for executives have raised serious questions about the ethical implications of such pay. One concern about the high pay level for American executives is that they may encourage executives to make business decisions that benefit themselves rather than the organization in order to meet performance goals necessary to receive incentive pay. This is particularly likely if incentives are short-term in nature. For example, an executive may drive up short-term profits that cannot be sustained, only to collect a large bonus and leave the company before long-term financial problems are revealed.

A second concern with the ethics of high executive pay is the use of stock options as an incentive. Recent evidence of illegal practices in some high-profile American companies has prompted the enactment of the Sarbanes-Oxley Act of 2002. This act prevents executives of companies from keeping profits or bonuses acquired from selling company stock if they have misled the public about the financial health of the company to increase stock price.

Finally, some question the ethics of the high level of executive pay when lower-level employee pay has not risen at the same rate. There is a continually widening gap in compensation in different levels of organizations; for instance, the Mercer study described previously determined that CEOs enjoyed bonuses of 141 percent of salary in 2004, while other studies indicate that typical clerical and technical staff earn approximately 5 percent of salary as an annual bonus. Although some argue that executive level positions deserve high rates of pay due to the nature of the job and the high level of responsibility involved, others argue that the gap in executive versus typically employee pay has widened so dramatically that employees are under-compensated and may even be tempted to engage in unethical behavior, such as stealing from the company.

Executive compensation consists of base salary, bonuses, long-term incentives, benefits, and "perks." Total executive compensation has increased dramatically in recent years, which has led to concerns about pay equity and ethics. Because of the strong focus on external equity when determining executive compensation, internal equity is likely to be a concern. Additionally, as the gap between pay at lower and higher levels of the organization increasingly widens, many CEOs are perceived to be overcompensated. There are other ethical issues to be considered, such as the motivation of executives based on their bonuses, incentives, and stock option grants.

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EXECUTIVE DEVELOPMENT

SEE: Management and Executive Development

EXPATRIATES

An expatriate is an employee sent by his or her employer to work in a foreign country. The firm is normally referred to as the parent company, while the country of employment is known as the host country. If General Motors sent one of its U.S. executives to oversee a new development in Brazil, the executive would be an expatriate, General Motors would be the parent company, and Brazil would be the host country. Equally, if an employee from Brazil was sent to the U.S. or an employee from Canada were sent to the People's Republic of China, they would be expatriates.

Many corporations are sending expatriates to their overseas operations. In fact, expatriates have and the need for internationally competent managers is expected to rise as more and more firms face global competition. Organizations need to understand the dynamic relationships between staffing and outcomes, and how these relationships change over time.

Expatriates provide a number of benefits for companies, including greater parent control and particular expertise. International experience is also seen as providing opportunities for personal and professional development and career advancement. Expatriates are very expensive, however, and this can discourage extensive use of expatriates. Many companies have also experienced relatively high failure rates, with failure often being attributed to the family's inability to adapt.

Surprisingly, give the high costs, and likelihood of failure, companies often make these expensive commitments with little or no preparation for the need for cross-cultural transition. Expatriate success and job performance is closely related to intercultural adjustment and the same is true of families.

Given this, it is critical that companies use a rigorous selection process to identify which employees would likely succeed as expatriates. The selection process should also include consideration of the family.

Several characteristics determine an expatriate's expected level of success: job skills, motivational state, language skills, relationship skills, and family situation. Technical competency is most often used as the selection criteria for expatriates, but that is rarely the best selection technique. The technical skills of an expatriate are of course important, but other skills can be as important. For example, an expatriate is likely to make more progress at the overseas location if he or she has effective managerial skills and administrative competencies. Strong relationships with the host country and headquarters' operations also make the expatriate's assignment more productive. Conflict resolution skills are also important to the expatriate. Expatriates must also have a strong belief in the assignment if it is to be a success, and they must believe that the assignment will be advantageous to their careers.

Motivation is likely to be higher if the person has an interest in the specific host country culture as well as in an overseas experience. To be successful the expatriate must be willing to acquire new behavior patterns and attitudes. The most successful expatriates enjoy the challenge of forging their way through new situations and are comfortable networking and initiating new social contacts. These are also critical for the families of expatriates. Training for expatriates and their families is therefore as important as proper selection.

To reduce the likelihood of premature termination of the assignment, companies should choose expatriates who have well-developed relationship skills. Some characteristics are crucial for a successful expatriate: tolerance for ambiguity, behavioral flexibility, strong interpersonal skills, and a nonjudgmental disposition. In addition, an effective expatriate would have high cultural empathy. Ethnocentrism is the belief that one's culture is superior. Ethnocentric expatriates are likely to have problems adjusting to a new culture, and the local people are likely to perceive them negatively. Communication is also key.

The expatriate needs to have some working knowledge of the host language. but it may be more important that the expatriate have outstanding nonverbal communication skills and an understanding that nonverbal communication varies between cultures. He or she should become familiar with common nonverbal protocol in the new culture.

Most expatriates take their families with them to the foreign country, and their family situation is one of the most critical factors in the successful completion of an overseas assignment. Family transition must be taken very seriously. An expatriate must be comfortable on a personal level. Major stress can be caused for the entire family by something as seemingly trivial as the transportation of a family pet. An expatriate's spouse must have a very strong willingness to live abroad. The spouse must be supportive as well as adaptive. Many firms have had expatriates' assignments terminated early because the spouse was unwilling or unable to make the necessary adjustments to the host country.

Predeparture training for the expatriate greatly increases the likelihood of success. The extent of training can depend on a variety of variables: previous overseas experience (if applicable), time until departure, and novelty of the new country. Cross-cultural training must be meaningful for the expatriate and family. Training should, at the minimum, inform the

Exhibit 1

Types of Allowances Given to Expatriates

Foreign Service Premiums

This is a sum of money that is simply a reward for being willing to move one's family to a new country. The sum is generally a percentage of one's base salary—usually between 10 to 25 percent.

Hardship Allowance

The hardship allowance is actually another foreign service premium added to the original one. It is based on not just having to go overseas, but where you go overseas. Hardship allowances are greatest when the expatriate is sent to places having poor living conditions, a vastly different culture, less access to good health care, etc.

Cost of Living Allowances

Cost of living allowances (COLAs) enable expatriates to maintain their standard of living. COLAs are given when the cost of living in the host country is greater than that in the United States.

Housing Allowances

The cost of housing in various parts of the world is much higher than it is in the United States. Large apartments in Tokyo or Hong Kong, for instance, can go for upwards of $10,000 a month. Housing allowances compensate expatriates for these higher costs.

Utility Allowances

Some companies give expatriates a fixed sum of money above their base salary to pay their utilities bills; other companies try to ascertain the difference in utility bills between the home and the host countries, and give an allowance based on that difference.

Furnishing Allowances

Some companies offer to ship all of the expatriate's furnishings overseas. A second approach is to pay for the lease or purchase of furnishings overseas by expatriates. A third approach is to just give the expatriate a fixed sum of money (usually between $8,000 to $10,000) to buy furnishings.

Education Allowances

Most expatriates send their children to private school overseas. Companies often pay the full cost of tuition, books, and supplies.

Home Leave Allowances

Companies usually provide expatriates and their families with round-trip, business-class airfare to visit the home country at least once a year.

Relocation Allowances

The allowance makes up for any mistakes made in any of the other allowances for unforeseen complications. Expatriates receive about one month's salary.

Medical Allowances

Companies usually pay for all medical expenses. In hardship countries where medical facilities are inadequate, this includes emergency trips to other countries to receive medical care.

Car and Driver Allowances

Most companies offer expatriate managers a car allowance. This enables the expatriate to lease, buy, or rent a car in the host country. In some cases, the expatriate is given funds to hire a chauffeur.

Club Membership Allowances

In some countries the only way an expatriate can gain access to recreational facilities (e.g., tennis courts, swimming pools, country clubs) is by joining clubs. Also, in many cultures these facilities are important places in which to develop contacts and conduct business. This type of allowance is usually made on a case-by-case basis.

Taxes

Many companies reimburse expatriates for taxes they pay in excess of what they would have paid had they remained in the United States.

expatriate about the new country, and at the best, it would immerse the expatriate into the new culture.

Low-interaction training is focused on information distribution. It generally takes the form of lectures, videos, and readings. The material should include general area studies and a company operational overview. A low-intensity training would be appropriate for someone who has been on an expatriate assignment before or someone familiar with the host country. Unfortunately, this is often the only training received by most expatriates whether they have previous experience or not. This lack of training is usually due to last-minute selection or no training budget.

Medium- to high-intensity training should have duration of one to two months. This training provides affective learning and cultural immersion. Medium-intensity training takes the intercultural experience workshop approach, offering cultural simulations, role

plays, and case studies. Skill development can be culture-general or culture-specific. High-intensity training, most necessary for inexperienced expatriates entering a very different culture, provides sensitivity training and includes communication workshops and field exercises that focus on self awareness, listening skills, open-mindedness, and communication skills.

There are currently relatively few women expatriates (Stroh, Varma, Valy-Durbin, 2000), but their numbers are likely to increase in the future. Women expatriates and their male spouses present a different challenge for companies, and their special needs should be taken into account (Punnett, 2004). Similarly, there are situations where factors such as race, religion, disabilities, or sexual orientation may make it difficult for an individual to succeed in a particular location.

Given that expatriates are very expensive, it is in a firm's interest to make sure the assignment is successful. Proper expatriate selection and training, as well as attention to the needs of the family can be a productive investment.

SEE ALSO: Human Resource Management; International Business; International Cultural Differences; International Management; Japanese Management; Organizational Culture

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EXPERIENCE AND LEARNING CURVES

Experience and learning curve models are developed from the basic premise that individuals and organizations acquire knowledge by doing work. By gaining experience through repetition, organizations and individuals develop relatively permanent changes in behavior or learning. As additional transactions occur in a service, or more products are produced by a manufacturer, the per-unit cost often decreases at a decreasing rate. This phenomenon follows an exponential curve. The organization thus gains competitive advantage by converting this cost reduction into productivity gains. This learning competitive advantage is known as the experience curve, the learning curve, or the progress curve.

It is common for the terms *experience curve* and *learning curve* to be used interchangeably. They do, however, have different meanings. According to definitions by Hall and Starr, the experience curve is an analytical tool designed to quantify the rate at which experience of accumulated output, to date, affects total lifetime costs. Melnyk defined the learning curve as an analytical tool designed to quantify the rate at which cumulative experience of labor hours or cost allows an organization to reduce the amount of resources it must expend to accomplish a task. Experience curve is broader than learning curve with respect to the costs covered, the range of output during which the reductions in costs take place, and the causes of reduction.

The idea of "learning by doing" is intuitive. We often experience this effect when we take up a new sport or start to keyboard. Our skill levels increase rapidly with practice, up to a point, and then progress at a slower rate. Eventually, our golf score levels off around some value and our keystrokes per minute (without errors) levels off as well.

Organizational learning is complex in that we learn at many levels simultaneously. In organizations, procedures, norms, rules, and forms store knowledge. March states that managers of competitive organizations often find themselves in situations where relative position with regard to a competitor matters. This possible competitive advantage through enhanced learning is the essence of the study of experience and learning curves.

The analytical use of the concept for business purposes first surfaced in 1936 during airplane construction,

when Wright observed that as the quantity of manufactured units doubled, the number of direct labor hours needed to produce each individual unit decreased at a uniform rate. The variation of labor cost with production quantity is illustrated by the following formula:

$$F = \log F / \log N$$

where F equals a factor of cost variation proportional to the quantity N. The reciprocal of F represents a direct percent variation of cost versus quantity.

This insight shows that experience-based learning is closely correlated with cumulative output, extending beyond changes in design and tooling. Wright found empirical evidence that as unit volume increases there are predictable corresponding reductions in cost. These data become central concepts for strategic and operational planning. There has been much discussion on the role of learning in business organizations. A seminal work in learning theory is the 1963 *A Behavioral Theory of the Firm* by Cyert and March. These authors viewed firms as adaptively-rational systems. This means that the firm learns from its experience. In its basic form, an adaptive system selects preferred states for use in the future. With experience, management uses decision variables that lead to goals and shuns those that do not lead to goals.

The learning curve model was expanded by Adler and Clark into a learning process model. A key conceptual difference from the prior model is that "a significant part of the effect of experience on productivity (captured in the learning curve model) might be due to the influence of identifiable managerial actions". The authors present two orders of learning. First-order learning refers to the classic learning curve model where productivity is an exponential function of experience. Second-order learning denotes that which is driven by changes in technology or human capital that lead to goal attainment.

FUNDAMENTALS OF EXPERIENCE AND LEARNING CURVES

Following a strategy of increasing market share, the experience curve focuses on cost leadership. Management attempts to increase market share while simultaneously reducing costs. This is a detriment to market entry as the firm can lower its price, which may further increase its market share and place added pressure on potential competitors, as found in a study by Lieberman. Learning through experience becomes an important component of the increased market share strategy.

Quality learning is enhanced through the shared experience at the worker and organizational levels. Quality increases as the firm moves further along the experience curve, thus increasing productivity and efficiency. As the individual employees and organization become more efficient, there should be a corresponding increase in productivity. More output for less input effectively increases capacity; taken together with the increased efficiency and productivity, this should lead to a reduction in unit cost. The business is investing in a cost-leadership posture based on the assumption that price is a basis for competition. If the firm is able to produce quality units and reduce market price, there is the opportunity for increased market share (the business strategy). Increased market share via reduced price may lead to the global goal of improving profits.

Use of a cost leadership strategy based on the experience curve implies several assumptions, according to Amit:

1. Price is a basis for competition.
2. If per unit cost is reduced, price may be reduced, which may lead to increased market share.
3. As cumulative output increases, the firm's average cost is reduced. Therefore, for any production rate, there is a reduction in the per-unit cost.
4. If market share is increased, profits will increase.
5. Another critical assumption of the experience curve, noted by Lieberman, is that learning can be kept within the organization. Where industry-wide dissemination of process technology is rapid, the benefits of organizational learning through the experience curve may be short-lived. The cost benefits, therefore, may not lead to increased market share even though industry costs are declining because all participants are learning at approximately the same rate.

LEARNING CURVE FORMULATION

The formula for the learning curve model is commonly shown either as a margin-cost model or as a direct-labor-hour model. The direct-labor-hours formula is more useful, as hourly compensation typically changes over time and there may be inflation considerations as well. However, both derivations will be presented here for clarity. Also, direct-labor hours may be easily converted into costs if necessary, according to Yelle. By convention, we refer to experience curves by the complement of the improvement rate. For example, a 90 percent learning curve indicates a 10 percent decrease in per-unit (or mean) time or cost, with each doubling of productive output. Experience and learning curves normally apply only to cost of direct labor hours.

MARGINAL COST MODEL. The cumulative-average learning curve formulation is:

$$Y_{cx} = ax^{-b}$$

where Y_{cx} = average cost of the first x units,
a = the first unit cost,
x = the cumulative unit number output,
and
b = the learning elasticity, which defines the slope of the learning curve.

This learning curve model indicates that as the quantity of units produced doubles, the average cost per unit decreases at a uniform rate.

DIRECT LABOR HOURS MODEL. The direct labor hour model of the learning curve is:

$$Y = KX^{n}$$

where Y = the number of direct labor hours required to produce the Xth unit,
K = the number of direct labor hours required to produce the first unit,
X = the cumulative unit number,
$n = \log \phi / \log 2$,
ϕ = the learning rate, and
$1 - \phi$ = the progress ratio.

These empirical models have been shown to fit many production situations very well. One criticism is that many other undocumented variables may be behind the benefits attributed to the experience curve. There are intermingling variables that also may account for cost reductions. Some of these variables might be economies of scale, product design decisions, tooling and equipment selections, methods analysis and layout, improved organizational and individual skills training, more effective production scheduling and control procedures, and improved motivation of employees. All of these variables play a role in decreasing cost and increasing capacity.

APPLICATIONS AND USES

There are three general areas for the application and use of experience curves; strategic, internal, and external to the organization. Strategic uses include determining volume-cost changes, estimating new product start-up costs, and pricing of new products. Internal applications include developing labor standards, scheduling, budgeting, and make-or-buy decisions. External uses are supplier scheduling, cash flow budgeting, and estimating purchase costs. The usefulness of experience and learning curves depends on a number of factors; the frequency of product innovation, the amount of direct labor versus machine-paced output, and the amount of advanced planning of methods and tooling. All lead to a predictable rate of reduction in throughput time.

Knowledge on the practical application of experience curves and learning curves has increased greatly since 1936. Interest was renewed in the early 1990s with the publication of *The Fifth Discipline* by Peter Senge. Senge melded theories on mental models, the systems approach, and learning curves in a way that made sense for executives.

These curves offer potential competitive advantage to managers who can capitalize on the cost reductions they offer. The experience and learning curves rely, however, on keeping the knowledge gained *within* their organization. Given rapid communication, high manager and engineer turnover, and skills in reverse engineering, this is harder to accomplish with each passing year. However, Hatch and Dyer found that in the case of the semiconductor manufacturing industry, in particular, skills acquired in one firm are not necessarily effectively transferable to another firm since knowledge is specific to the original work environment. Therefore, even if the employee is hired away, there is limited threat to the original firm.

Hatch and Dyer conclude that to truly maintain an advantage over the competition, firms must employ effective human resource selection, training, and deployment processes that facilitate learning by doing. Those firms that meet this challenge may enjoy the only truly sustainable advantage—the ability to learn (and improve) faster than competitors. As manufacturing and service product lives become shorter, management must be keenly on top of experience and learning curves to continue to enjoy the advantages.

SEE ALSO: Knowledge Management; Organizational Learning

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EXPERT SYSTEMS

Expert systems are artificial intelligence (AI) tools that capture the expertise of knowledge workers and provide advice to (usually) non-experts in a given domain. Thus, expert systems constitute a subset of the class of AI systems primarily concerned with transferring knowledge from experts to novices.

KNOWLEDGE REPRESENTATION SYSTEMS

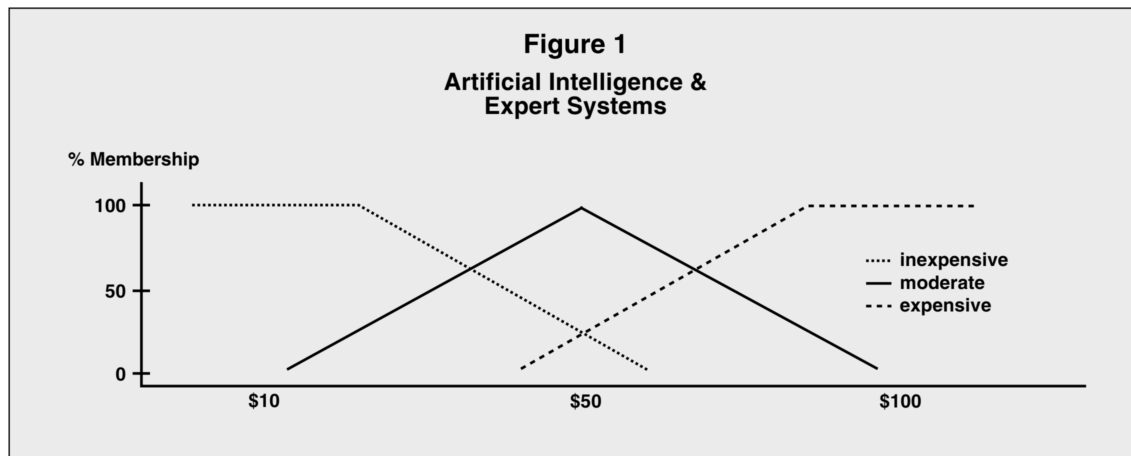
Knowledge representation systems, also called expert systems, are computerized models that capture the knowledge of one or more human experts and store it in the framework that is most appropriately suited to the reasoning processes that the experts use in their problem-solving behavior. Such systems are created by a specialized systems analyst called a knowledge engineer, whose task is to interview the expert and/or observe his problem-solving behavior, then determine the most appropriate form(s) of knowledge representation to model the expert's problem-solving techniques. This process, called knowledge acquisition, is perhaps the most difficult and time-consuming aspect of expert systems development. It requires both technical and people skills on the part of the knowledge engineer, who must establish rapport with the domain expert, maintain a productive relationship during the interviewing process, and recognize the required mapping from the expert's explanations to the appropriate knowledge representation. The knowledge engineer then encodes the expert's knowledge into a knowledge base, which is a repository of the expert's knowledge in a particular representational structure. Some of the most common knowledge representations are described below.

In addition to the knowledge base, an expert system includes an automated reasoning mechanism called an inference engine that performs calculations and/or logical processes to produce the results of a particular problem-solving session. The explanation facility of an expert system provides the user with an explanation of the reasoning process that was used to achieve the conclusion or recommendation. Each knowledge representation has a corresponding inference technique. Three very common knowledge representations are rule-based systems, frame-based systems, and case-based systems.

UNCERTAINTY IN ARTIFICIAL INTELLIGENCE

The types of problems that AI systems try to solve are often fraught with uncertainties. Sometimes experts are uncertain about the conclusions they may draw based on the facts that are presented to them. In addition, the facts themselves may not be clear-cut; they may be in error, incomplete, or ambiguous. Thus, AI systems must have the ability to reason and draw some inference even in the face of such uncertainties. AI systems do this in many ways. Two common approaches are described below.

RULES WITH CONFIDENCE FACTORS. This approach to uncertainty combines probability with logic. It enhances rule-based systems with probability-like numbers that represent the confidence in either a fact



or an inferred conclusion. For example, consider this rule:

> If the engine will not start but it will turn over, then the injection system is bad.

In some cases the facts are uncertain. Suppose the user is uncertain whether the engine starts or whether it turns over. If the user is 70 percent sure that the engine does not start and 80 percent sure that the engine turns over, then the conclusion of a bad injection system will be uncertain as well. A typical inference with this uncertainty is to multiply the two probabilities. In this case, 70 percent times 80 percent results in 56 percent confidence that the injection system is bad.

Furthermore, the rule itself may be uncertain. An expert may be only 60 percent sure that an unstartable engine that turns over implies a bad injection system. In this case, even if the user were 100 percent sure that the engine does not start but does turn over, the confidence in the conclusion of a bad injection system would be only 60 percent.

The inference process propagates the uncertainties through to the conclusions, so that the expert system tells the user not only what its recommendation is, but also the level of confidence in the recommendation.

An example of an expert system using rules can be found in the Department of Veterans Affairs within their OneVA initiative, which seeks to improve service by implementing improved information technology. A component of this initiative is the creation of an "expert system for the determination of potential benefits." This expert system utilizes a rule-based approach that analyzes customer data to determine proper eligibility levels.

FUZZY LOGIC SYSTEMS. Consider the question "Is this item expensive?" Here, "expensive" implies that the item costs a good deal of money. But how does one determine if an item is expensive? What is expensive to one person may be quite inexpensive to another. This is a case of linguistic ambiguity, where one word may have different meanings depending on context.

Fuzzy logic deals with linguistic ambiguity by mapping precise values (e.g., price, temperature, age in years) onto imprecise concepts (e.g., expensive, cold, young) via a membership function. The imprecise concept is called a fuzzy set, and the membership function measures the degree to which a precise value belongs in the fuzzy set.

Consider Figure 1, which shows three fuzzy sets related to the price of a product: inexpensive, moderate, and expensive. The membership functions are the solid and dashed lines in the graph. The X-axis shows the crisp value (actual price) and the Y-axis shows the degree of membership of a particular crisp value in each of the fuzzy sets. The price of $10 has 100 percent membership in the inexpensive set and 0 percent membership in each of the others. By contrast, the $100 price has 100 percent membership in the expensive set and 0 percent in the others. The $50 price has some degree of membership in all of the sets; it has 100 percent membership in the moderate set, but also some small degree of membership in both the others.

Consider this rule:

> If the price is expensive then do not buy the product.

Such a rule will not fire at all if the price is $10. It will fire with 100 percent strength if the price is $100. It will fire with a much lower strength if the price is $50. This is the main idea behind fuzzy logic systems.

Fuzzy logic systems are used in many applications. They are commonly embedded in control systems, such as regulating automatic braking systems in cars and autofocusing in cameras.

IMPLEMENTATION

Expert systems are applied in banking and finance, forecasting, security, manufacturing, marketing, and many other business areas and industries.

Specifically, areas such as loan applications, fraud detection, inventory management, enterprise resource planning, and supply chain management find useful applications of expert systems. Significant growth is expected for the foreseeable future. According to Metaxiotis and Psarras in *Industrial Management & Data Systems,* France, Germany, Italy, and the United Kingdom are countries in which a high rate of growth is expected in the development of expert systems.

SEE ALSO: Artificial Intelligence

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EXPORTING AND IMPORTING

Exporting is the act of producing goods or services in one country and selling or trading them to another country. The term *export* originates from the Latin words *ex* and *portare,* meaning to carry out. The counterpart to exporting is importing which is the acquisition and sale of goods from acquired from another country and selling them within the country. Although it is common to speak of a nation's exports or imports in the aggregate, the company that produces the good or service, as opposed to a national government, usually conducts exporting in terms of logistics and sales transactions. However, export and import levels may be highly influenced by government policies, such as offering subsidies that either restrict or encourage the sale of particular goods and services abroad. Certain exports, such as military technology, may be banned entirely, at least for certain recipients, in cases of trade embargoes or other government regulations (e.g., U.S. companies generally can't export to or import from Cuba). Exporting is just one method that companies use to establish their presence in economies outside their home country. Importing is the method used to acquire products not readily available from within the country or to acquire products at a less expensive cost than if it were produced in that country.

Countries may be in a favorable position to export for several reasons. A country may export goods if it is the world's sole supplier of a certain good, such as when it has access to natural resources others lack. Some countries are also able to manufacture products at a relatively lower cost than other countries, for example, when labor costs less. Other factors include the ability to produce superior quality goods or the ability to produce the goods in a season of the year when other countries need them (Branch, 1990).

BALANCE OF TRADE

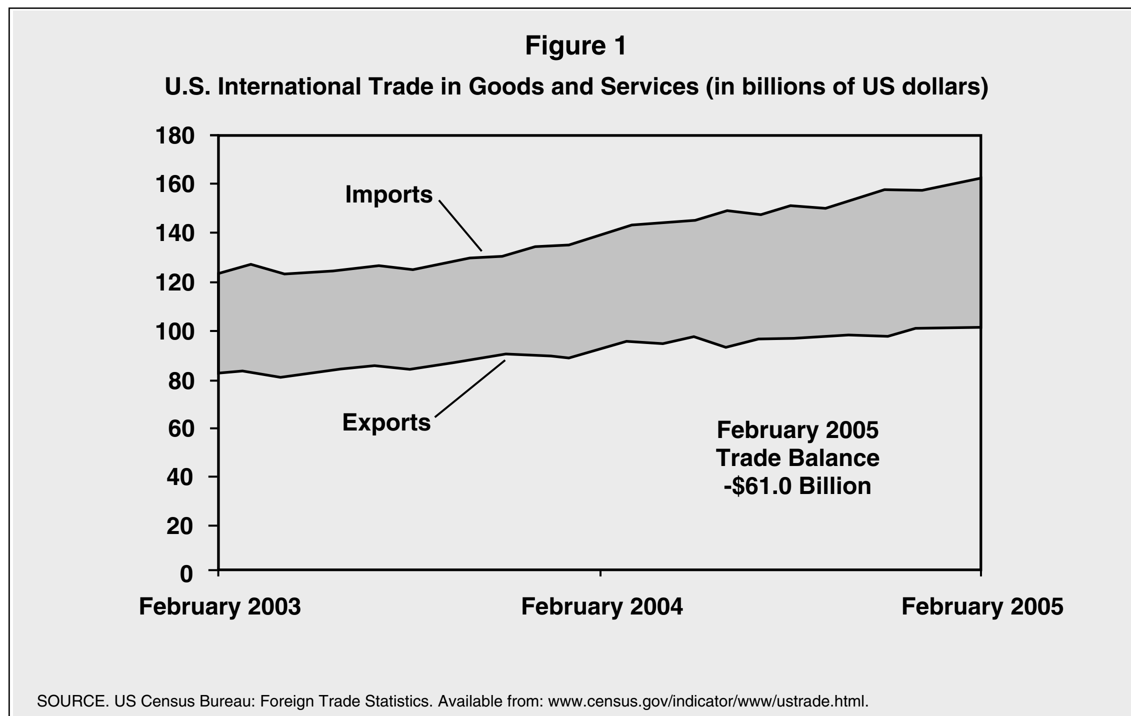
A country's international trade consists of both importing and exporting goods and services. The difference between the amount exported and the amount imported equals the balance of trade. A trade surplus consists of exporting more than importing while a trade deficit consists of importing more than exporting.

BRIEF HISTORY OF U.S. EXPORTS AND IMPORTS

The United States has been heavily dependent upon exporting throughout its history. It has played an important role in global trade as well. Even before its Declaration of Independence, the United States relied heavily on the exportation of cotton, tobacco, and other agricultural products to Europe for much of its commerce. After the Revolutionary War, the United States endured English duties and restrictions in Europe and the West Indies. This caused the United States to form new trade ties with overseas buyers in Africa, India, and East Asia, helping to form a legacy of U.S. trading overseas.

Although the United States thrived in exporting during its first 100 years, it was not until the Industrial Revolution gained momentum in the late 19th century that exporting began to significantly increase. This occurred mainly due to the technological advancements in communications, manufacturing, transportation, and food preservation techniques. It was during this time that the United States made the transition from being a supplier of agricultural products to a manufacturer of industrial goods, such as ships, railroads, clothes and cars.

However, in the first decades of the twentieth century there was an increase in protective trade barriers and restrictions created by counties to further their own trade interests. As a result, many laws were created to protect domestic industries and give local firms an advantage in trade. The Sherman Antitrust Act of 1890, the Federal Trade Commission Act of 1914, the



Trading with the Enemy Act of 1917, and the Smoot-Hawley Tariff Act of 1930 were some of the laws passed in the United States at this time. While not all of these were intended to reduce trade, and probably none were intended to devastate U.S. exports, the general pattern internationally was to raise protectionist trade barriers and tariffs in kind, creating an unfavorable climate for U.S. exports. This repressive trade environment is considered one of the causes of the Great Depression.

During the mid- and late 1930s, the United States and other nations cooperated to reduce trade barriers and create a smoother world trade climate. The U.S. Reciprocal Trade Agreements Act of 1934 helped to introduce lower tariffs and duties imposed on imports. As well, the most-favored-nation (MFN) trading program extended the benefits of any bilateral tariff reductions negotiated by the United States to all MFNs.

World War II helped to increase United States exports, as did reduced trade barriers. During the war, countries turned to the United States for supplies and the United States was increasingly perceived as an industrial power and a source of high-quality goods. In the postwar years, the United States emerged as the most powerful international trade leader, while the European and Japanese manufacturing sectors concentrated on rebuilding. From the 1940s to the 1960s, the U.S. trade surplus, the value of exports out of the country less the value of imports into the country, increased at a rate of 20 percent annually. U.S. exports continued to increase throughout the 1970s, growing from about $43 billion in 1970 to nearly $225 billion by 1980.

In the 1970s, however, increased competition from Western Europe and Japan wrested international market share from the United States. In the 1980s U.S. exports were outweighed by imports, as the national trade deficit grew to more than $160 billion annually by the late 1980s. Much of this deficit was due to oil imports; however, Japan's success at manufacturing quality goods for export, particularly autos and electronics, also contributed.

Despite this, increasing internationalization of markets and an ongoing effort to lower trade barriers greatly expanded global trading. From 1986 to 1990, U.S. merchandise exports contributed more than 40 percent of the rise in gross national product (GNP). In 1990, almost 84 percent of U.S. GNP growth was due to exports, which totaled a record high of $394 billion. The increase of U.S. exports in the late 1980s and early 1990s led to a significantly lower trade deficit and 2 million new jobs attributed to exports. The U.S. Department of Commerce estimates that for every $45,000 in export sales, one job is created, more than double the rate of jobs created by domestic sales. By calendar year 2004, annual U.S. exports of goods and services were around $1.147 trillion, leaving a $617 billion trade deficit, based on U.S. Census Bureau, Foreign Trade Statistics figures. According to World Trade Organization estimates, in 2004 the United States supplied about 9.6 percent of the world's merchandise exports by value. The United States was the world leader in imports claiming a 16.8 percent share of the world total imports.

CHARACTERISTICS OF EXPORTERS

Exports remain an important growth vehicle for U.S. companies, as many domestic product and service markets are saturated and offer only limited growth prospects. Today, many smaller firms export occasionally and seek to develop permanent, recurring business in foreign countries. Other companies only export to a few countries and want to increase the number of countries in which they do business. Fifteen percent of U.S. exporters account for 84 percent of the value of U.S. manufactured exports. One-half of all exporters sell in only one foreign market. Fewer than 20 percent of exporters, and fewer than 3 percent of U.S. companies overall, export to more than five markets.

METHODS OF EXPORTING

DIRECT EXPORTING. The typical exporting system is a company-owned export department, in which a manufacturer sells directly to companies or consumers in foreign countries. In this arrangement, the company has complete control over the marketing and distribution of its goods and services, distribution, sales, pricing, and other business choices. Most U.S. exporters, however, don't utilize this system. Many companies depend on one or several specialized export channels outside their organizations. Most companies choose direct and indirect routes. Direct exports are sold through foreign-based parties. Indirect exports are sold through home-based proxies or resellers. Both methods can be implemented through either merchants or agents. In these cases, merchants actually assume ownership of the goods, as opposed to agents, who only represent the manufacturer or owner. Bartering is another method that manufacturers may use to sell their goods abroad.

A direct merchant is an organization in a foreign country that buys goods in the United States, or another country, and then proceeds to sell the goods in their own country. The merchants usually offer complementary services to their buyers such as maintenance, parts sales, and technical support. A direct merchant often has a close relationship with the exporter, giving the merchant exclusive rights to sell and service the goods.

There are several different types of direct agents. Some direct agents, for example, are paid by U.S. firms on commission, have a contract, and usually do not sell competing products. The exporter trains the representative on the product and provides them with literature. Purchasing agents are similar to commission agents. They are sent to a foreign country by their company or homeland to purchase products for them. The agent is usually paid a fee or commission for this work. Purchasing agents are only in the target country for a short period of time and then leave.

INDIRECT EXPORTING. When a company uses a home-based merchant or agent to find and deliver goods to foreign buyers it utilizes indirect exporting. This method of exporting poses the least amount of risk and expense because it is relatively easy to start up and has a moderate up-front capital investment. Indirect agents act as intermediaries between the exporter and buyer and facilitate the flow of goods.

There are several different types of indirect agents. One is an export management company (EMC). EMCs usually represent several companies in one or more industries. The agent charges the domestic company a fee or commission and in return provides the manufacturer with access to foreign channels of distribution and knowledge of foreign markets. Another type of indirect agent is a Webb-Pomerene Association. There are about forty such associations in the United States. These associations are composed of competing manufacturers for the purpose of exporting. The associations are exempt from U.S. antitrust laws relating to price setting, discounting, and customer information. Export trading companies (ETCs) are another type of indirect agent. These were created in 1982 by the U.S. government to help U.S. manufacturers compete with powerful Japanese conglomerates. These companies are similar to EMCs and Webb-Pomerene Associations but are on a larger scale. Export commission houses are another form of indirect agent. In this case, commission agents represent buyers in foreign markets. The foreign buyer places an order and the commission agent solicits bids from domestic manufacturers. The lowest bidder is usually receives the order and is compensated by the foreign buyer with a fee or commission. This is an advantage for the exporter because the payment is usually received immediately and it takes little effort to complete the sale. Other forms of indirect trading include foreign freight forwarders, which manage overseas shipments for a fee; brokers, which bring buyers and sellers together, but do not handle or distribute the goods; and export agents, who represent the manufacturer, and act under their own name.

EXPORTING GUIDELINES

The international market is more than four times larger than the U.S. market. The growth rates in foreign countries are also much greater than domestic market growth. By exporting, companies can keep ahead of competition. Before implementing exporting, a company should measure the benefits against the costs and risks associated with it. The following are ten keys to keep in mind when exporting.

1. Obtain export counseling and create an international marketing plan before beginning to export. The plan should include goals, objectives, and expected problems.

2. Receive commitment from top management to correct initial problems and to meet financial requirements. Take a long-range view of exporting.
3. Carefully select foreign distributors. International distributors should act more independently than domestic ones, due to communication and transportation difficulties.
4. Establish a foundation for a profitable operation and growth.
5. Continue dedication to export effort even when U.S. market is booming. Many companies ignore their exporting plan when the U.S. economy picks up and subsequently fail.
6. Foreign distributors should be treated like domestic counterparts. Many companies implement advertising campaigns, discount offers, sales incentive programs, and so on to the U.S. market but don't make similar offers to their international distributors.
7. Do not assume that a marketing technique that works in one market will automatically work in others. Each market has to be treated separately to ensure success.
8. Be willing to make modifications to products to meet foreign regulations in other countries. Companies must take into account cultural preferences in other countries.
9. Messages pertaining to sale and warranties should be printed in languages locally understood. A company's foreign distributor may speak English, but it is unlikely that all sales and service personnel have this capability.
8. Readily available servicing for products should be provided. A company can earn a bad reputation when service support is not provided.

IMPORTING

Importing products into countries is often dependent on what product, commodity, or service is being imported. In the United States the Harmonized Tariff Schedule is the directory for determining what if any tariff is imposed on the product in question. Importing into any country should involve communicating with that country's customs agency to determine the necessary licensing and logistics issues. Often a customs broker is necessary to facilitate the smooth transfer of goods and services between countries. Inherently, importing involves exporting from one country; thus many of the issues involved in exporting are relevant and necessary for importing goods and services.

BARRIERS TO EXPORTS

Barriers to the export and import of goods have been widely established by governments. These barriers serve a number of purposes such as protecting industries, national employment levels, and improving trade balances. The United States and many other nations have made efforts to lower trade barriers, although many countries still have an intricate network of barriers that greatly impact the world export market.

The two major classes of trade restrictions are tariff and nontariff. Tariffs are duties imposed on goods leaving or coming into the country. Among other uses, tariffs are used to penalize other countries for trade or political actions. Nontariff barriers include quotas, taxes, and exchange rate controls. These can be broken down into six major categories that include specific trade limitations, customs and administrative entry restrictions, standards, government participation, import charges, and miscellaneous categories. Many governments offer various global export initiatives to encourage free trade. The General Agreement on Tariffs and Trade (GATT), which was signed by the United States and the majority of developed and developing countries, calls for a decrease of both tariff and nontariff barriers worldwide. Other important developments include the North American Free Trade Agreement of 1993, and the European Union's gradual evolution toward economic unity. These agreements significantly reduce trade barriers within the affected regions. In the United States, most governments support specific industries or companies through financial aid, lower tax rates, loans, and grants.

REASONS TO EXPORT

The most important reason a company begins exporting is to maximize profits by exploiting opportunities in foreign markets that are not available in domestic markets. A product may become obsolete in one country, but may be able to be sold abroad. By doing so, a manufacturer can reduce new product development costs and take advantage of learned efficiencies related to the product dealing with production, distribution, and marketing. When markets for products in the United States begin to mature and become saturated, producers can continue to receive continuous sales and profit gains through exporting. Markets in other countries are often less saturated and less competitive, allowing manufacturers to gain faster sales growth and higher profit margins. Foreign markets can provide shelter not only from maturing domestic markets, but also from increased competition in the home market. As manufacturing volume increases, benefits related to economies of scale aid the exporter's competitiveness in both foreign and domestic markets. Market risk diversification is also another benefit of exporting. A company can usually

decrease its exposure to cyclical economic downswings or regional problems by increasing its geographic opportunities. Exporting also decreases risks associated with seasonality of some products, e.g., warm-weather-related products might be marketed in the Southern Hemisphere when it's winter in the Northern Hemisphere.

As trade barriers continue to fall through the work of the World Trade Organization the value for a company to export their products will increase noticeably. The significant consumer buying power of many industrialized countries, especially the United States, is creating an ever expanding market for the exporting and importing of goods and services.

SEE ALSO: International Business; International Management; International Management

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Revised by Hal P. Kirkwood, Jr.

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F

FACILITATOR

A facilitator is a person who helps a group identify and solve problems by structuring the discussion and intervening when necessary to improve the effectiveness of the group's processes and outcomes. Facilitators, sometimes called moderators, maintain a neutral approach to topics and issues and serve the whole group in an unbiased manner.

The word *facilitator* is derived from the French word *faciliter,* which means to make easy or to simplify. Indeed, the goal of the facilitator is to make a group's decision-making process easy, efficient, and effective.

In the mid-1970s, Doyle and Strauss, authors of *How to Make Meetings Work,* argued that facilitators were "neutral servants" responsible for making sure participants were using the most effective approaches to problem solving and decision making while reaching consensus efficiently. The role of facilitators in business has grown dramatically in the past few years. A number of recent books published on the topic describe the responsibilities of a facilitator as well as approaches for developing facilitation skills. The distinction is often made between facilitators who are external to the organization or the group and facilitators who are internal. Both external and internal facilitators focus primarily on a group's process. In fact, some facilitators have minimal subject matter expertise.

THE ROLE OF THE FACILITATOR

Facilitators set the agenda for a group meeting or discussion, monitor the group's process in discussing agenda items, and help the group reach consensus, make decisions, and set action plans. Effective facilitators bring out a variety of opinions and ideas, at the same time ensuring that all participants feel they are valued contributors to the discussion. Facilitators monitor how the group works together by encouraging participation, protecting individuals from attack, and minimizing dominance by one or two participants.

Facilitators begin by clearly defining the role they will play and the strategies they will use. In addition, facilitators help set ground rules for how group members will interact with each other, how long and when group members will speak, and how the group will make decisions.

Facilitators use a number of strategies to help groups achieve their goals. Focusing on consensus building, facilitators help participants discuss issues so that the end result is an outcome that all participants can support. Voting might be used to assess the depth of agreement or disagreement, but final group decisions are reached by consensus.

Facilitators can be most effective when groups are discussing future-oriented tasks such as developing mission statements, vision and value statements, or conducting strategic planning. Facilitation is also useful when groups are discussing complex or controversial issues that require an outsider's unbiased attention to structure and process.

Typically, facilitators use flip charts, electronic boards, and web conferencing tools to capture ideas generated by group participants as well as the flow of the discussion. This visual reminder of the group's ideas, decisions, and action plans provide a "recorded" memory for the group during the discussion and the notes following the group meeting.

ADVANTAGES AND DISADVANTAGES OF USING FACILITATORS

Advantages for groups that use facilitators include a well-structured meeting, focus on a common goal and a common process, record of the group's discussion and decisions, and an efficient way to reach consensus and productive outcomes. Facilitators provide strategies to handle conflicts between members as well as other nonproductive participant behaviors that impede the group's process. They also absolve group participants from the responsibility of handling the discussion or staying neutral.

Disadvantages can occur when facilitators are not effective. If a facilitator loses objectivity, the group may feel manipulated by the facilitator's approach. Also, if the facilitator does not manage the group's process effectively, the group will either waste time reaching consensus or in some cases may not meet their goals at all. Finally, groups can become overly dependent on a facilitator and may not learn the skills and strategies necessary to make decisions.

MANAGERS AS FACILITATORS

While facilitators are usually not members of the group since they are required to remain neutral, there is a trend toward managers and team members developing facilitation skills that they can use in meetings and discussions. Managers who assume the role of a facilitator, by definition, are not neutral. Yet, through facilitation managers can lead teams in managing change and achieving workrelated outcomes. Specifically, managers as facilitators provide clear expectations of the work to be done, monitor the team's process to increase team productivity, and manage the boundaries that can affect the work of the team. The manager as a facilitator empowers team members to make decisions and resolve problems.

For frequent, regular meetings, groups may rotate responsibility for acting as facilitator among team members or meeting participants. This spares any one person from always bearing the responsibility for focusing discussions, following the agenda, and enforcing time limits.

In a business world marked by rapid change, the role of facilitators will continue to expand as the need for managers and teams to solve complex problems also grows.

SEE ALSO: Management Styles; Teams and Teamwork

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Revised by Wendy Mason

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FAMILY-FRIENDLY BUSINESS PRACTICES

SEE: Work-Life Balance

FEEDBACK

Feedback is the return of information about the result of a process, activity, or experience, usually relating to an individual's performance within a company. Feedback can be upward or downward in the organizational structure. Upward feedback is the process by which superiors or management are rated by employees or subordinates, while downward feedback is the flow of information from superiors or management to employees or subordinates.

In the past, feedback has been gathered from sources such as subordinates, peers, and internal or external customers. This is referred to as multi-source feedback when evaluations are collected from more than one source. In recent years, the majority of feedback has been collected for developmental purposes, but it seems that feedback is being used increasingly more in administrative decisions, including compensation and promotion. Such feedback is also being employed as a component of executive appraisals.

The impact of upward feedback is debatable, as is whether managers' responses to feedback are related to performance improvements over time. The major limitation of much research concerning feedback was that no one had examined whether managers' responses to such feedback were associated with performance improvement. It had been shown in the past that feedback alone was not the cause of behavior change; instead it was the goals that people set in response to feedback. A recent five-year study of upward feedback

was conducted to answer some of these questions. The research covered more than 250 managers who received upward feedback annually over the five years. The results show that managers who were initially rated as being poor or moderate registered significant improvements in upward feedback ratings over the next five-year period. The results also show that managers who participated in discussions about their upward feedback improved more than managers who did not. It further showed that managers improved more in years when they discussed the previous year's feedback than in years when they did not. This study is important because it shows what managers do with upward feedback is related to its benefits.

In the past, it has been assumed that discrepancies between self-ratings and subordinate ratings raise self-awareness, highlight gaps between goals and job performance, and suggest areas of needed improvement. According to the self-consistency theory, when managers receive feedback showing that subordinates ratings are lower than self-ratings, the managers may question whether their behavior is consistent with their self-image. This should, in theory, motivate the managers to improve their performance and reduce discrepancies between how they look at themselves and how subordinates perceive them. However, if the feedback is consistent with self-ratings, managers may be satisfied and may not be motivated to improve their work ethic, even if their current performance level is low. Accordingly, the theory suggests that managers whose subordinate ratings exceed their self-rating have little incentive to improve their performance.

A recent study investigated whether performance improvement following upward feedback is related to self-other rating discrepancies. It also investigated how self-ratings change after feedback and whether agreement among raters influences performance improvement. The study determined that managers who overrated themselves compared to how others rated them tended to improve their performance from one year to the next, while the under raters tended to decline. These results are consistent with the self-consistency theory. Self-ratings tended to decrease for over raters and increase for under raters, but this was not constant throughout the range of self-ratings. Agreement with subordinate ratings was found to be negatively related to performance improvement.

An issue related to self-ratings of performance is the degree to which employees proactively seek feedback about their own performance from supervisors and/or coworkers. Some studies have linked employees' feedback seeking to increases in job performance. By asking more often how they are doing, employees tend to know how to perform better. Employees seek feedback in order to reduce their uncertainty, to manage impressions of themselves in the workplace, and to protect their own egos. They are more likely to seek feedback when they have a positive relationship with the manager from which they seek feedback, when they feel that their manager has expertise, and if they feel that their manager is supportive of them. Additionally, employees may be more likely to seek feedback in private, rather than when others are present.

Beyond its uses in performance appraisal, feedback may also be seen as a more general tool for communication within organizations. Many companies all over the world now use e-mail and toll-free numbers to solicit feedback from their employees. Many of these companies reward employees for their good ideas. In some instances, employees are paid for ideas that turn into new products and technologies, while other companies' reward with job opportunities. By implementing a suggestion system, there is a direct link between an employee's suggestion and the rewards that the employee receives for it. The majority of employee ideas focus on improving safety and operations within the company.

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FINANCIAL ISSUES FOR MANAGERS

One of the most critical aspects of management pertains to the finances of running a firm. Although there are numerous issues facing modern managers with respect to financial management, the following sections will address three of the most ubiquitous—acquisition of outside capital for start-up and growth, management of working capital and cash flow, and the construction and implementation of a capital budgeting process. Accessing the capital markets is fundamental for procuring funds that allow the firm to grow. Working capital involves managing the current assets

and liabilities of the firm. Capital budgeting is the process of making long-term fixed asset investments.

ACCESSING THE FINANCIAL MARKETS

In the initial start-up of any firm, management must procure the funds needed to get the business off the ground. These funds may come from a variety of sources, but managers should be aware that all assets are initially financed with either of two sources of capital—equity and debt. The capital markets represent the method by which external funds are made available to firms requiring outside capital infusions.

EQUITY MARKETS. The equity markets are the means by which managers may raise capital by selling portions of the firm's ownership. The most common method is selling common stock in the firm. Outside investors provide the firm with new investment capital in exchange for ownership rights in the firm. As owners, stockholders receive voting rights and may participate in the financial success of the firm. In corporations, stockholders are protected by limited liability, meaning they are liable only for losses limited to the amount invested in the firm's stock; personal assets are protected against liability. Other sources of equity capital include contributions by the individual owner or owners from their own resources, and those made by family and friends of originators of the business.

Another method of raising equity capital involves the sale of preferred stock in the firm. Preferred stock promises to pay investors a stated dividend amount, and may also offer the opportunity for eventual conversion into common shares, commonly called convertible preferred stock. Preferred stock is particularly important for larger corporations as a source of funds because current tax law subsidizes the investment by one corporation in another corporation's preferred stock by exempting a portion of dividend income from taxation.

Other methods of equity capital attainment include the selling of warrants and rights. Warrants are securities that grant the holder the right to purchase a fixed number of common shares in the firm at a specified price for a specified period of time. Because warrants are stand-alone securities that may be traded among investors, the firm may raise new capital immediately through the sale of warrants while delaying the dilution of existing stockholders's interests until the warrants are exercised.

Rights are similar to warrants in that firms issue rights as a method of raising new equity capital. In a rights offering, the firm issues additional common stock to raise new capital. Rights are then issued to all outstanding shareholders, giving them the right to purchase shares in the new offering to avoid dilution of their pro-rata ownership in the firm. Through the use of rights, the firm is able to directly access the group of investors who are already interested in the firm's financial success, namely existing shareholders. Because rights have value in that they allow the purchase of new shares at a set subscription price, they are desired by shareholders and may be sold to others if the shareholder decides not to use the rights.

DEBT MARKETS. The other major market for outside capital is the debt market. The debt market is often vital to the financial success of a firm and managers must be familiar with, and have access to, outside sources of debt capital to ensure the survival of the firm. A common method of debt financing is borrowing from financial institutions. Banks, finance companies, and other lenders offer loans of varying terms that are critical for financial management, particularly short-term debt to alleviate temporary cash flow problems. A firm that experiences seasonal sales or uneven production schedules will sometimes utilize an established line of credit to borrow during times of capital needs and repay during times of cash surplus. By arranging credit lines prior to the capital need, managers assure that the firm will not experience sales or production interruptions due to cash shortages. For longer-term needs, negotiated notes from lenders serve as an intermediate source of debt financing.

For longer-term capital, the bond markets represent the primary source of debt financing. Bonds are debt securities in which investors become creditors of the firm in exchange for the right to receive payments of interest at regular intervals. For firms desiring to grow beyond local or regional status, access to the bond markets is critical for long-term capital needs, especially when firms do not desire to dilute existing ownership by offering additional equity financing.

SHORT-TERM FINANCIAL ISSUES

Short-term financial issues for managers revolve around two primary areas; the management of current assets and current liabilities. Together, they constitute the overall management of cash flow for the firm. Cash flow management is absolutely critical to the financial survival of a firm, since a shortage of cash may result in a firm that shows a profit on its income statement actually going bankrupt by being unable to meet its financial obligations.

CURRENT ASSETS. Management of a firm's current assets starts with the management of cash. Cash provides the liquidity needed to meet everyday obligations owed to creditors and suppliers and the flexibility to take advantage of new opportunities that may arise. Managing cash is a tricky issue for many firms; cash is a necessary component of daily operations, yet cash is a non-earning asset. Dollars tied up in cash (checking accounts) could be earning higher rates of return if

invested in other areas. Larger corporations spend considerable time and resources in cash management, whereby dollars are transferred back and forth between cash accounts and marketable securities that earn a higher rate of return. As previously mentioned, negotiated credit lines serve to supplement depleted cash during periods of shortage.

Another critical issue is the management of accounts receivable. Receivables are money owed to the firm that has not yet been collected. They represent an important investment for the firm, since dollars not yet received cannot earn a positive return. The management of accounts receivable involves the determination and implementation of the firm's credit policy such as how long customers are allowed to pay for merchandise or services received and cash discounts for immediate rather than deferred payment. These are important financial issues for any manager: to whom does the company extend credit, for how much, and for how long? A tight credit policy may result in missed sales opportunities, since fewer potential customers will qualify for credit sales. Conversely, liberal credit terms may result in longer average collection periods and greater uncollected accounts. There are real costs associated with these issues, and managers must work to find appropriate trade-offs that result not only in higher sales, but also in the greatest profitability.

A third aspect of current asset management involves the management of inventories. Like receivables, inventory represents an investment of resources by the firm that has yet to pay off. On one hand, adequate inventory levels are necessary to ensure uninterrupted production schedules and to meet unexpected sales demand. However, too much inventory means dollars tied up in non-earning assets that could be devoted to more profitable investments. Managers must decide whether to attempt to coordinate production with sales patterns, or maintain level production regardless of current demand. These decisions spill over into other areas such as employee morale, since uneven or random production scheduling may result in temporary layoffs or overtime requirements. Again, managers utilize negotiated credit lines to access capital to maintain needed inventory materials when production and sales patterns differ.

CURRENT LIABILITIES. Management of current liabilities involves accounts payable, short-term bank loans, lines of credit, and, for larger corporations, commercial paper. While the importance of short-term credit lines has already been discussed, accounts payable management is a critical issue, particularly for smaller firms. The longer a firm takes to pay its creditors, the longer it maintains access to and has the use of the funds. Thus, managers have every incentive to pay outstanding bills as slowly as possible. However, taking too long to pay may result in suppliers declining to offer future credit. Trade credit offered by suppliers is one of the most important sources of short-term financing for small firms that have limited access to other capital market sources. It is incumbent on managers to seek and negotiate the most favorable trade credit terms possible, since longer payment periods reduce potential cash flow problems and provide greater financial flexibility.

Larger corporations are able to issue commercial paper to provide short-term financial liquidity. Commercial paper is a short-term, unsecured note backed only by the firm's ability to repay. As such, only large, established firms find a market for their commercial paper. Firms such as General Motors use commercial paper as a regular source of short-term debt financing to cover cash flow shortages and provide the firm with ready liquidity.

CASH BUDGET. Pulling together the management of current assets and liabilities results in the development of a cash budget. A cash budget is a schedule of expected cash inflows and outflows by a period that allows managers the ability to plan for and cover cash shortfalls and surpluses. A successful cash budget prevents the types of surprises or shortages that can result in financial crises such as the inability to pay creditors or purchase additional inventory to meet production needs.

Likewise, managers should work to monitor and manage the firm's cash conversion cycle. The cash conversion cycle consists, primarily, of three elements: the inventory conversion period, the receivable collections period, and the payables deferral period. The goal of effective cash management is to minimize the inventory conversion and receivables collection periods, and to maximize the payables deferral period. Through the successful management of current assets and liabilities, managers can maintain a cash conversion cycle that provides the firm with liquidity and profitability while avoiding the cash flow problems that so often result in financial distress.

CAPITAL BUDGETING ANALYSIS

The third major financial issue for managers involves long-term investments. This area, collectively known as capital budgeting, involves investment in fixed assets such as plant and equipment, new product and business analysis, and expansion and merger analysis. Capital budgeting is extremely important, because the decisions made involve the direction and opportunities for the future growth of the firm. The goal of corporate management is to maximize shareholder wealth; profitable capital projects result in increased firm value.

DISCOUNTED CASH FLOW. This process is also known as discounted cash flow analysis. The first step in evaluating a long-term investment opportunity is to

estimate the net cash flows that would accrue to the firm. Managers should take care to use economically-sound techniques in cash flow analysis. All cash flows should be incremental (i.e., those that would otherwise not accrue to the firm unless this project or investment is undertaken). They should be on an after-tax basis; the only relevant cash flows are those that the firm will actually receive after all expenses and taxes are paid. Finally, sunk costs should not be included in the net cash flows associated with the project or investment. Only those cash flows associated with the future profitability of the investment should be included in the decision analysis. The proper economic decision is whether or not to invest today, and that decision is based on how the future cash flows will affect the present value of the firm. Past expenditures are not part of the analysis.

Once the project's net cash flows are determined, the timing of the cash flows should be considered. This is the discounted portion of discounted cash flow analysis. The decision of whether or not to invest is made in the present, so all dollars associated with the investment should be converted into present-value dollars. Managers must determine the proper interest rate at which to discount future cash flows. The discount rate should represent the opportunity cost of capital—the rate of return that could be earned on alternative investment projects of similar risk. Many firms set an internal "hurdle rate" for capital budgeting analysis, in effect saying no long-term investments will be undertaken that offer an expected rate of return lower than the hurdle rate. Normally, this rate is the weighted average cost of capital, which incorporates the firm's capital structure in determining the required rate of return on investment.

NET PRESENT VALUE ANALYSIS. Once the net cash flows are determined and the discount rate has been established, managers should utilize a discounted cash flow method to evaluate and rank investment alternatives. The most economically-sound technique is net present value analysis (NPV), which involves discounting all future project cash flows back to the present using the firm's discount rate, then subtracting the net cost of the investment project. If the present value of the future cash-flow stream exceeds the present cost, then undertaking the project would add value to the firm today. The NPV method is congruent with the idea of management's goal to maximize the present value, which represents shareholder wealth, of the firm.

INTERNAL RATE OF RETURN. Another popular technique is the internal rate of return (IRR) method. The IRR is actually a special case of the NPV method. The internal rate of return is the unique discount rate that equates the present value of the future cash flow stream to the net cost of the project. If the IRR of the project is greater than the firm's hurdle rate, then the project offers a chance to earn a profitable return on investment and should be undertaken.

PAYBACK METHOD. Finally, a third technique often used is the payback method. The payback method attempts to determine how long it will take for the project to recoup the total investment costs. Unlike the NPV and the IRR methods, the payback method is not a measure of profitability. Instead, it is a measure of time. Firms and managers often set a (subjective) hurdle period, such as no projects will be undertaken which do not recoup their initial costs in less than five years. The analysis then involves comparing the payback of the proposed investment to the firm's hurdle period. The payback method is popular because it provides an answer to a frequently-asked question—namely "how long before this investment pays for itself?" However, it is a flawed method because it does not consider all of the project's cash flows and does not consider the time value of money. Managers should employ the payback technique only in tandem with at least one of either the NPV or IRR discounted cash-flow methods.

Financial management is an integral aspect of managing a company. Accessing the capital markets to provide investment dollars, managing the working capital of the firm to ensure liquidity and flexibility, and making long-term investment decisions are all important issues that managers should address to allow the firm to grow and prosper.

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Revised by Scott B. Droege

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FINANCIAL RATIOS

Financial ratios are one of the most common tools of managerial decision making. A ratio is a comparison of one number to another—mathematically, a simple division problem. Financial ratios involve the comparison of various figures from the financial statements in order to gain information about a company's

performance. It is the interpretation, rather than the calculation, that makes financial ratios a useful tool for business managers. Ratios may serve as indicators, clues, or red flags regarding noteworthy relationships between variables used to measure the firm's performance in terms of profitability, asset utilization, liquidity, leverage, or market valuation.

USE AND USERS OF RATIO ANALYSIS

There are basically two uses of financial ratio analysis: to track individual firm performance over time, and to make comparative judgments regarding firm performance. Firm performance is evaluated using trend analysis—calculating individual ratios on a per-period basis, and tracking their values over time. This analysis can be used to spot trends that may be cause for concern, such as an increasing average collection period for outstanding receivables or a decline in the firm's liquidity status. In this role, ratios serve as red flags for troublesome issues, or as benchmarks for performance measurement.

Another common usage of ratios is to make relative performance comparisons. For example, comparing a firm's profitability to that of a major competitor or observing how the firm stacks up versus industry averages enables the user to form judgments concerning key areas such as profitability or management effectiveness. Users of financial ratios include parties both internal and external to the firm. External users include security analysts, current and potential investors, creditors, competitors, and other industry observers. Internally, managers use ratio analysis to monitor performance and pinpoint strengths and weaknesses from which specific goals, objectives, and policy initiatives may be formed.

PROFITABILITY RATIOS

Perhaps the type of ratios most often used and considered by those outside a firm are the profitability ratios. Profitability ratios provide measures of profit performance that serve to evaluate the periodic financial success of a firm. One of the most widely-used financial ratios is net profit margin, also known as return on sales.

$$\text{Net profit margin} = \frac{\text{net income}}{\text{net sales}}$$

Return on sales provides a measure of bottom-line profitability. For example, a net profit margin of 6 percent means that for every dollar in sales, the firm generated six cents in net income.

Two other margin measures are gross profit margin and operating margin.

$$\text{Gross profit margin} = \frac{\text{gross profit}}{\text{net sales}}$$

Gross margin measures the direct production costs of the firm. A gross profit margin of 30 percent would indicate that for each dollar in sales, the firm spent seventy cents in direct costs to produce the good or service that the firm sold.

$$\text{Operating margin} = \frac{\text{operating profit}}{\text{net sales}}$$

Operating margin goes one step further, incorporating nonproduction costs such as selling, general, and administrative expenses of the firm. Operating profit is also commonly referred to as earnings before interest and taxes, or EBIT. An operating margin of 15 percent would indicate that the firm spent an additional fifteen cents out of every dollar in sales on nonproduction expenses, such as sales commissions paid to the firm's sales force or administrative labor expenses.

Two very important measures of the firm's profitability are return on assets and return on equity.

$$\text{Return on assets} = \frac{\text{net income}}{\text{total assets}}$$

Return on assets (ROA) measures how effectively the firm's assets are used to generate profits net of expenses. An ROA of 7 percent would mean that for each dollar in assets, the firm generated seven cents in profits. This is an extremely useful measure of comparison among firms's competitive performance, for it is the job of managers to utilize the assets of the firm to produce profits.

$$\text{Return on equity} = \frac{\text{net income}}{\text{common shareholders equity}}$$

Return on equity (ROE) measures the net return per dollar invested in the firm by the owners, the common shareholders. An ROE of 11 percent means the firm is generating an 11-cent return per dollar of net worth.

One should note that in each of the profitability ratios mentioned above, the numerator in the ratio comes from the firm's income statement. Hence, these are measures of periodic performance, covering the specific period reported in the firm's income statement. Therefore, the proper interpretation for a profitability ratio such as an ROA of 11 percent would be that, over the specific period (such as fiscal year 2004), the firm returned eleven cents on each dollar of asset investment.

Table 1
Profitability Ratios

Gross profit margin	**Return on assets**
Operating margin	**Return on equity**
Net profit margin	

ASSET UTILIZATION RATIOS

Asset utilization ratios provide measures of management effectiveness. These ratios serve as a guide to critical factors concerning the use of the firm's assets, inventory, and accounts receivable collections in day-to-day operations. Asset utilization ratios are especially important for internal monitoring concerning performance over multiple periods, serving as warning signals or benchmarks from which meaningful conclusions may be reached on operational issues. An example is the total asset turnover (TAT) ratio.

$$\text{Total asset turnover} = \frac{\text{net sales}}{\text{total assets}}$$

This ratio offers managers a measure of how well the firm is utilizing its assets in order to generate sales revenue. An increasing TAT would be an indication that the firm is using its assets more productively. For example, if the TAT for 2003 was 2.2×, and for 2004 3×, the interpretation would follow that in 2004, the firm generated $3 in sales for each dollar of assets, an additional 80 cents in sales per dollar of asset investment over the previous year. Such change may be an indication of increased managerial effectiveness.

A similar measure is the fixed asset turnover (FAT) ratio.

$$\text{Fixed asset turnover} = \frac{\text{net sales}}{\text{net fixed assets}}$$

Fixed assets (such as plant and equipment) are often more closely associated with direct production than are current assets (such as cash and accounts receivable), so many analysts prefer this measure of effectiveness. A FAT of 1.6× would be interpreted as the firm generated $1.60 in sales for every $1 it had in fixed assets.

Two other asset utilization ratios concern the effectiveness of management of the firm's current assets. Inventory is an important economic variable for management to monitor since dollars invested in inventory have not yet resulted in any return to the firm. Inventory is an investment, and it is important for the firm to strive to maximize its inventory turnover. The inventory turnover ratio is used to measure this aspect of performance.

$$\text{Inventory turnover ratio} = \frac{\text{cost of goods sold}}{\text{average inventory}}$$

Cost of goods sold (COGS) derives from the income statement and indicates the expense dollars attributed to the actual production of goods sold during a specified period. Inventory is a current asset on the balance sheet. Because the balance sheet represents the firm's assets and liabilities at one point in time, an average figure is often used from two successive balance sheets. Managers attempt to increase this ratio, since a higher turnover ratio indicates that the firm is going through its inventory more often due to higher sales. A turnover ratio of 4.75×, or 475 percent, means the firm sold and replaced its inventory stock more than four and one-half times during the period measured on the income statement.

One of the most critical ratios that management must monitor is days sales outstanding (DSO), also known as average collection period.

$$\text{DSO} = \frac{\text{accounts receivable}}{\text{net sales}} \times 360 \text{ days}$$

This represents a prime example of the use of a ratio as an internal monitoring tool. Managers strive to minimize the firm's average collection period, since dollars received from customers become immediately available for reinvestment. Periodic measurement of the DSO will "red flag" a lengthening of the firm's time to collect outstanding accounts before customers get used to taking longer to pay. A DSO of thirty-six means that, on average, it takes thirty-six days to collect on the firm's outstanding accounts. This is an especially critical measure for firms in industries where extensive trade credit is offered, but any company that extends credit on sales should be aware of the DSO on a regular basis.

Table 2
Asset Utilization Ratios

Total asset turnover	**Days sales outstanding**
Inventory turnover	**Fixed asset turnover**

LEVERAGE RATIOS

Leverage ratios, also known as capitalization ratios, provide measures of the firm's use of debt financing. These are extremely important for potential creditors, who are concerned with the firm's ability to generate the cash flow necessary to make interest payments on outstanding debt. Thus, these ratios are used extensively by analysts outside the firm to make decisions concerning the provision of new credit or the extension of existing credit arrangements. It is also important for management to monitor the firm's use of debt financing. The commitment to service outstanding debt is a fixed cost to a firm, resulting in decreased flexibility and higher break-even production rates. Therefore, the use of debt financing increases the risk associated with the firm. Managers and creditors must constantly monitor the trade-off between the additional risk that comes with borrowing money and the increased opportunities that the new capital provides. Leverage ratios provide a means of such monitoring.

Perhaps the most straightforward measure of a firm's use of debt financing is the total-debt ratio.

$$\text{Total debt ratio} = \frac{\text{total debt}}{\text{total assets}}$$

It is important to recall that there are only two ways to finance the acquisition of any asset: debt (using borrowed funds) and equity (using funds from internal operations or selling stock in the company). The total debt ratio captures this idea. A debt ratio of 35 percent means that, for every dollar of assets the firm has, 35 cents was financed with borrowed money. The natural corollary is that the other 65 cents came from equity financing. This is known as the firm's capital structure—35 percent debt and 65 percent equity. Greater debt means greater leverage, and more leverage means more risk. How much debt is too much is a highly subjective question, and one that managers constantly attempt to answer. The answer depends, to a large extent, on the nature of the business or industry. Large manufacturers, who require heavy investment in fixed plant and equipment, will require higher levels of debt financing than will service firms such as insurance or advertising agencies.

The total debt of a firm consists of both long- and short-term liabilities. Short-term (or current) liabilities are often a necessary part of daily operations and may fluctuate regularly depending on factors such as seasonal sales. Many creditors prefer to focus their attention on the firm's use of long-term debt. Thus, a common variation on the total debt ratio is the long-term debt ratio, which does not incorporate current liabilities in the numerator.

$$\text{Long-term debt ratio} = \frac{\text{long-term debt}}{\text{total assets}}$$

In a similar vein, many analysts prefer a direct comparison of the firm's capital structure. Such a measure is provided by the debt-to-equity ratio.

$$\text{Debt-to-equity ratio} = \frac{\text{total debt}}{\text{total equity}}$$

This is perhaps one of the most misunderstood financial ratios, as many confuse it with the total debt ratio. A debt-to-equity ratio of 45 percent would mean that for each dollar of equity financing, the firm has 45 cents in debt financing. This does not mean that the firm has 45 percent of its total financing as debt; debt and equity percentages, together, must sum to one (100 percent of the firm's total financing). A little algebra will illustrate this point. Let x = the percent of equity financing (in decimal form), so $0.45x$ is the percent of debt financing. Then $x + 0.45x = 1$, and $x = 0.69$. So, a debt to equity ratio of 45 percent indicates that each dollar of the firm's assets are financed with 69 cents of equity and 31 cents with debt. The point here is to caution against confusing the interpretation of the debt-to-equity ratio with that of the total debt ratio.

Two other leverage ratios that are particularly important to the firm's creditors are the times-interest-earned and the fixed-charge coverage ratios. These measure the firm's ability to meet its on-going commitment to service debt previously borrowed. The times-interest-earned (TIE) ratio, also known as the EBIT coverage ratio, provides a measure of the firm's ability to meet its interest expenses with operating profits.

$$\text{Times interest earned} = \frac{\text{EBIT}}{\text{interest charges}}$$

For example, a TIE of 3.6× indicates that the firm's operating profits from a recent period exceeded the total interest expenses it was required to pay by 360 percent. The higher this ratio, the more financially stable the firm and the greater the safety margin in the case of fluctuations in sales and operating expenses. This ratio is particularly important for lenders of short-term debt to the firm, since short-term debt is usually paid out of current operating revenue.

Similarly, the fixed charge coverage ratio, also known as the debt service coverage ratio, takes into account all regular periodic obligations of the firm.

$$\text{Fixed charge coverage} = \frac{\text{EBIT}}{\left(\text{Interest expense} + \dfrac{\text{Principal repayment}}{1 - \text{tax rate}}\right)}$$

The adjustment to the principal repayment reflects the fact that this portion of the debt repayment is not tax deductible. By including the payment of both principal and interest, the fixed charge coverage ratio provides a more conservative measure of the firm's ability to meet fixed obligations.

Table 3

Leverage Ratios

Total debt ratio	**Times interest earned**
Long-term debt ratio	**Fixed charge coverage**
Debt-to-equity ratio	

LIQUIDITY RATIOS

Managers and creditors must closely monitor the firm's ability to meet short-term obligations. The liquidity ratios are measures that indicate a firm's ability to repay short-term debt. Current liabilities represent obligations that are typically due in one year or less. The current and quick ratios are used to gauge a firm's liquidity.

$$\text{Current ratio} = \frac{\text{current assets}}{\text{current liabilities}}$$

A current ratio of 1.5× indicates that for every dollar in current liabilities, the firm has $1.50 in current assets. Such assets could, theoretically, be sold and the proceeds used to satisfy the liabilities if the firm ran short of cash. However, some current assets are more liquid than others. Obviously, the most liquid current asset is cash. Accounts receivable are usually collected within one to three months, but this varies by firm and industry. The least liquid of current assets is often inventory. Depending on the type of industry or product, some inventory has no ready market. Since the economic definition of liquidity is the ability to turn an asset into cash at or near fair market value, inventory that is not easily sold will not be helpful in meeting short-term obligations. The quick (or acid test) ratio incorporates this concern.

$$\text{Quick ratio} = \frac{\text{current assets} - \text{inventories}}{\text{current liabilities}}$$

By excluding inventories, the quick ratio is a more strident liquidity measure than the current ratio. It is a more appropriate measure for industries that involve long product production cycles, such as in manufacturing.

Table 4
Liquidity Ratios

Current ratio	Quick ratio

MARKET VALUE RATIOS

Managers and investors are interested in market ratios, which are used in valuing the firm's stock. The price-earnings ratio and the market-to-book value ratio are often used in valuation analysis. The price/earnings ratio, universally known as the PE ratio, is one of the most heavily-quoted statistics concerning a firm's common stock. It is reported in the financial pages of newspapers, along with the current value of the firm's stock price.

$$\text{Price/earnings ratio} = \frac{\text{market price per share}}{\text{earnings per share}}$$

A note of caution is warranted concerning the calculation of PE ratios. Analysts use two different components in the denominator: trailing earnings and forecast earnings. Trailing earnings refer to the firm's reported earnings, per share, over the last twelve months of operation. Forecast earnings are based on security analyst forecasts of what they expect the firm to earn in the coming twelve-month period. Neither definition is more correct than the other; one should simply pay attention to which measure is used when consulting published PE ratios. A PE ratio of sixteen can be interpreted as investors are willing to pay $16 for $1 worth of earnings. PE ratios are used extensively, on a comparative basis, to analyze investment alternatives. In investment lingo, the PE ratio is often referred to as the firm's "multiple." A high PE is often indicative of investors's belief that the firm has very promising growth prospects, while firms in more mature industries often trade at lower multiples.

A related measure used for valuation purposes is the market-to-book value ratio. The book value of a firm is defined as:

$$\text{Book value per share} = \frac{\text{total shareholders equity}}{\text{common shares outstanding}}$$

Technically, the book value represents the value of the firm if all the assets were sold off, and the proceeds used to retire all outstanding debt. The remainder would represent the equity that would be divided, proportionally, among the firm's shareholders. Many investors like to compare the current price of the firm's common stock with its book, or break-up, value.

$$\text{Market-to-book ratio} = \frac{\text{market price per share}}{\text{book value per share}}$$

This is also known as the price/book ratio. If the ratio is greater than one, which is often the case, then the firm is trading at a premium to book value. Many investors regard a market-to-book ratio of less than one an indication of an undervalued firm. While the interpretation one draws from market ratios is highly subjective (do high PE or low PE firms make better investments?), these measures provide information that is valued both by managers and investors regarding the market price of a firm's stock.

Table 5
Market Value Ratios

Price/earnings ratio	Market-to-book ratio

CAUTIONS ON THE USE AND INTERPRETATION OF FINANCIAL RATIOS

Financial ratios represent tools for insight into the performance, efficiency, and profitability of a firm. Two noteworthy issues on this subject involve ratio calculation and interpretation. For example, if someone refers to a firm's "profit margin" of 18 percent, are they referring to gross profit margin, operating margin, or net profit margin? Similarly, is a quotation of a "debt ratio" a reference to the total debt ratio, the long-term debt ratio, or the debt-to-equity ratio? These types of confusions can make the use of ratio analysis a frustrating experience.

Interpreting financial ratios should also be undertaken with care. A net profit margin of 12 percent may

be outstanding for one type of industry and mediocre to poor for another. This highlights the fact that individual ratios should not be interpreted in isolation. Trend analyses should include a series of identical calculations, such as following the current ratio on a quarterly basis for two consecutive years. Ratios used for performance evaluation should always be compared to some benchmark, either an industry average or perhaps the identical ratio for the industry leader.

Another factor in ratio interpretation is for users to identify whether individual components, such as net income or current assets, originate from the firm's income statement or balance sheet. The income statement reports performance over a specified period of time, while the balance sheet gives static measurement at a single point in time. These issues should be recognized when one attempts to interpret the results of ratio calculations.

Despite these issues, financial ratios remain useful tools for both internal and external evaluations of key aspects of a firm's performance. A working knowledge and ability to use and interpret ratios remains a fundamental aspect of effective financial management. The value of financial ratios to investors became even more apparent during the stock market decline of 2000, when the bottom dropped out of the soaring "dot.com" economy. Throughout the long run-up, some financial analysts warned that the stock prices of many technology companies—particularly Internet start-up businesses—were overvalued based on the traditional rules of ratio analysis. Yet investors largely ignored such warnings and continued to flock to these companies in hopes of making a quick return. In the end, however, it became clear that the old rules still applied, and that financial ratios remained an important means of measuring, comparing, and predicting firm performance.

SEE ALSO: Balance Sheets; Cash Flow Analysis and Statement; Financial Issues for Managers; Income Statements

Howard Finch

Revised by Laurie Hillstrom

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FIRST-MOVER ADVANTAGE

The idea of first-mover advantage is similar to the old adage, "the early bird gets the worm." In business, being the first company to sell a new product may provide long-lasting benefits or competitive advantages. Most researchers use the term, "first mover" to refer to the first company to enter a market, not the first company to develop a product (the inventor). First movers are also called market pioneers. The benefits of pioneering may result in market dominance and higher-than-average profitability over time. There are several reasons why these benefits may develop, but research has shown that being the first mover does not always provide advantages. Sometimes there are even first-mover disadvantages, where companies that enter a market later can achieve superior results to those attained by the first-mover firm.

For example, Amazon.com was the first major online bookstore, seizing a head start on later entrants. Established book retailers Barnes & Noble and Borders were quick to develop their own Web sites. Amazon maintained their first-mover advantage in two ways; by partnering with Borders and continuing to extend their product offerings into apparel, electronics, toys, and housewares. This negated any customer preference for purchasing from Barnes & Noble by becoming a much larger, one-stop-shopping destination. Company strategists need to decide if they are likely to benefit from being first, or whether it would be better to wait and follow the leader.

There are two stages to developing first-mover advantages. First, a company must have an opportunity to be first at something, either through skill or luck. Second, the firm must be able to capture the benefits of being first. In their award-winning article, professors Marvin Lieberman and David Montgomery of Stanford University described three benefits of being first: technology leadership, control of resources, and buyer switching costs.

TECHNOLOGY LEADERSHIP

First, early entrants can lead other companies in their understanding and use of technology in ways that are hard for later entrants to copy. One way this can happen is that the early entrant learns how to reduce the costs of producing a product through accumulated experience in producing it. This is called a "learning" or "experience" curve effect. Unless later entrants can learn how to produce at these lower costs faster than the first entrant did, the first entrant will have a cost advantage. Harvard University Professor Michael Porter discusses how Procter & Gamble developed an advantage in disposable diapers in the United States.

However, researchers have found that in most industries it is relatively easy for later entrants to learn new technology quickly and overcome the lead held by the first-mover firm.

Another way that a first mover may benefit from technology leadership is by applying for patents for their technology to try to prevent other companies from copying it. Patents appear to protect first-mover advantages in some industries, such as pharmaceuticals. In many industries, though, later entrants can invent their own technology quickly enough so that the first-mover's patent protection does not matter. A stronger advantage from technology leadership arises when the first mover can establish their product as the industry standard, making it more difficult for followers to gain customer acceptance.

CONTROL OF RESOURCES

The second type of first-mover benefit is the ability to control a resource necessary for the business that is better than resources later entrants must use. For example, the first company to open a new type of restaurant in town may obtain the best location. This is considered to be one of the advantages exploited by Wal-Mart when they were the first to locate discount stores in small towns. Other resources that a first entrant may be able to control include a supply of raw materials needed to make the product, or access to shelf space at the supermarket. First-mover firms also have the opportunity to build resources that may discourage entry by other companies. For example, the first mover may increase production capacity or broaden their product line, signaling that there is not enough room for followers to enter and profit.

BUYER-SWITCHING COSTS

The final type of benefit that first movers may enjoy comes from buyer-switching costs. If it is costly or inconvenient for a customer to switch to a new brand, the first company to gain the customer will have an advantage. Switching costs include adapting to a new product (e.g., employee training), and penalties associated with breaking a long-term contract. Especially for consumer products, the first mover has the opportunity to shape consumer preferences. The first company to offer a product of acceptable quality may earn brand loyalty. Satisfied consumers tend not to spend time seeking information about other products, and tend to avoid the risk of being dissatisfied if they switch. The pioneering brands in many product categories, such as Coca-Cola soft drinks and Kleenex facial tissues, often dominate their markets for a long time. These brand preferences appear to be more important for products purchased by consumers than for products purchased by businesses. Businesses buy products in larger volume and have more incentive to search for information about lower-cost options.

UNCERTAINTY OF FIRST-MOVER ADVANTAGE

Three types of benefits—technology leadership, control of resources, and buyer switching costs—can provide long-lasting first-mover advantages. However, researchers believe that in many industries, companies entering later can overcome these advantages. Sometimes there are even first-mover disadvantages, or advantages enjoyed by companies who enter later. For example, the first entrant may invest heavily in enticing customers to try a new type of product. Later entrants would benefit from informed buyers without having to spend as much on education. Later entrants may be able to avoid mistakes made by the first movers. If first movers become complacent, later entrants may take advantage of changing customer needs. As the Internet continues to develop, technology companies find themselves especially susceptible to second- or later-mover success. Follower companies are reverse-engineering many new products to develop competing products either faster or cheaper—negating much of the first-mover advantage.

Researchers are continuing to learn under what conditions first-mover advantages are most likely to occur. They are looking for differences across industries and geographic markets. For example, consumer product markets appear to offer more first-mover advantages than industrial markets, but more research is needed on service industries. Little is known about first-mover effects in countries other than the United States, though some evidence suggests that pioneering advantages may be stronger in other countries. Another important factor appears to be the ability of the first-mover firm to use their other resources to maintain the initial advantage of being first. For example, a firm that is already strong in marketing and distribution may be better able to sustain a lead with a new product than a newly-formed company. Researchers are also studying successful follower strategies.

Given the uncertainty about when first-mover advantages occur, companies need to carefully consider their strategy. Does the firm want to invest in seeking opportunities to be first? If opportunities arise, what is the best approach to market timing? Which of the three types of benefits are likely to be available to the first entrant in this market? Does the firm have the resources to sustain any initial benefits they gain from being first? If someone else enters first, how difficult will it be to follow? What advantages might later entry provide in better or lower-cost technology, or better adaptation to customer needs? Although first-mover advantages may be attractive, there are also advantages to being a follower. Company strategists need to

decide which approach has the highest potential for long-term profits given their resources and market characteristics.

SEE ALSO: New Product Development; Product Life Cycle and Industry Life Cycle

Deborah R. Ettington
Revised by Hal P. Kirkwood, Jr.

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FIVE S FRAMEWORK

The 5S framework was originally developed by just-in-time expert and international consultant Hiroyuki Hirano. The 5S framework is an extension of Hirano's earlier works on just-in-time production systems. The 5Ss represent a simple "good housekeeping" approach to improving the work environment consistent with the tenets of lean manufacturing systems. The focus on the concept is how the visual workplace can be utilized to drive inefficiencies out of the manufacturing process. This framework also improves workplace safety, which makes it attractive to businesses. According to Hirano, without the organization and discipline provided by successfully implementing the 5Ss, other lean manufacturing tools and methods are likely to fail. The "5Ss" stand for the Japanese words seiri, seiton, seiso, seiketsu, and shitsuke. These Japanese "S" words roughly translate into the English words organization, orderliness, cleanliness, standardized cleanup, and discipline. Alternative corresponding "Ss" have also been developed for the English language: sort, set in order, shine, standardize, and sustain.

Seiri, or sort, focuses upon reducing the amount of rarely used material or tools that tend to attract clutter. Only those things required for immediate production should be retained in the work area. *Seiton,* or orderliness, facilitates the reduction of clutter and efficient access to material or tools by following the old adage "a place for everything and everything in its place." Workers readily know when a tool is missing due to a visual signals (e.g., empty space on a signboard). *Seiso,* or cleanliness, focuses upon keeping the workplace, machinery, and tools clean. This includes keeping tools and machinery calibrated, performing preventive maintenance and the use of visual cues to signal when maintenance is needed. *Seiketsu,* or standardized cleanup, is essentially the condition that occurs when the first three pillars—the first 3Ss—are implemented well. However, it also includes institutionalizing the first three pillars. This includes developing rules, processes and procedures to ensure continuity and uniformity of achievements accrued by the first three pillars do not erode over time. Finally, *shitsuke,* or discipline, focuses upon putting procedures into place that sustain the psychological meaningfulness of the payoffs achieved by the overall framework. This may include periodic rewards for workers who excel in some facet of the framework or other visual signals that communicate the commitment of management to the continued implementation of 5S.

Use of color is a primary tool of the visual workplace. Examples include color-coded connections to mistake-proof and speed connections of all sorts of parts and colored boundary markers on shop floors. Information sharing is also an important aspect of the visual workplace. For example, processes can be designed to provide visual signals indicating that certain activities need to occur (e.g., empty inventory space on floor), or communicate productivity standards and output.

In recent years, many companies have utilized the simple guidelines provided by the 5S framework. However, implementing the framework is not always a simple task. It may require redesigning processes or

buying new more reliable machinery. This difficulty has given rise to a burgeoning consulting business designed to help firms implement the 5S system including process design as well as employee training. Interestingly, while there appears to be a wide variety of firms utilizing the 5S framework, as of 2005, there is no published empirical research supporting its utility. There does however, appear to be some anecdotal evidence supporting the efficacy of the 5S framework.

SEE ALSO: Japanese Management; Lean Manufacturing and Just-in-Time Production; Quality and Total Quality Management

Jerry Bryan Fuller

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FLEXIBLE BENEFITS

SEE: Cafeteria Plan—Flexible Benefits

FLEXIBLE MANUFACTURING

Business firms generally choose to compete within one or two areas of strength. These areas of strength are often referred to as distinctive competencies, core competencies, or competitive priorities. Among the options for competition are price (cost), quality, delivery, service, and flexibility. An ever-increasing number of firms are choosing to compete in the area of flexibility. Generally, this has meant that the firm's major strength is flexibility of product (able to easily make changes in the product) or flexibility of volume (able to easily absorb large shifts in demand). Firms that are able to do this are said to have flexible capacity, the ability to operate manufacturing equipment at different production rates by varying staffing levels and operating hours, or starting and stopping at will. Specifically, manufacturing flexibility consists of three components: (1) the flexibility to produce a variety of products using the same machines and to produce the same products on different machines; (2) the flexibility to produce new products on existing machines; and (3) the flexibility of the machines to accommodate changes in the design of products.

FLEXIBLE MANUFACTURING SYSTEMS

A flexible manufacturing system (FMS) is a group of numerically-controlled machine tools, interconnected by a central control system. The various machining cells are interconnected, via loading and unloading stations, by an automated transport system. Operational flexibility is enhanced by the ability to execute all manufacturing tasks on numerous product designs in small quantities and with faster delivery. It has been described as an automated job shop and as a miniature automated factory. Simply stated, it is an automated production system that produces one or more families of parts in a flexible manner. Today, this prospect of automation and flexibility presents the possibility of producing nonstandard parts to create a competitive advantage.

The concept of flexible manufacturing systems evolved during the 1960s when robots, programmable controllers, and computerized numerical controls brought a controlled environment to the factory floor in the form of numerically-controlled and direct-numerically-controlled machines.

For the most part, FMS is limited to firms involved in batch production or job shop environments. Normally, batch producers have two kinds of equipment from which to choose: dedicated machinery or unautomated, general-purpose tools. Dedicated machinery results in cost savings but lacks flexibility. General purpose machines such as lathes, milling machines, or drill presses are all costly, and may not reach full capacity. Flexible manufacturing systems provide the batch manufacturer with another option—one that can make batch manufacturing just as efficient and productive as mass production.

OBJECTIVES OF FMS

Stated formally, the general objectives of an FMS are to approach the efficiencies and economies of scale normally associated with mass production, and to maintain the flexibility required for small- and medium-lot-size production of a variety of parts.

Two kinds of manufacturing systems fall within the FMS spectrum. These are assembly systems, which assemble components into final products and forming systems, which actually form components or final products. A generic FMS is said to consist of the following components:

1. A set of work stations containing machine tools that do not require significant set-up time or change-over between successive jobs. Typically, these machines perform milling, boring, drilling, tapping, reaming, turning, and grooving operations.
2. A material-handling system that is automated and flexible in that it permits jobs to move between any pair of machines so that any job routing can be followed.
3. A network of supervisory computers and microprocessors that perform some or all of the following tasks: (a) directs the routing of jobs through the system; (b) tracks the status of all jobs in progress so it is known where each job is to go next; (c) passes the instructions for the processing of each operation to each station and ensures that the right tools are available for the job; and (d) provides essential monitoring of the correct performance of operations and signals problems requiring attention.
4. Storage, locally at the work stations, and/or centrally at the system level.
5. The jobs to be processed by the system. In operating an FMS, the worker enters the job to be run at the supervisory computer, which then downloads the part programs to the cell control or NC controller.

BENEFITS OF FMS

The potential benefits from the implementation and utilization of a flexible manufacturing system have been detailed by numerous researchers on the subject. A review of the literature reveals many tangible and intangible benefits that FMS users extol. These benefits include:

- less waste
- fewer workstations
- quicker changes of tools, dies, and stamping machinery
- reduced downtime
- better control over quality
- reduced labor
- more efficient use of machinery
- work-in-process inventory reduced
- increased capacity
- increased production flexibility

The savings from these benefits can be sizable. Enough so that Ford has poured $4,400,000 into overhauling its Torrence Avenue plant in Chicago, giving it flexible manufacturing capability. This will allow the factory to add new models in as little as two weeks instead of two months or longer. Richard Truett reports, in *Automotive News,* that the flexible manufacturing systems used in five of Ford Motor Company's plants will yield a $2.5 billion savings. Truett also reports that, by the year 2010, Ford will have converted 80 percent of its plants to flexible manufacturing.

LIMITATIONS OF FMS

Despite these benefits, FMS does have certain limitations. In particular, this type of system can only handle a relatively-narrow range of part varieties, so it must be used for similar parts (family of parts) that require similar processing. Due to increased complexity and cost, an FMS also requires a longer planning and development period than traditional manufacturing equipment.

Equipment utilization for the FMS sometimes is not as high as one would expect. Japanese firms tend to have a much higher equipment utilization rate than U.S. manufacturers utilizing FMS. This is probably a result of U.S. users' attempt to utilize FMS for high-volume production of a few parts rather than for a high-variety production of many parts at a low cost per unit. U.S. firms average ten types of parts per machine, compared to ninety-three types of parts per machine in Japan.

Other problems can result from a lack of technical literacy, management incompetence, and poor implementation of the FMS process. If the firm misidentifies its objectives and manufacturing mission, and does not maintain a manufacturing strategy that is consistent with the firm's overall strategy, problems are inevitable. It is crucial that a firm's technology acquisition decisions be consistent with its manufacturing strategy.

If a firm chooses to compete on the basis of flexibility rather than cost or quality, it may be a candidate for flexible manufacturing, especially if it is suited for low- to mid-volume production. This is particularly true if the firm is in an industry where products change rapidly, and the ability to introduce new products may be more important than minimizing cost. In this scenario, scale is no longer the main concern and size is no longer a barrier to entry.

However, an FMS may not be appropriate for some firms. Since new technology is costly and requires several years to install and become productive,

it requires a supportive infrastructure and the allocation of scarce resources for implementation. Frankly, many firms do not possess the necessary resources. Economically justifying an FMS can be a difficult task—especially since cost accounting tends to be designed for mass production of a mature product, with known characteristics, and a stable technology. Therefore, it is difficult to give an accurate indication of whether flexible manufacturing is justified. The question remains of how to quantify the benefits of flexibility. In addition, rapidly-changing technology and shortened product life cycles can cause capital equipment to quickly become obsolete.

For other firms, their products may not require processes at the technological level of an FMS. IBM found that a redesigned printer was simple enough for high-quality manual assembly and that the manual assembly could be achieved at a lower cost than automated assembly. Potential FMS users should also consider that some of the costs traditionally incurred in manufacturing may actually be higher in a flexible automated system than in conventional manufacturing. Although the system is continually self-monitoring, maintenance costs are expected to be higher. Energy costs are likely to be higher despite more efficient use of energy. Increased machine utilization can result in faster deterioration of equipment, providing a shorter than average economic life. Finally, personnel training costs may prove to be relatively high.

For some firms, worker resistance is a problem. Workers tend to perceive automation as an effort to replace them with a tireless piece of metal that does not eat, take breaks, or go to the bathroom. To combat this perception, many firms stress that workers are upgraded as a result of FMS installation, and that no loss of jobs ensues. Despite any problems, use of flexible manufacturing systems should continue to grow as more firms are forced to compete on a flexibility basis and as technology advances. It has shown many advantages in low- to mid-volume, high-mix production applications. Future systems will probably see lower and lower quantities per batch. FMS can somewhat shift emphasis in manufacturing from large-scale, repetitive production of standard products to highly-automated job shops featuring the manufacture of items in small batches for specific customers. The increased availability of flexible manufacturing technology will also give multi-product firms more choices of how to design production facilities, how to assign products to facilities, and how to share capacity among products.

BEYOND FLEXIBLE MANUFACTURING: AGILE MANUFACTURING

Fliedner and Vokurka, in their *Production and Inventory Management Journal* article on agile manufacturing, define agile manufacturing as the ability to successfully market low-cost, high-quality products with short lead times (and in varying volumes) that provide enhanced customer value through customization. An agile firm manages change as a matter of routine. The difference between agility and flexibility is whether or not the change in market demand has been predicted. Flexibility refers to the capability of rapidly changing from one task to another when changing conditions are defined ahead of time. Agility refers to the ability to respond quickly to unanticipated marketplace changes. Fliedner and Vokurka present four, key dimensions of agile competition:

1. Enriching the customer. This requires a quick understanding of the unique requirements of individual customers and rapidly meeting those requirements.
2. Cooperating to enhance competitiveness. This includes better intraorganizational cooperation and may extend to interorganizational cooperation—such as supplier partnerships and virtual relationships.
3. Organizing to master change and uncertainty. This involves utilizing new organizational structures provided by such techniques as concurrent engineering and cross-functional teams.
4. Leveraging the impact of people and information. This places great emphasis on the development of employees through education, training, and empowerment.

IMPLEMENTING AGILE MANUFACTURING

Finally, the two authors prescribe a series of internal and external initiatives for successful implementation of agile manufacturing. The internal initiatives include the following:

1. Business process reengineering. This is the rethinking and radical redesign of business processes so that dramatic improvements in critical areas can be achieved.
2. Management planning and execution tools. This involves the use of such techniques as manufacturing resource planning, real-time manufacturing execution systems, production planning configurators, and real-time threaded scheduling.
3. Design for manufacturability/assembly. The results include modular products that allow for future upgrades, fewer parts for enhanced reliability, and recycling.
4. Reorganization processes. Process reorganization could include the use of flexible manufacturing systems or cellular manufacturing.

5. Intraorganizational cooperation. This form of cooperation calls for the use of employee empowerment/involvement techniques and employee education and training.

External initiatives include:

1. Interorganizational cooperation. This means early supplier involvement in product and process designs, training suppliers in such activities as vendor-managed inventories, and joint research efforts.
2. Supply chain practices. The use of outsourcing, schedule sharing, and postponement of product design are included.
3. Information technology. Some companies are using technology to improve supply chain improvement. For example, the move from centralized, mainframe computing to decentralized, client and server computing.
4. Point-of-sale data collection. Reductions in order entry time are being achieved with electronic data interchange (EDI), radio frequency communications tools, bar coding, and electronic commerce.

The authors feel that flexibility provided by agility may emerge as the most important competitive priority of the early twenty-first century, as competition is expected to ensure that manufacturers will increasingly need to adapt readily to market shifts. Ford Motor Company has reportedly invested $350 million in new, agile manufacturing equipment at its Cleveland Engine Plant. A Ford Vice President describes the move as the heart of lean manufacturing.

SEE ALSO: Cellular Manufacturing; Economies of Scale and Economies of Scope; Lean Manufacturing and Just-in-Time Production

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FLEXIBLE SPENDING ACCOUNTS

Flexible spending accounts (FSAs), sometimes called reimbursement accounts, are accounts set up by employers. These accounts allow employees to make annual, pre-tax contributions that can be used to pay for certain health care and dependent care expenses that are not paid for by insurance companies. FSAs are offered under the umbrella of cafeteria benefit plans and are sometimes called cafeteria plans. FSAs must comply with all applicable rules and regulations governing benefits under cafeteria plans.

FLEXIBLE SPENDING ACCOUNTS IN PRACTICE

Employers must establish flexible spending accounts so that they comply with all applicable federal legislation. Once an FSA is established, employees have the opportunity to sign up for the plan during the annual "open enrollment" period. During the sign-up period that precedes the plan year, employees must estimate the relevant costs they are likely to incur during the year and indicate the amount of money they want set aside in the FSA for the year. Usually, the money is set aside using regular payroll deductions from the employee's paychecks. The deductions from employees' wages are pre-tax, thus reducing the employee's tax liability. Employees must carefully consider the amount they elect to contribute to the FSA, because amounts unused at the end of the plan year cannot be carried over to the next year and are forfeited by the employee if a balance remains at the end of the year. There is no legal limit to the annual amount that can be set aside, but employers can set their own limit if they wish.

As employees incur eligible expenses throughout the plan year, they must obtain and retain all receipts and documentation. Employees then provide required documentation that they have incurred eligible expenses (usually by providing receipts for the expenditures) and are reimbursed from the accumulated money in their account. Employees can turn in requests for reimbursement throughout the plan year or save all their documentation and turn in their request at the end of the plan year. Utilizing a flexible spending account requires employees to carefully plan and estimate their expenses. Flexible spending accounts can result in tax

savings for both employers and participating employees, and can also result in greater understanding on the part of employees as to the cost of their health care and their responsibility for planning and budgeting to meet the cost. Recent innovations in FSAs include the introduction of debit cards by some employers. These debit cards allow employees to obtain immediate reimbursement for eligible expenses rather than compiling receipts and documentation, submitting the paperwork, and waiting for the employer to cut them a check.

EXPENSES ELIGIBLE FOR COVERAGE UNDER FSAS

Flexible spending accounts can be used to pay for eligible costs related to health care and dependent care for children or elderly parents. FSAs cover insurance premiums, deductibles, co-payments, prescription drugs, and many health-related expenses not covered by an employee's health insurance. For example, employees can pay for procedures and items such as laser eye surgery, orthodontia, hearing aids, and contact lenses with their FSAs. Flexible spending accounts can also be used to pay for certain expenses related to child and elder care. In 2003, the government expanded the drug coverage under FSAs to include certain types of over-the-counter drugs, such as pain relievers, cold medicines, nicotine patches, and allergy medications.

ORIGINATION OF FLEXIBLE SPENDING ACCOUNTS

The United States Congress passed Internal Revenue Code Section 125 in the late 1970s. Section 125 allows employers to offer cafeteria plans to their employees. Such a plan allows employees to choose, from among a menu of optional benefits, those that best fit their individual needs; thus, employees can customize their benefit packages. To be in compliance with Section 125, all the participants in the plan must be employees and the plan must allow employees to choose among cash and qualified benefits. When an employee elects to receive an optional benefit under a cafeteria plan, there are tax advantages to both the employer and employee. Since the employee's taxable income is reduced, the employer pays less Federal Insurance Contributions Act (FICA) tax. The employee subsequently pays less FICA and state/federal income tax. Employees' choices of optional benefits are limited only by the total benefit dollars available and the variety of benefits offered by the employer. Benefits that can be included in a Section 125 cafeteria plan include, among others:

- Group-term life insurance that meets certain guidelines
- Health insurance and/or accident insurance
- Legal services
- Deferred compensation plans, such as 401(k)s
- Flexible spending accounts for health care or dependent care expenses

Although flexible spending accounts have been available since the enactment of Section 125 in the late 1970s, for many years employers didn't offer them and only a small percentage of eligible employees utilized them. There were various reasons for their lack of popularity. Employers were initially put off by what they perceived as the complexity and administrative costs associated with cafeteria plans in general, and flexible spending accounts in particular. Employees were reluctant to participate because of the forfeiture rule, which requires a participating employee to "use or lose" the funds set aside in the FSA each year. The advent and spread of managed care plans, such as health maintenance organizations (HMOs) and preferred provider organizations (PPOs) in the 1980s and 1990s, also hampered the growth of flexible spending accounts. Managed care plans often included a low (or no) deductible, low co-payments, and coverage for preventive care. Employees' "out-of-pocket" health care expenses were often reduced; thus there was less incentive for employees to set aside money to cover non-reimbursed medical or dependent care expenses.

Rising health care costs and dissatisfaction with managed care plans in the 1990s and early 2000s however, caused many organizations to look for ways to cut health care costs. Many found it necessary to raise the premiums employees pay for health insurance, the deductible employees pay before health expenditures are covered, and the co-payments that employees pay once deductibles are met. Thus, employees' out-of-pocket expenses rose. The flexible spending account offers a way for employees to cover some of these extra expenses with pre-tax dollars, which lowers their out-of-pocket expenses. For example, if an employee had $2,500 a year of non-reimbursed medical expenses, and an FSA plan, they could set aside this amount from pre-tax earnings. Depending on the employee's overall tax rate, this could save the employee 25 to 35 percent in state and federal taxes, in addition to FICA savings. Employers offering FSAs also benefit, because employee contributions to an FSA reduce the amount of FICA taxes employers pay on their behalf. Because of this, a large percentage of employers now offer FSAs and similar types of accounts such as medical savings accounts and health savings accounts, with a large percentage of eligible employees taking part in this benefit.

A 2004 survey by the Society for Human Resource Management found that over 70 percent of member

organizations offer flexible spending accounts as part of a cafeteria benefits plan. Small employers however, are much less likely to offer such plans. For example, one Bureau of Labor Statistics report estimated that only 4 percent of employers with fewer than 100 employees offer flexible spending accounts.

DIFFERENCES BETWEEN FLEXIBLE SPENDING ACCOUNTS AND HEALTH SAVINGS ACCOUNTS

Flexible spending accounts are similar to, but very different from, health savings accounts (HSAs). Flexible spending accounts have been available since the 1970s, although they have not always been widely utilized. Health savings accounts were created in 2003. Flexible spending accounts can be offered in conjunction with just about any type of medical insurance coverage because they are designed to cover expenses not otherwise covered. Health savings accounts, on the other hand, can only be offered as part of a "high deductible" insurance plan. The high-deductible plan must have a minimum $1,000 deductible for single employees and a $2,000 deductible for families. In addition, flexible spending plans basically allow employees to contribute up to an employer-specified maximum to their FSA each year. HSAs, limit employee contributions to the amount of the deductible in their health insurance plan. The contribution levels were initially capped at $2,600 for single employees and $5,150 for families. The deductible and contribution limits will increase over time, as they are tied to measures of inflation.

Perhaps the largest difference between flexible spending accounts and health savings accounts is in the way unused funds in the accounts are handled. Funds left unused in the FSA after the plan year ends are forfeited by the employee, which accounts for the largest drawback to their use. Health savings account contributions, in contrast, can be rolled over from year to year; thus, amounts left unused in one plan year can be applied to expenses incurred in a successive year. This is a major advantage of HSAs as opposed to FSAs.

Employers will likely continue to offer flexible spending accounts as a means to allow employees to better manage their health-care expenditures. However, the advent of health savings accounts in 2003, and another recent innovation—the health reimbursement account (HRA)—have both increased and complicated the choices available to employers and employees. Employers have the difficult choice of which plan to offer to employees, and employees have a difficult choice as to which of these plans best fit their needs. The federal government has provided guidance and illustration to employers to help them see the advantages and disadvantages of each plan. Employers have the responsibility of fully communicating to employees the range of options available to them and the strengths and weaknesses of each. The Human Resources department in the organization should take the lead in educating employees as to the opportunities available to them so that employees can make informed choices as they attempt to maintain quality health coverage at an affordable cost.

SEE ALSO: Employee Benefits; Health Savings Accounts

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FOCUSED FACTORY

The term *focused factory,* was introduced in a 1974 *Harvard Business Review* article authored by Wickham Skinner. Responding to what the popular press called a "productivity crisis," Skinner introduced his solution to the problem. Skinner conducted a study of approximately fifty companies and found that the problem was not only productivity, but also the ability to compete. Manufacturing policies had not been designed, tuned, and focused (as a whole) on that one, key, strategic, manufacturing task essential to the company's success. Skinner urged manufacturers to learn to focus each plant on a limited, concise, manageable set of products, technologies, volumes, and markets. He also encouraged firms to learn to structure basic manufacturing policies and supporting services so that they focus on one, specific, manufacturing task instead of upon many inconsistent, conflicting, or implicit tasks.

Often, a conventional factory produces many products for many customers in many markets. This

requires a multitude of simultaneous tasks from one group of resources. Managers in these plants may be striving for economies of scale and lower capital investment. Instead, they may end up with a hodgepodge of compromises, according to the focused-factory notion. Rather than designing the manufacturing policy around one, specific task, many possibly-contradictory objectives may coexist. The wage system may be established with an emphasis on high productivity, while production control may favor short lead times. Meanwhile, inventory control may want to minimize inventory levels, which means low order quantities. Production wants minimum setup time, which means large order quantities; all the while, plant engineers may want a plant layout that minimizes material handling and process design, which maximizes quality.

One way to compete effectively is to focus the entire manufacturing system on a limited task that is precisely defined by the company's strategy and its technological and economic limitations. A common objective can produce synergistic effects while minimizing power struggles between the departments. In his article, Skinner recommended that firms:

- Centralize the factory's focus on relative competitive ability.
- Avoid the common tendency to add staff and overhead in order to save on direct labor and capital investment.
- Let each manufacturing unit work on a limited task instead of the usual, complex mix of conflicting objectives, products, and technologies.

A factory focused on a narrow product mix for a particular market niche will outperform a conventional plant with a broad mission.

Because its equipment, supporting systems, and procedures can concentrate on a limited task for one set of customers, its overhead and other costs are likely to be lower than those of a conventional factory. A focused plant can become a competitive weapon because all its resources are focused on accomplishing the limited manufacturing task dictated by the company's overall strategy and marketing objectives. Simplicity, repetition, experience, and homogeneity of tasks breed competence. Remember, each key function area in manufacturing must have the same objective, one that is derived from corporate strategy. This task congruence can produce a manufacturing system that performs a limited number of tasks very well, thus creating a formidable competitive weapon.

If a firm wants to produce a number of entirely-different products with different technologies, markets, or volumes, it should do so in a number of separate plants. The implication here is the need for investment in new plants, new equipment, new tooling, training, and so forth—not the most practical idea for most firms. A more practical approach is Skinner's concept of a "plant within a plant," or PWP. Factories utilizing PWPs divide an existing facility, both physically and organizationally, into a number of PWPs. Each PWP has its own facilities within which to concentrate on its particular manufacturing task, use its own workforce approaches, production control, organizational structure, and so on.

The predicted results are as follows:

- Quality and volume are not mixed.
- Worker training and incentives have a clear focus.
- Engineering of processes, equipment, and materials handling are specialized as needed.

In an *Industry Week* Census of Manufacturers, a survey of the manufacturing practices currently most in favor among U.S. manufacturers, George Taninecz cross-tabulated plant practices against plant performance to determine practices most likely to produce the best performance. Of the plants, 61 percent surveyed had adopted a focused-factory approach that grouped employees, equipment, and support staff (engineering and marketing) into self-sustained operations. Focused factories reported major cuts in cycle time and better on-time delivery rates. Of the focused factories, 18.5 percent reduced cycle time by more than 50 percent over the previous five years, while 46 percent improved cycle time by more than 20 percent. A small number of practices showed strong correlation with productivity and cost reductions—among these was the focused factory approach.

The focused-factory concept is not limited to manufacturing only, but can be applied in service environments such as health care. From an inpatient perspective, witness the increase in specialty hospitals where staff, equipment and management attention is dedicated to one, particular type of disease or ailment. The current increase of ambulatory surgery centers (ASC) validates the use of a focused factory for outpatient care. Within the ASC, surgical equipment, staff, and scheduling are dedicated to a relatively-narrow range of procedures rather than being multipurpose. Fewer emergency interruptions and less down time between procedures allow physicians to perform more procedures within a given time frame. One example of focused-factory adoption is the Shouldice Hospital in Toronto, which performs only abdominal hernia operations. Eventually, we may observe facilities no longer organized by medical specialty but for the total needs of the patient. Focused factories are also cropping up in rehabilitation, long-term acute care, neonatal intensive care, cancer, AIDS, and orthopedic facilities.

Little empirical support has been offered to support the claims made by advocates of the focused factory.

However, a recent study by Robert Vokurka and Robert Davis found that focused plants have fewer final products with more standardization, and fewer variations, resulting in fewer required setups. They also found focused factories to have better flow, more automation, and less variation in customer delivery. The combination of these benefits then results in the need for fewer supporting staff. Vokurka and Davis also found focused factories to be superior to unfocused plants on such performance indicators as cost, quality, dependability, and speed. Of more significance was their finding that focused factories were superior in all financial measures—including profitability levels, returns, and growth. From a service perspective, a recent survey by Casalino, Devers, and Brewster found that specialized health care facilities experienced increased productivity and quality and decreased costs.

SEE ALSO: Product-Process Matrix; Strategy Formulation

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FORECASTING

Forecasting involves the generation of a number, set of numbers, or scenario that corresponds to a future occurrence. It is absolutely essential to short-range and long-range planning. By definition, a forecast is based on past data, as opposed to a prediction, which is more subjective and based on instinct, gut feel, or guess. For example, the evening news gives the weather “forecast” not the weather “prediction.” Regardless, the terms forecast and prediction are often used interchangeably. For example, definitions of regression—a technique sometimes used in forecasting—generally state that its purpose is to explain or “predict.”

Forecasting is based on a number of assumptions:

1. The past will repeat itself. In other words, what has happened in the past will happen again in the future.
2. As the forecast horizon shortens, forecast accuracy increases. For instance, a forecast for tomorrow will be more accurate than a forecast for next month; a forecast for next month will be more accurate than a forecast for next year; and a forecast for next year will be more accurate than a forecast for ten years in the future.
3. Forecasting in the aggregate is more accurate than forecasting individual items. This means that a company will be able to forecast total demand over its entire spectrum of products more accurately than it will be able to forecast individual stock-keeping units (SKUs). For example, General Motors can more accurately forecast the total number of cars needed for next year than the total number of white Chevrolet Impalas with a certain option package.
4. Forecasts are seldom accurate. Furthermore, forecasts are almost never totally accurate. While some are very close, few are “right on the money.” Therefore, it is wise to offer a forecast “range.” If one were to forecast a demand of 100,000 units for the next month, it is extremely unlikely that demand would equal 100,000 exactly. However, a forecast of 90,000 to 110,000 would provide a much larger target for planning.

William J. Stevenson lists a number of characteristics that are common to a good forecast:

- Accurate—some degree of accuracy should be determined and stated so that comparison can be made to alternative forecasts.
- Reliable—the forecast method should consistently provide a good forecast if the user is to establish some degree of confidence.
- Timely—a certain amount of time is needed to respond to the forecast so the forecasting horizon must allow for the time necessary to make changes.
- Easy to use and understand—users of the forecast must be confident and comfortable working with it.
- Cost-effective—the cost of making the forecast should not outweigh the benefits obtained from the forecast.

Forecasting techniques range from the simple to the extremely complex. These techniques are usually classified as being qualitative or quantitative.

QUALITATIVE TECHNIQUES

Qualitative forecasting techniques are generally more subjective than their quantitative counterparts. Qualitative techniques are more useful in the earlier stages of the product life cycle, when less past data exists for use in quantitative methods. Qualitative methods include the Delphi technique, Nominal Group Technique (NGT), sales force opinions, executive opinions, and market research.

THE DELPHI TECHNIQUE. The Delphi technique uses a panel of experts to produce a forecast. Each expert is asked to provide a forecast specific to the need at hand. After the initial forecasts are made, each expert reads what every other expert wrote and is, of course, influenced by their views. A subsequent forecast is then made by each expert. Each expert then reads again what every other expert wrote and is again influenced by the perceptions of the others. This process repeats itself until each expert nears agreement on the needed scenario or numbers.

NOMINAL GROUP TECHNIQUE. Nominal Group Technique is similar to the Delphi technique in that it utilizes a group of participants, usually experts. After the participants respond to forecast-related questions, they rank their responses in order of perceived relative importance. Then the rankings are collected and aggregated. Eventually, the group should reach a consensus regarding the priorities of the ranked issues.

SALES FORCE OPINIONS. The sales staff is often a good source of information regarding future demand. The sales manager may ask for input from each salesperson and aggregate their responses into a sales force composite forecast. Caution should be exercised when using this technique as the members of the sales force may not be able to distinguish between what customers say and what they actually do. Also, if the forecasts will be used to establish sales quotas, the sales force may be tempted to provide lower estimates.

EXECUTIVE OPINIONS. Sometimes upper-levels managers meet and develop forecasts based on their knowledge of their areas of responsibility. This is sometimes referred to as a jury of executive opinion.

MARKET RESEARCH. In market research, consumer surveys are used to establish potential demand. Such marketing research usually involves constructing a questionnaire that solicits personal, demographic, economic, and marketing information. On occasion, market researchers collect such information in person at retail outlets and malls, where the consumer can experience—taste, feel, smell, and see—a particular product. The researcher must be careful that the sample of people surveyed is representative of the desired consumer target.

QUANTITATIVE TECHNIQUES

Quantitative forecasting techniques are generally more objective than their qualitative counterparts. Quantitative forecasts can be time-series forecasts (i.e., a projection of the past into the future) or forecasts based on associative models (i.e., based on one or more explanatory variables). Time-series data may have underlying behaviors that need to be identified by the forecaster. In addition, the forecast may need to identify the causes of the behavior. Some of these behaviors may be patterns or simply random variations. Among the patterns are:

- Trends, which are long-term movements (up or down) in the data.
- Seasonality, which produces short-term variations that are usually related to the time of year, month, or even a particular day, as witnessed by retail sales at Christmas or the spikes in banking activity on the first of the month and on Fridays.
- Cycles, which are wavelike variations lasting more than a year that are usually tied to economic or political conditions.
- Irregular variations that do not reflect typical behavior, such as a period of extreme weather or a union strike.
- Random variations, which encompass all non-typical behaviors not accounted for by the other classifications.

Among the time-series models, the simplest is the naïve forecast. A naïve forecast simply uses the actual demand for the past period as the forecasted demand for the next period. This, of course, makes the assumption that the past will repeat. It also assumes that any trends, seasonality, or cycles are either reflected in the previous period's demand or do not exist. An example of naïve forecasting is presented in Table 1.

Table 1
Naïve Forecasting

Period	Actual Demand (000's)	Forecast (000's)
January	45	
February	60	45
March	72	60
April	58	72
May	40	58
June		40

Another simple technique is the use of averaging. To make a forecast using averaging, one simply takes

the average of some number of periods of past data by summing each period and dividing the result by the number of periods. This technique has been found to be very effective for short-range forecasting.

Variations of averaging include the moving average, the weighted average, and the weighted moving average. A moving average takes a predetermined number of periods, sums their actual demand, and divides by the number of periods to reach a forecast. For each subsequent period, the oldest period of data drops off and the latest period is added. Assuming a three-month moving average and using the data from Table 1, one would simply add 45 (January), 60 (February), and 72 (March) and divide by three to arrive at a forecast for April:

$$45 + 60 + 72 = 177 \div 3 = 59$$

To arrive at a forecast for May, one would drop January's demand from the equation and add the demand from April. Table 2 presents an example of a three-month moving average forecast.

Table 2

Three Month Moving Average Forecast

Period	Actual Demand (000's)	Forecast (000's)
January	45	
February	60	
March	72	
April	58	59
May	40	63
June		57

A weighted average applies a predetermined weight to each month of past data, sums the past data from each period, and divides by the total of the weights. If the forecaster adjusts the weights so that their sum is equal to 1, then the weights are multiplied by the actual demand of each applicable period. The results are then summed to achieve a weighted forecast. Generally, the more recent the data the higher the weight, and the older the data the smaller the weight. Using the demand example, a weighted average using weights of .4, .3, .2, and .1 would yield the forecast for June as:

$$60(.1) + 72(.2) + 58(.3) + 40(.4) = 53.8$$

Forecasters may also use a combination of the weighted average and moving average forecasts. A weighted moving average forecast assigns weights to a predetermined number of periods of actual data and computes the forecast the same way as described above. As with all moving forecasts, as each new period is added, the data from the oldest period is discarded. Table 3 shows a three-month weighted moving average forecast utilizing the weights .5, .3, and .2.

Table 3

Three–Month Weighted Moving Average Forecast

Period	Actual Demand (000's)	Forecast (000's)
January	45	
February	60	
March	72	
April	58	55
May	40	63
June		61

A more complex form of weighted moving average is exponential smoothing, so named because the weight falls off exponentially as the data ages. Exponential smoothing takes the previous period's forecast and adjusts it by a predetermined smoothing constant, α (called alpha; the value for alpha is less than one) multiplied by the difference in the previous forecast and the demand that actually occurred during the previously forecasted period (called forecast error). Exponential smoothing is expressed formulaically as such:

New forecast = previous forecast + alpha (actual demand − previous forecast)

$$F = F + \alpha(A - F)$$

Exponential smoothing requires the forecaster to begin the forecast in a past period and work forward to the period for which a current forecast is needed. A substantial amount of past data and a beginning or initial forecast are also necessary. The initial forecast can be an actual forecast from a previous period, the actual demand from a previous period, or it can be estimated by averaging all or part of the past data. Some heuristics exist for computing an initial forecast. For example, the heuristic $N = (2 \div \alpha) - 1$ and an alpha of .5 would yield an N of 3, indicating the user would average the first three periods of data to get an initial forecast. However, the accuracy of the initial forecast is not critical if one is using large amounts of data, since exponential smoothing is "self-correcting." Given enough periods of past data, exponential smoothing will eventually make enough corrections to compensate for a reasonably inaccurate initial forecast. Using the data used in other examples, an initial forecast of 50, and an alpha of .7, a forecast for February is computed as such:

New forecast (February) = 50 + .7(45 − 50) = 41.5

Next, the forecast for March:

New forecast (March) = 41.5 + .7(60 − 41.5) = 54.45

This process continues until the forecaster reaches the desired period. In Table 4 this would be for the month of June, since the actual demand for June is not known.

Table 4

Period	Actual Demand (000's)	Forecast (000's)
January	45	50
February	60	41.5
March	72	54.45
April	58	66.74
May	40	60.62
June		46.19

An extension of exponential smoothing can be used when time-series data exhibits a linear trend. This method is known by several names: double smoothing; trend-adjusted exponential smoothing; forecast including trend (FIT); and Holt's Model. Without adjustment, simple exponential smoothing results will lag the trend, that is, the forecast will always be low if the trend is increasing, or high if the trend is decreasing. With this model there are two smoothing constants, α and β with β representing the trend component.

An extension of Holt's Model, called Holt-Winter's Method, takes into account both trend and seasonality. There are two versions, multiplicative and additive, with the multiplicative being the most widely used. In the additive model, seasonality is expressed as a quantity to be added to or subtracted from the series average. The multiplicative model expresses seasonality as a percentage—known as seasonal relatives or seasonal indexes—of the average (or trend). These are then multiplied times values in order to incorporate seasonality. A relative of 0.8 would indicate demand that is 80 percent of the average, while 1.10 would indicate demand that is 10 percent above the average. Detailed information regarding this method can be found in most operations management textbooks or one of a number of books on forecasting.

Associative or causal techniques involve the identification of variables that can be used to predict another variable of interest. For example, interest rates may be used to forecast the demand for home refinancing. Typically, this involves the use of linear regression, where the objective is to develop an equation that summarizes the effects of the predictor (independent) variables upon the forecasted (dependent) variable. If the predictor variable were plotted, the object would be to obtain an equation of a straight line that minimizes the sum of the squared deviations from the line (with deviation being the distance from each point to the line). The equation would appear as: $y = a + bx$, where y is the predicted (dependent) variable, x is the predictor (independent) variable, b is the slope of the line, and a is equal to the height of the line at the y-intercept. Once the equation is determined, the user can insert current values for the predictor (independent) variable to arrive at a forecast (dependent variable).

If there is more than one predictor variable or if the relationship between predictor and forecast is not linear, simple linear regression will be inadequate. For situations with multiple predictors, multiple regression should be employed, while non-linear relationships call for the use of curvilinear regression.

ECONOMETRIC FORECASTING

Econometric methods, such as autoregressive integrated moving-average model (ARIMA), use complex mathematical equations to show past relationships between demand and variables that influence the demand. An equation is derived and then tested and fine-tuned to ensure that it is as reliable a representation of the past relationship as possible. Once this is done, projected values of the influencing variables (income, prices, etc.) are inserted into the equation to make a forecast.

EVALUATING FORECASTS

Forecast accuracy can be determined by computing the bias, mean absolute deviation (MAD), mean square error (MSE), or mean absolute percent error (MAPE) for the forecast using different values for alpha. Bias is the sum of the forecast errors [Σ(FE)]. For the exponential smoothing example above, the computed bias would be:

$$(60 - 41.5) + (72 - 54.45) + (58 - 66.74) + (40 - 60.62) = 6.69$$

If one assumes that a low bias indicates an overall low forecast error, one could compute the bias for a number of potential values of alpha and assume that the one with the lowest bias would be the most accurate. However, caution must be observed in that wildly inaccurate forecasts may yield a low bias if they tend to be both over forecast and under forecast (negative and positive). For example, over three periods a firm may use a particular value of alpha to over forecast by 75,000 units (–75,000), under forecast by 100,000 units (+100,000), and then over forecast by 25,000 units (–25,000), yielding a bias of zero (–75,000 + 100,000 – 25,000 = 0). By comparison, another alpha yielding over forecasts of 2,000 units, 1,000 units, and 3,000 units would result in a bias of 5,000 units. If normal demand was 100,000 units per period, the first alpha would yield

forecasts that were off by as much as 100 percent while the second alpha would be off by a maximum of only 3 percent, even though the bias in the first forecast was zero.

A safer measure of forecast accuracy is the mean absolute deviation (MAD). To compute the MAD, the forecaster sums the absolute value of the forecast errors and then divides by the number of forecasts ($\Sigma |FE| \div N$). By taking the absolute value of the forecast errors, the offsetting of positive and negative values are avoided. This means that both an over forecast of 50 and an under forecast of 50 are off by 50. Using the data from the exponential smoothing example, MAD can be computed as follows:

$$(| 60 - 41.5 | + | 72 - 54.45 | + | 58 - 66.74 | + | 40 - 60.62 |) \div 4 = 16.35$$

Therefore, the forecaster is off an average of 16.35 units per forecast. When compared to the result of other alphas, the forecaster will know that the alpha with the lowest MAD is yielding the most accurate forecast.

Mean square error (MSE) can also be utilized in the same fashion. MSE is the sum of the forecast errors squared divided by N-1 $[(\Sigma(FE)) \div (N-1)]$. Squaring the forecast errors eliminates the possibility of offsetting negative numbers, since none of the results can be negative. Utilizing the same data as above, the MSE would be:

$$[(18.5) + (17.55) + (-8.74) + (-20.62)] \div 3 = 383.94$$

As with MAD, the forecaster may compare the MSE of forecasts derived using various values of alpha and assume the alpha with the lowest MSE is yielding the most accurate forecast.

The mean absolute percent error (MAPE) is the average absolute percent error. To arrive at the MAPE one must take the sum of the ratios between forecast error and actual demand times 100 (to get the percentage) and divide by N $[(\Sigma \mid \text{Actual demand} - \text{forecast} \mid \div \text{Actual demand}) \times 100 \div N]$. Using the data from the exponential smoothing example, MAPE can be computed as follows:

$$[(18.5/60 + 17.55/72 + 8.74/58 + 20.62/48) \times 100] \div 4 = 28.33\%$$

As with MAD and MSE, the lower the relative error the more accurate the forecast.

It should be noted that in some cases the ability of the forecast to change quickly to respond to changes in data patterns is considered to be more important than accuracy. Therefore, one's choice of forecasting method should reflect the relative balance of importance between accuracy and responsiveness, as determined by the forecaster.

MAKING A FORECAST

William J. Stevenson lists the following as the basic steps in the forecasting process:

- Determine the forecast's purpose. Factors such as how and when the forecast will be used, the degree of accuracy needed, and the level of detail desired determine the cost (time, money, employees) that can be dedicated to the forecast and the type of forecasting method to be utilized.
- Establish a time horizon. This occurs after one has determined the purpose of the forecast. Longer-term forecasts require longer time horizons and vice versa. Accuracy is again a consideration.
- Select a forecasting technique. The technique selected depends upon the purpose of the forecast, the time horizon desired, and the allowed cost.
- Gather and analyze data. The amount and type of data needed is governed by the forecast's purpose, the forecasting technique selected, and any cost considerations.
- Make the forecast.
- Monitor the forecast. Evaluate the performance of the forecast and modify, if necessary.

SEE ALSO: Futuring; Manufacturing Resources Planning; Planning; Sales Management

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FRANCHISING

When an individual has the desire and drive to run their own business but lacks a strong idea for a company, this person may look to franchising in order to be their own boss and run a proven business.

Franchising is an agreement or alliance between two organizations—the franchisor and the franchisee. The franchisor has the business model, training materials, and other materials for the business. The franchisee is the entrepreneur who agrees to operate a branch of the business in their location while paying the franchisor various fees and royalties for the use of the business idea or model.

TYPES OF FRANCHISING

Business-format franchising exists when a franchisor allows someone to market products or service, using the business name or trademark, in return for fess and royalties. When franchising is mentioned, most people think of this business-format franchising, like McDonald's, AAMCO Transmission, or Molly Maid. There is also product or trademark franchising. This is a limited franchise where a manufacturer may grant another party license to sell goods produced by the manufacturer. This might includes sales of cars through dealerships (e.g., Ford dealerships), sales of gasoline through service stations (e.g., Shell stations), and sales of soft drinks through local franchising (e.g., Coca Cola bottlers). A final type of franchising is conversion franchising. This franchising model is designed to bring formerly-independently-operating businesses together under the collective power of a national name and advertising. An example of the conversion franchising is Century 21 Realtors, an affiliation of previously-established real estate agents.

FRANCHISE START-UP

Franchise fees typically include a lump-sum entrance fee and other charges for regular services including royalties on sales, advertising fees, and marketing. In exchange for these licensing fees, the franchisor retains control over the delivery of the products and services, as well as marketing and the operational and quality standards of the franchise. The franchising company's revenue is generated through the franchisee that pays these on-going sales royalties, typically averaging 5 percent of sales. The contract, or franchise agreement, is signed by both parties and establishes the relationship between the franchisee and the franchisor. It also details the responsibilities of both sides.

Franchises include such popular names as Kentucky Fried Chicken (KFC), McDonald's, 7-Eleven, Body Shop, Tie Rack, Pizza Hut, and Jiffy Lube. These franchise operations have well-established names, brands, and reputations. The best franchises provide a strong brand or trademark of the concept, a proven business system, extensive training and product development, along with a number of initial and on-going managerial support services. Some help the franchisee secure funding and offer benefits, including discounted supplies. Typically, the franchised business is less risky than other forms of new venture creation because the business idea has been tested. There are mutual advantages to both parties to the agreement. The Service Corps of Retired Executives (SCORE), a volunteer group involved in counseling would-be entrepreneurs, report franchises are safer that other business forms and report less than a 5 percent failure rate compared to an 80 percent five-year failure rate for independent businesses and a 90 percent failure rate from independent restaurants. Banks are also supportive of the franchising business model and many will offer up to 70 percent of the initial capital costs.

WHY FRANCHISE?

Franchising allows a business to rapidly expand beyond its original owners. The franchisee pursues a new business, experiences the advantages of running their own business and being their own boss, and can gain wealth through a proven business idea. They provide the management skills to run the business, as well as contribute the capital to fund the opening and on-going operations. The franchisor also benefits by the partnership and gains economy of scope advantages as more franchises are established. National or international advertising is then possible and the franchisor can more easily expand business locations with the help and capital from the franchisee. The franchisee helps to build brand awareness through market proliferation. The franchisee has a unique opportunity to run a business with a greater chance of success. There is experience from the franchisor for starting the business and many of the initial mistakes have been made and corrected.

The franchisee creates their own job and often creates a number of new jobs in the area as they hire employees. As the franchise becomes successful, the franchisee may chose to open other stores to create even more wealth. Franchising is popular in the United States as well as internationally. Franchising is at a mature level in the U.S., Europe and Australia, while Asia, South America, Mexico, and Central America report rapid growth. China, too, is experiencing franchise business growth.

RESEARCHING FRANCHISES

It is important to carefully perform initial due diligence to thoroughly examine the franchise offering. A Federal Trade Commission (FTC) rule was created and adopted in the mid-1970s that requires franchisors to disclose to franchisees very specific information including information about themselves, the business, and the terms of the relationship. This

document is the Uniform Franchise Offering Circular (UFOC) and provides important legal information about the franchisor and its franchising program.

When deciding on a franchise, it is important to first gather information about an individual's personal goals for business ownership and to examine the franchise offering to find a compatible opportunity. While there are no guarantees in franchising, a well-developed operating plan is often an advantage. An entrepreneur should consider a number of issues regarding a possible franchise. For example, is the franchise in only a state or local market, or does it have a regional or national presence? Lower-risk franchises have a national presence and benefit from the size advantage. The franchisee will also want to consider if most of the existing outlets are profitable, and whether the franchise is the market leader with the largest market share among competitors. The entrepreneur should evaluate the presence of a national marketing and purchasing program. The lower-risk franchises also have documented training, manuals, field support, marketing and promotion, standardized operating procedures, and on-going feedback channels between the franchisor and the franchisees. The terms of the license agreement vary from less than ten years to more than twenty years and some have automatic renewal. Capital requirements for obtaining the franchise also vary. Other factors to consider include territory limitations, failure rates, and any relevant litigation history against the franchise. Investment requirements should also be clearly disclosed.

It is often a good idea to interview existing franchise owners to determine if start-up costs and processes are realistic. The expertise of a lawyer may be required to negotiate and interpret the franchise agreement contract. SCORE also recommends that potential franchising clients plan and analyze their options. This planning and analysis should include researching Chamber of Commerce and Better Business Bureau records for a given franchise. SCORE agrees the most important step for choosing a franchise is also considering the entrepreneur's interests, personal skills, and experience. It is easier to evaluate an established franchise than a new franchise. There may be few, if any, owners with whom to speak about the franchise. It is important that the new franchise have strong franchisee support and a proven business system. The business strategy should also be examined carefully.

FRANCHISING AND THE ECONOMY

A study by the International Franchise Association (IFA) revealed that more than 9.7 million people are employed by franchised businesses. This group of 767,483 franchises, ranging from automobile dealers to food operations, have a $506.6 billion U.S. payroll. These businesses are clearly important to the economy. The IFA also reports that the start-up costs for franchising can range from less than $5,000, to more than $500,000. IFA offers information on franchising—including news and events as well as discussion forums and education. It also includes information on government regulations for franchising.

In a 2004 study conducted by Pricewaterhouse-Coopers (for the International Franchise Association Educational Foundation) on the economic impact of franchised businesses, more than 760,000 franchised businesses exist in the United States and they generate some $1.53 trillion each year. This represents 9.5 percent of the private-sector economic output in the United States. These franchises generate one out of every seven jobs in America.

The IFA established a Franchise Index to track the market performance of the top fifty U.S. public franchisors. The index has increased steadily since January 2000, compared to a drop of 20.1 percent in the Standard and Poors (S&P) 500 Index over the same period. Interestingly, the franchise index has grown during tough economic times. Thus, franchising is a major economic force and franchising has a significant impact on the nation's economy.

The franchising business model attracts a number of qualified individuals, particularly in times of recession or slow business growth. Individuals are attracted to franchising through the opportunity to create their own jobs. While franchising is not a get-rich-quick proposition, many do have attractive returns on investment. Most analysts agree a three- to five-year period of hard work and dedication is needed before the franchised business is profitable. Over the years, more individuals are touting the advantages and value of franchising. These franchises are quick to pick up on key business trends, social and demographic changes, and changing lifestyles—healthy fast food, home health care for the elderly, pet care, education, personal services, home services, business services, automotive services, and travel services. Many also offer exclusive territories in a given market.

Additional advice on finding and comparing franchising opportunities is available on the franchise-broker websites (e.g., www.FranNet.com, www.FranChoice.com, and www.francorpconnect.com). FranNet.com is a franchise-broker website representing franchise consultants. Some potential franchisees prefer using a broker to find a franchise.

While there are many advantages to franchising, there are some disadvantages. Once a business grows beyond a certain size, it could make more money if it were wholly owned, since a percentage of the profit margin goes to the franchisor. Even if a franchise is capable of making strong profit figures, the individual running the franchise needs to enjoy the process of dealing with the franchisor as well as operating the

business. The franchisee needs to be committed to the idea and the business model. The individual also needs to be supportive of the franchisor's system since the key to a successful product or service is the consistency of the offering. Customers expect a similar product or service from a franchise. Individuals who do not want to follow the predetermined structure and operating procedures of the franchise may not be successful.

The franchising arrangement is a balance of entrepreneurial spirit, standard business procedures, and following instructions. The venture, like other start-ups, will require a time and energy commitment as well. A disadvantage for the franchisor is the difficulty encountered in finding a franchisee with drive, energy, and business experience to run the business according to the franchise guidelines. The franchise also needs an appropriate location that must be researched to discern its current and future growth potential. Finally, the franchisee must provide some of their own funds for the start-up.

SEE ALSO: Business Plan; Due Diligence; Entrepreneurship; Strategy Formulation

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FREE TRADE AGREEMENTS AND TRADING BLOCS

Sovereign nations join together, usually on a regional scale, to create free trade agreements. Free trade agreements are created to lower trade barriers and to stimulate trade between member countries. Member countries belonging to the free trade area trade freely with each other while maintaining trade barriers and tariffs for non-member countries. Free trade agreements are seen as having a positive impact on economic growth, especially for the smaller countries in the agreement. Trading blocs are groups of countries that have reached a common agreement to lower trade barriers throughout the group (e.g., NAFTA, ASEAN, and the European Union).

HISTORY

According to the Congressional Budget Office, since the end of World War II there has been significant support, especially from the United States, to eliminate artificial trade barriers and to support a greater liberalization of international trade. The General Agreement on Tariffs and Trade (GATT) was created shortly after World War II, between twenty-three countries, to facilitate and coordinate trade between the nations. In addition to creating a more liberal trade environment, it also had provisions and charters creating rules for employment, commodity agreements, restrictive business practices, international investments, and services. The process of creating a free trade agreement followed a pattern of discussion, negotiation, and eventual ratification. The full process was termed, "rounds." There were eight rounds in the GATT treaty. Despite numerous difficulties and differences between the involved countries, much was accomplished by GATT; although portions were never fully ratified by all of the countries.

In 1995, during the Uruguay round of GATT negotiations, the World Trade Organization (WTO) was created. The WTO became the official successor to the GATT. The WTO is the only international organization dealing with the global rules of trade between nations. Its main function is to ensure that trade flows as smoothly, predictably, and freely as possible. At the center of the WTO is its multilateral trading system that functions by seeking consensus between member nations (148 members). The notion of consensus facilitates cooperation and, potentially, an agreement that is most beneficial to all involved countries.

MOST FAVORED NATION

An important component of free trade agreements is the most favored nation status. The most favored nation status within a free trade agreement creates a situation where all countries are treated equally. Benefits, reduction of tariffs, and other trading privileges applied to one country will be applied to all countries with the most favored nation status.

TRADING BLOCS

Trading blocs are relationships between countries, generally in the same region, to facilitate free trade agreements. Trading blocs include: North

American Free Trade Agreement (NAFTA), Association of Southeast Asian Nations (ASEAN), European Union (EU), Mercado Comun del Sur (MERCOSUR), and Southern African Development Community (SADC). Southeast Asia has enjoyed unparalleled and astonishing economic growth in the past three decades since the establishment of ASEAN. In 1967, ASEAN's overall trade was worth $10 billion. In 2003, total trade reached a staggering $758 billion.

CRITICISM OF FREE TRADE

The expansion of free trade and the creation of trading blocs cause concern for some people. As reported by the Congressional Budget Office, the pursuit of free trade could "divert the world from multilateral negotiations and lead to the development of rival trading blocs." Other concerns include: the exploitation of developing countries by industrialized countries; environmental concerns as the production of goods overseas is not consistently regulated from country to country; and labor concerns over fair wages and the loss of jobs from industrialized countries to the developing countries, as well as political concerns that may influence the negotiations between trading partners.

BENEFITS OF FREE TRADE

Multilateral and free trade agreements create benefits by increasing imports and exports of goods. Countries are not the same in their production capabilities. Access to raw materials, necessary levels of technological development, and education of the workforce all have an impact on developing a product or service. Free trade agreements create the opportunity for countries to focus on what they do best, while being able to acquire goods and services at, potentially, the lowest price possible. By opening doors for other countries to compete fairly, without burdensome tariffs or trade policies, there is a belief that increased free trade is a deterrent to monopolistic activities.

FUTURE OF FREE TRADE AGREEMENTS

The most recent round of negotiations for multilateral trade in the World Trade Organization continues to drag on due to the increasing number of participants with their own views and requirements. The attractiveness of free trade agreements will remain high. Countries interested in increasing trade will circumvent the delays in the WTO by making their own agreements. The expansion of current trade agreements is also taking place—as with the expansion of NAFTA into the Free Trade Agreement for the Americas (FTAA). The U.S. market is extremely desirable and lucrative for smaller countries' exports, while also providing access to a wider variety of goods and services from the U.S. and other potential trading partners.

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Revised by Joo-Seng Tan

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FUTURING

Futuring is the field of using a systematic process for thinking about, picturing possible outcomes, and planning for the future. Futurists are people who actively view the present world as a window on possible future outcomes. They watch trends and try to envision what might happen. Futuring has its roots in the post–World War II era. Scientists, politicians, and academics began to consider ways of anticipating the future. This initial consideration led to a more cohesive and developed field of futuring in the mid-1960s. An association, the World Future Society, exists to provide a forum for further discussion and analysis.

Explorers often found themselves in situations where they had no idea what the future held for them. What was around the next bend; over the next mountain range; across the next river was a complete unknown. They were forced to make decisions that were literally life and death. Futurists can look to these explorers for guidance. Edward Cornish, former president of the World Future Society, highlights seven lessons that can be learned: (1) prepare for what you will face in the future; (2) anticipate future needs; (3) use poor information when necessary; (4) expect the unexpected; (5) think long term as well as short term; (6) dream productively; and (7) learn from your predecessors.

A major instigator of forecasting the future is the incredible rate of change that is taking place. Technologically, culturally, and environmentally change is all around and moving at a very fast rate. Mankind has lived through the Agricultural, Industrial and Cybernetic Revolutions. There will undoubtedly be another if not several more revolutions that will affect the planet. Futuring delves into this process of revolutions to attempt to forecast what might be the next one. Cornish discusses six current "super trends" that are dramatically affecting the present and the future.

Technological Progress. Improvements in computers, medicine, transportation, communications, and other industries all affected by technology.

Economic Growth. Impacted by technological progress the improvement of people's economic well-being continues to steadily improve over time.

Improving Health. Impacted by the aforementioned super trends—technological progress and economic growth—the average lifespan and overall health of the average person continues to improve over time.

Increased Mobility. Technological progress, economic growth, and improving health combine to improve mobility of people and products, creating both advantages and disadvantages as the world shrinks.

Environmental Decline. The scope of this progress and mobility and increasing population is impacting the earth with severe environmental issues that do not have a short-term solution.

Increasing De-culturation. Mankind has had a wide variety of cultures and races; due to some of the above trends, these cultures are being erased by poverty, migration, and tourism.

FORCES THAT AFFECT THE FUTURE

Futurists must account for several powerful forces that impact future events and trends. These forces are systems, chance, and chaos.

SYSTEMS. Systems exist in most every setting. Relationships between people, the human body, and cities sewage and transportation services are all examples of systems. Actions that impact one part of the system can inevitably affect other parts of the system.

CHANCE. Chance events occur continuously. These events can shape future outcomes. Small actions or details can have a profound effect that can cause major worldwide events.

CHAOS. Chaos is the idea that minor differences in something can have a profound effect on other things and then inevitably on the future. This means that there is always a wide array of possible outcomes; only extremely minor differences separate these possible outcomes from actually happening.

These three forces: systems, chance, and chaos, must all be considered at some level if a person is to try and forecast the future.

FUTURING METHODS

Futuring is accomplished by rather normal means of forecasting. There are four methods used in futuring to determine possible outcomes. These methods are: polling, gaming, modeling and simulation, and visioning.

POLLING. Polling is a method that involves consulting with others, preferably experts, who are knowledgeable on the topic in question. It consists of a series of questions to elicit responses that are then collated to determine what the overall perception of the group is. This is best performed when the participants cannot interact with each other and bias their answers.

GAMING. Another method of forecasting that is used by researchers, and especially by the government, is gaming. Gaming is a method of possible events where participants are placed in mock situations and are expected to make actual decisions based on the information and actions that are happening around them. Gaming possible events and situations with computer simulations is becoming more popular. Gaming assists with understanding how people will react in their roles and what possible outcomes of a given situation might be.

MODELING AND SIMULATION. Modeling is a method used in forecasting future outcomes. Modeling generally involves computer processing of data to provide possible outcomes. Data for the relevant variables is entered into the computer, with the model then run repetitively with minor variations to observe potential outcomes.

VISIONING. Many futurists use the visioning method to not only forecast, but to encourage potential futures. Visioning involves discussing and creating preferred futures. The result of visioning is a plan of action for following through with the ideas that are generated.

The different methods of forecasting the future can be used in a variety of settings depending on the people and information available. Other methods that are also used in futuring are:

Scanning—systematic survey of information sources focusing on trends

Trend Analysis—in-depth look at a specific trend and all of its related issues and elements

Trend Monitoring—continuous monitoring of important trends

Trend Projection—using numerical data to project where a trend should eventually end up

Brainstorming—generating new ideas by small group interaction

Historical Analysis—using historical events to anticipate current developments

Deja Viewing—reviewing the past to determine if anything similar has happened

Bringing the Future to the Present—looking ahead to the future and painting a picture of what you want to happen

Experience Hitchhiking—gaining experience by 'hitchhiking' with people who have gone through similar experiences already.

SCENARIOS

Scenarios are recognized as an effective method for forecasting the future. Scenarios are beneficial in forecasting because they deal with the uncertainty of a situation. Scenario creation focuses on identifying what might happen. This allows for analyzing the problem and determining what the consequences might be in light of the information available and in light of our own reactions to possible events. Futurists often use five different variations of scenario building: (1) *Continuation*—things will continue much as they are now; (2) *Optimistic*—things will get considerably better; (3) *Pessimistic*—things will get considerably worse; (4) *Disaster*—things will go terribly wrong; and (5) *Miracle*—things going stunningly well.

Each scenario is then given a percentage of probability on the likelihood that it will happen. Cost for each scenario in effort or outcome is important to consider. Scenarios assist in clarifying thinking about issues so that better decisions can be made.

WORLD FUTURE SOCIETY PREDICTIONS

The World Future Society brings together experts from around the world to report on future directions in their areas of expertise. The publication *Futurist* contained a two-part special report in 2005 on Trends Shaping the Future. A sampling of the trends is provided here:

- The world's population will grow to 9.2 billion by 2050. Implications for this trend include: (1) the need for global agriculture to produce more food than ever before; (2) migration will continue from the Southern hemisphere to the Northern hemisphere; and (3) in the developed countries potential retirees will need to continue working for a longer period of time.
- The global economy is growing more integrated. Implications for this trend include: (1) greater niche market competition as small companies have a greater reach using the Internet; and (2) demand for foreign language training may increase as workers are utilized across the globe.
- Consumerism is still growing rapidly. Implications for this trend include: (1) the increase in marketing and development of warehouse stores in Europe and Japan; (2) service and salesmanship will become a more decisive factor for purchases as price becomes more of a commodity; and (3) brands will continue to be important.
- Privacy is dying in many lands. Implications of this include: (1) the extension of terrorism-related surveillance measures; (2) an increase in privacy-related lawsuits in the U.S. as the struggle between security and privacy continues; and (3) encryption will become more widespread at the corporate and personal level.
- Water shortages will be a continuing problem for much of the world. Implications of this include: (1) the growth of famine and desertification in developing areas of the world; (2) water wars are possible in certain areas of the world; and (3) water impurities will become a growing problem.
- Advances in transportation technology will make travel and shipping faster, cheaper, and safer, by land, sea, and air. Implications of this include: (1) the further development of alternative-fuel vehicles; and (2) smart cars and other transportation developments will be used as congestion increases in urban areas.
- Consumers increasingly demand social responsibility from companies and each other. Implications of this trend will include: (1) increasing pressure for companies to adopt environmentally friendly practices; and (2) the Internet will help activists reach out to police and protest against companies' activities in other countries.
- Generation X and the "Millennials"—those born after 1981—will have major effects in the future. Implications will include: (1) the need for employers to adjust compensation

and motivation for these groups; and (2) these groups will continue to expect and demand more advanced telecommunications and Internet services.
- Time is becoming the world's most precious commodity. Implications may include: (1) the need for companies to help employees balance their personal and work lives; and (2) Internet shopping will increase as the time for shopping at malls and stores will decrease.

Futurists are aware that random events can happen that can change the best forecasting; therefore, these techniques of trend-watching, reviewing past events, gaming, scenarios, and others all must allow for a certain amount of flexibility. Forces acting on any possible future include systems, chance, and chaos, as well as individual choice.

Developing the skills and techniques to see into the future is neither magic nor unattainable. Futurists are leading the way to envisioning possible futures. They believe that developing effective foresight can lead to better decision-making, greater discoveries, and an improved future. Futurists challenge the concept of fatalism—that the future is coming and there is nothing we can do about it. Using these forecasting methods individuals can change and guide their future. They are in a position to positively influence their future, which can potentially make things better for others and possibly change the world.

SEE ALSO: Brainstorming; Forecasting; Gap Analysis; Strategic Planning Tools; Strategy Implementation; Strategy in the Global Environment; Technological Forecasting; Technology Management; Technology Transfer

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FURTHER READING:

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