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MIS

SEE: Management Information Systems

MACROECONOMICS

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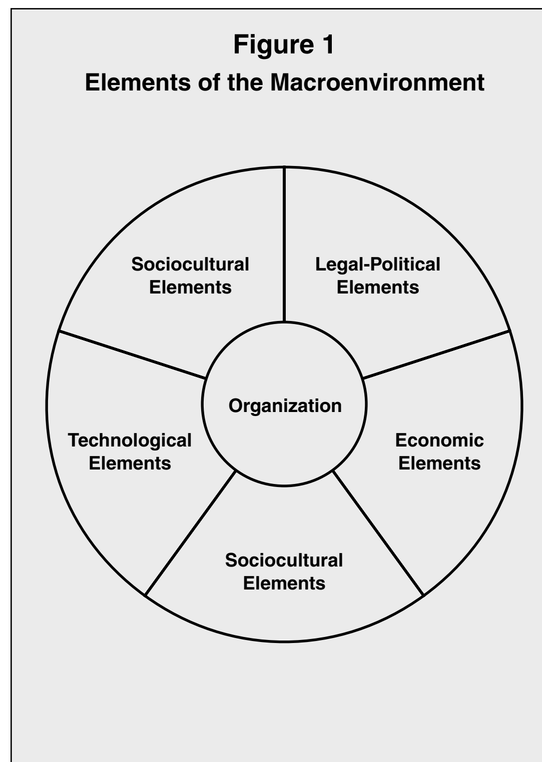
MACROENVIRONMENTAL FORCES

An organization's macroenvironment consists of nonspecific aspects in the organization's surroundings that have the potential to affect the organization's strategies. When compared to a firm's task environment, the impact of macroenvironmental variables is less direct and the organization has a more limited impact on these elements of the environment.

Macroenvironmental variables include sociocultural, technological, political-legal, economic, and international variables. A firm considers these variables as part of its environmental scanning to better understand the threats and opportunities created by the variables and how strategic plans need to be adjusted so the firm can obtain and retain competitive advantage.

The macroenvironment consists of forces that originate outside of an organization and generally cannot be altered by actions of the organization. In other words, a firm may be influenced by changes within this element of its environment, but cannot itself influence the environment. The curved lines in Figure 1 indicate the indirect influence of the environment on the organization.



SOCIOCULTURAL FACTORS

The sociocultural dimensions of the environment consist of customs, lifestyles, and values that characterize the society in which the firm operates. Socio-

cultural components of the environment influence the ability of the firm to obtain resources, make its goods and services, and function within the society. Sociocultural factors include anything within the context of society that has the potential to affect an organization. Population demographics, rising educational levels, norms and values, and attitudes toward social responsibility are examples of sociocultural variables.

POPULATION CHANGES. Changes in population demographics have many potential consequences for organizations. As the total population changes, the demand for products and services also changes. For instance, the decline in the birthrate and improvement in health care have contributed to an increase in the average age of the population in the United States. Many firms that traditionally marketed their products toward youth are developing product lines that appeal to an older market. Clothing from Levi Strauss & Co. was traditionally popular among young adults. While its popularity in this market has waned, the firm has been able to develop a strong following in the adult market with its Dockers label.

Other firms are developing strategies that will allow them to capitalize on the aging population. Firms in the health-care industry and firms providing funeral services are expected to do well given the increasing age of the U.S. population. They are projected as a growth segment of U.S. industry simply because of the population demographics.

RISING EDUCATIONAL LEVELS. Rising educational levels also have an impact on organizations. Higher educational levels allow people to earn higher incomes than would have been possible otherwise. The increase in income has created opportunities to purchase additional goods and services, and to raise the overall standard of living of a large segment of the population. The educational level has also led to increased expectations of workers, and has increased job mobility. Workers are less accepting of undesirable working conditions than were workers a generation ago. Better working conditions, stable employment, and opportunities for training and development are a few of the demands businesses confront more frequently as the result of a more educated workforce.

NORMS AND VALUES. Norms (standard accepted forms of behavior) and values (attitudes toward right and wrong), differ across time and between geographical areas. Lifestyles differ as well among different ethnic groups. As an example, the application in the United States of Japanese-influenced approaches to management has caused firms to reevaluate the concept of quality. Customers have also come to expect increasing quality in products. Many firms have found it necessary to reexamine production and marketing strategies to respond to changes in consumer expectations.

SOCIAL RESPONSIBILITY. Social responsibility is the expectation that a business or individual will strive to improve the welfare of society. From a business perspective, this translates into the public expecting businesses to take active steps to make society better by virtue of the business being in existence. Like norms and values, what is considered socially responsible behavior changes over time. In the 1970s affirmative action was a high priority. During the early part of the twenty-first century prominent social issues were environmental quality (most prominently, recycling and waste reduction) and human rights, in addition to general social welfare. More than just philanthropy, social responsibility looks for active participation on the part of corporations to serve their communities.

The stakeholder approach to social responsibility demonstrates some of the complexities of incorporating socially responsible issues into a firm's strategies. Stakeholders are anyone with a stake in the organization's existence. Highly visible stakeholders are stockholders, employees, customers, and the local community. Decisions to be responsible and maximize the return to stockholders may require closing an unprofitable plant. However, employees and members of the local community could view this move as socially irresponsible since the move would not benefit the community.

TECHNOLOGICAL FACTORS

Technology is another aspect of the environment a firm should consider in developing strategic plans. Changing technology may affect the demand for a firm's products and services, its production processes, and raw materials. Technological changes may create new opportunities for the firm, or threaten the survival of a product, firm, or industry. Technological innovation continues to move at an increasingly rapid rate.

DEMAND. Technology can change the lifestyle and buying patterns of consumers. Recent developments in the field of microcomputers have dramatically expanded the potential customer base and created innumerable opportunities for businesses to engage in business via Internet. Whereas computers were traditionally used only by large organizations to handle data processing needs, personal computers are commonly used by smaller firms and individuals for uses not even imagined fifteen years ago. Similarly, new developments in technology led to a reduction in prices for computers and expanded the potential market. Lower prices allow computers to be marketed to the general public rather than to business, scientific, and professional users—the initial market.

Technology may also cause certain products to be removed from the market. Asbestos-related illnesses have severely limited asbestos as a resource used in

heat-sensitive products such as hair dryers. Further, a number of chemicals that have been commonly used by farmers to control insects or plants are prohibited from use or require licensure as a consequence of those chemicals appearing in the food chain.

PRODUCTION PROCESSES. Technology also changes production processes. The introduction of products based on new technology often requires new production techniques. New production technology may alter production processes. Robotics represents one of the most visible challenges to existing production methods. Robots may be used in positions considered hazardous for people or that require repetitive, detailed activities.

The consequences for other jobs currently occupied by people are not clear. When production was first automated, although some workers were displaced, new jobs were created to produce and maintain the automated equipment. The impact of robotics on jobs is in large part a function of the uses made of the technology and the willingness of workers to learn to use new technology.

In some industries, use of robots during the early 2000s increased production and efficiency but resulted in significant numbers of job losses. However, technological innovation can also result in increased job growth. For example, Ford Motor Company's $375-million technology update to its Norfolk assembly plant to build its 2004 F-150 resulted in the ability to build more models on its assembly line and consequently created about 270 new jobs, an 11 percent increase.

EVALUATING TECHNOLOGICAL CHANGES. There is little doubt that technology represents both potential threats and potential opportunities for established products. Products with relatively complex or new technology are often introduced while the technology is being refined, making it hard for firms to assess their market potential. When ballpoint pens were first introduced, they leaked, skipped, and left large blotches of ink on the writing surface. Fountain pen manufacturers believed that the new technology was not a threat to existing products and did not attempt to produce ballpoint pens until substantial market share had been lost.

Another technology, the electric razor, has yet to totally replace the blade for shaving purposes. Perhaps the difference is that the manufacturers of blades have innovated by adding new features to retain customers. Manufacturers of fountain pens did not attempt to innovate until the ballpoint pen was well established.

It is quite difficult to predict the impact of a new technology on an existing product. Still, the need to monitor the environment for new technological developments is obvious. Attention must also be given to developments in industries that are not direct competitors, since new technology developed in one industry may impact companies and organizations in others.

POLITICAL AND LEGAL FACTORS

The political-legal dimension of the general environment also affects business activity. The philosophy of the political parties in power influences business practices. The legal environment serves to define what organizations can and cannot do at a particular point in time.

ATTITUDES TOWARD BUSINESS

A pro-business attitude on the part of government enables firms to enter into arrangements that would not be allowed under a more anti-business philosophy. The numerous joint ventures between U.S. and Japanese automobile manufacturers could have been termed anticompetitive by a less pro-business administration. The release of many acres of government land for business use (logging, mining) angered many environmentalists who had been able to restrict business use of the land under previous administrations.

Changes in sentiments toward smoking and its related health risks have altered the public's attitude toward the tobacco industry. These changes have been reflected in many organizations by limiting smoking to designated areas or completely prohibiting it at work. The transformation in attitude has also caused firms within the tobacco industry to modify marketing strategies, encouraging many to seek expansion opportunities abroad.

LEGISLATION. The legal environment facing organizations is becoming more complex and affecting businesses more directly. It has become increasingly difficult for businesses to take action without encountering a law, regulation, or legal problem. A very brief listing of significant laws that affect business would include legislation in the areas of consumerism, employee relations, the environment, and competitive practices.

Many of the laws also have an associated regulatory agency. Powerful U.S. regulatory agencies include the Environmental Protection Agency (EPA), the Occupational Safety and Health Administration (OSHA), the Equal Employment Opportunity Commission (EEOC), and the Securities and Exchange Commission (SEC).

Estimates of the cost of compliance vary widely, but could well exceed $100 billion annually. Many of these costs are passed to consumers. However, costs of legal expenses and settlements may not be incurred for years and are not likely to be paid by consumers of the product or owners of the company when the violation occurred. Still, potential legal action often results in higher prices for consumers and a more conservative attitude by business executives.

LEVELS OF GOVERNMENT INFLUENCE. We generally speak about "the government" as referring to the federal government. It is the federal government that passes and

enforces legislation concerning the entire country. Actions by the federal government affect a large number of firms and are consistent across state boundaries. Environmental analysis, however, should not overlook actions by both state and local governments.

Regulations concerning many business practices differ between states. Tax rates vary widely. Laws regarding unionization (e.g., right-to-work states) and treatment of homosexual workers differ between states.

Local governments have the potential to affect business practices significantly. Some local governments may be willing to provide incentives to attract business to the area. Some may build industrial parks, service roads, and provide low-interest bonds to encourage a desirable business to move into the community.

Regulatory measures such as building codes and zoning requirements differ significantly between communities. Infrastructure such as electric and sewer services, educational facilities, and sewage treatment capabilities may not be able to accommodate the increased demand associated with certain industries, making that locale unsuitable for establishing some businesses.

ECONOMIC FACTORS

Economic factors refer to the character and direction of the economic system within which the firm operates. Economic factors include the balance of payments, the state of the business cycle, the distribution of income within the population, and governmental monetary and fiscal policies. The impact of economic factors may also differ between industries.

BALANCE OF PAYMENTS. The balance of payments of a country refers to the net difference in value of goods bought and sold by citizens of the country. To decrease the dollar value of goods imported into a country, it is common practice to construct barriers to entry for particular classes of products. Such practices reduce competition for firms whose products are protected by the trade barriers.

Mexico has limited the number of automobiles that can be imported. The purpose of this practice is to stimulate the domestic automobile market and to allow it to become large enough to create economies of scale and to create jobs for Mexican workers. A side effect of the import restriction, however, has been an increase in the price and a decrease in the quality of automobiles available to the public.

Another potential consequence of import restrictions is the possibility of reciprocal import restrictions. Partially in retaliation to import restriction on Japanese televisions and automobiles by the United States, the Japanese have limited imports of agricultural goods from the United States.

Lowering trade restrictions as a means of stimulating the economy of a country may meet with mixed results. The North American Free Trade Agreement (NAFTA) has opened the borders between the United States, Canada, and Mexico for the movement of many manufacturers. Government officials in the United States argue the results have been positive, but many local communities that have lost manufacturing plants question the wisdom of the agreement.

As discussed in an article by Susan Schmidt in *World Trade* magazine, issues that stemmed from regulatory agencies and national security measures were barriers to free trade during the early part of the twenty-first century, demonstrating that NAFTA alone could not clear the path for companies and countries to take advantage of free trade benefits.

BUSINESS CYCLE. The business cycle is another economic factor that may influence the operation of a firm. Purchases of many durable goods (appliances, furniture, and automobiles) can be postponed during periods of recession and depression, as can purchases of new equipment and plant expansions. Economic downturns result in lower profits, reductions in hiring, increased borrowing, and decreased productivity for firms adversely affected by the recession. Positive consequences of recessions may include reductions in waste, more realistic perceptions of working conditions, exit of marginally efficient firms, and a more efficient system.

Some organizations may benefit from an economic downturn. Postponed purchases may result in the need to service existing products. An owner electing to keep a used automobile rather than buying a new one may need to have it repaired, thus creating an increased demand for automobile mechanics and replacement parts. Limited job opportunities during downturns also encourage individuals unable to get satisfactory jobs to consider going to college or joining the armed services.

INCOME DISTRIBUTION. The distribution of income may differ between economic systems. Two countries with the same mean (per capita) income levels may have dramatically different distributions of income. The majority of persons in the United States are considered middle income, with only a relatively small number of persons having exceptionally high or low incomes.

Many developing countries have citizens who are either extremely wealthy or extremely poor. Only a few persons would qualify as middle class. Therefore, although both countries had the same mean income, opportunities to market products to the middle class would be greater in the United States.

TRANSFER PAYMENTS. Transfer payments (e.g., welfare, social security) within the United States change the distribution of income. Transfer payments provide

money to individuals in the lower income brackets and enable them to purchase goods and services they otherwise could not afford. Such a redistribution of income may not be the practice in other economic systems. Thus, large numbers of people in need of basic goods and services do not assure that those people will be able to purchase such goods and services.

MONETARY AND FISCAL POLICIES. Monetary and fiscal policies utilized by the federal government also influence business operations. Monetary policies are controlled by the Federal Reserve System and affect the size of the money supply and interest rates. Fiscal policies represent purchases made by the federal government.

For example, allocation of funds to defense means expenditures for weapons and hardware. If appropriations had gone to the Health and Human Services and Education Departments instead, much of the money would have constituted transfer payments. The primary beneficiaries of such a fiscal policy would be firms in the basic food and shelter businesses. No matter how government expenditures are reallocated, the result is lost sales and cut budgets for some companies, and additional opportunities for others.

Though unpopular in the United States, another aspect of government fiscal policy is deficit spending, which may allow government expenditures to rise, but can also influence interest rates, exchange rates, and other economic trends.

INTERNATIONAL FACTORS

A final component of the general environment is actions of other countries or groups of countries that affect the organization. Governments may act to reserve a portion of their industries for domestic firms, or may subsidize particular types of businesses to make them more competitive in the international market.

Some countries may have a culture or undergo a change in leadership that limits the ability of firms to participate in the country's economy. As with the other elements of the macroenvironment, such actions are not directed at any single company, but at many firms.

ECONOMIC ASSOCIATIONS. One of the most recent joint efforts by governments to influence business practices was NAFTA. The agreement between the United States, Canada, and Mexico was intended to facilitate free trade between the three countries. The result has been a decrease in trade barriers between them, making it easier to transport resources and outputs across national boundaries. The move has been beneficial to many businesses, and probably to the economies of all three countries. In most economic associations, preference is also given to products from member countries at the expense of products from nonmembers.

Probably the best-known joint effort by multiple countries to influence business practices is the Organization of Petroleum Exporting Countries (OPEC). The formation of OPEC, an oil cartel including most major suppliers of oil and gas, led to a drastic increase in fuel prices. Rising fuel prices had a significant effect on the demand for automobiles worldwide. The increases in oil prices also contributed to inflation all over the world. OPEC's early success encouraged countries producing other basic products (coffee beans, sugar, bananas) to attempt to control the prices of their products.

A more recent example of an economic association serving multiple countries was the International Coffee Organization (ICO). The United States rejoined the ICO 2004 in hopes of fostering sustainability and competition across countries and the industry. The United States works with the Honduras, Mexico, and Nicaragua, among others, as part of this organization.

INTERGOVERNMENTAL RELATIONS. Changing relationships between the United States and other countries may alter the ability of firms to enter foreign markets. The United States' establishment of trade relations with China in the 1970s created opportunities for many firms to begin marketing their products in China.

The rise of Ayatollah Ruhollah Khomeini to power in Iran altered the lives of many Iranian citizens. Wine, vodka, music, and other forms of entertainment were prohibited. Black markets provided certain restricted items. Other products, such as wine, began to be produced at home. Anti-American sentiments throughout the country showed the hostility of many citizens. Non-American firms thus had an opportunity to capitalize on the anti-American sentiments and to provide goods and services formerly provided by U.S. firms.

CULTURAL DIFFERENCES. In different countries, sometimes even within a country, there are substantial differences in attitudes, beliefs, motivation, morality, superstition, and perception, as well as other characteristics. Geert Hofstede (b. 1928) developed a model in which worldwide differences in culture are categorized according to five dimensions. These dimensions include:

- Power distance—the degree of inequality among people which the population of a country considers normal.
- Individualism vs. collectivism—the degree to which people in a country prefer to act as individuals or as members of a group.
- Masculinity vs. femininity—the degree to which values like assertiveness, performance, success, and competitiveness are used to guide decisions versus values like the quality of life, warm personal relationships, service, and solidarity.

- Uncertainty avoidance—the degree to which citizens of a country prefer structured over unstructured situations, rigidity of procedures, or willingness to accept risk and potential failure.
- Time orientation—the extent to which decisions are based on long-term orientation versus short-term orientation, past versus present versus future, and punctuality.

Hofstede argues that U.S. management theories contain a number of idiosyncrasies that are not necessarily shared by managers in other cultures. Approaches to motivation and leadership, for example, differ widely throughout the world. Citizens of Japan tend to put greater importance on collective effort and working as a team member. Individual recognition is not desired. It is viewed as contradictory to being a good team member.

Similarly, in other countries, high tax rates may make bonuses and other forms of monetary compensation less attractive and less motivating than in the United States. Hofstede argues that employees and products are more readily transferred between countries sharing similar cultures.

The macroenvironment consists of forces that originate outside of an organization and generally cannot be altered by actions of the organization. Dimensions of the macroenvironment consist of sociocultural factors, technological factors, political-legal elements, economic factors, and international elements. A firm needs to study these elements of its environment, as they have the potential to affect how the organization should operate to attain and maintain its competitive advantage.

SEE ALSO: Economics; SWOT Analysis

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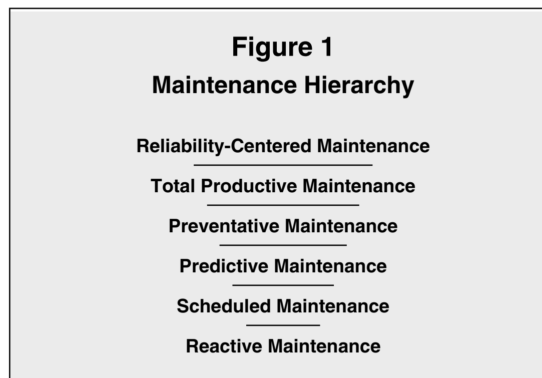
MAINTENANCE

Maintenance is the combination of all technical and associated administrative actions intended to retain an item in, or restore it to, a state in which it can perform its required function. Many companies are seeking to gain competitive advantage with respect to cost, quality, service and on-time deliveries. The effect of maintenance on these variables has prompted increased attention to the maintenance area as an integral part of productivity improvement. Maintenance is rapidly evolving into a major contributor to the performance and profitability of manufacturing systems. In fact, some see maintenance as the “last frontier” for manufacturing.

In their article “Make Maintenance Meaningful” P.K. Kauppi and Paavo Ylinen describe the bulk of maintenance procedures as being as:

- Preventive maintenance—the prevention of equipment breakdowns before they happen. This includes inspections, adjustments, regular service and planned shutdowns.
- Repair work—repairing equipment and troubleshooting malfunctions in an effort to return the equipment to its previous condition. These repairs may be reactive or preventive.
- Improvement work—searching for better materials and improved design changes to facilitate equipment reliability. Repair work is often a part of improvement work.

As shown in Figure 1, six maintenance programs are identified within the maintenance hierarchy, each representing an increased level of sophistication.



REACTIVE MAINTENANCE

Reactive maintenance (also known as corrective maintenance) involves all unscheduled actions performed as a result of system or product failure. Basically, it is an attempt to restore the system/product to a specified condition. The spectrum of activities within this level are (1) failure identification, (2) localization and isolation, (3) disassembly, (4) item removal and replacement or repair in place, (5) reassembly, and (6) checkout and condition verification. This approach is mainly a response to machine breakdowns. Unfortunately, many manufacturers are still in a reactive mode of operation. Their main objective is to ship the product. If their manufacturing equipment breaks down, they fix it as quickly as possible and then run it until it breaks down again. This is an extremely unreliable process and is not the best way to maximize the useful life span of one's assets. It leaves machine tools in a state of poor repair and can cause the production of out-of-tolerance parts and scrap. Because of its unpredictable nature it can easily cause disruptions to the production process.

SCHEDULED MAINTENANCE

Scheduled maintenance utilizes a previously developed maintenance schedule for each machine tool. This is much like an oil change on an automobile that takes place every three months or 3,000 miles, whichever comes first. While this is a broadly practiced technique in many manufacturing organizations, it does possess some distinct disadvantages. The scheduled maintenance may take place too soon, while the machine still operates well (15-20 percent of all components fail after a predictable time), or it may come too late if the machine fails before the scheduled maintenance time. In some cases, the machine may still be running but producing unacceptable parts. Scheduled maintenance can be considered a part of preventive maintenance known as fixed-time maintenance (FTM). Preventive maintenance is discussed later.

PREDICTIVE MAINTENANCE

Predictive maintenance involves performing maintenance on a machine in advance of the time a failure would occur if the maintenance were not performed. Of course, this means that one must calculate when a machine is predicted to fail. In order to do this, the firm must collect data on variables that can be used to indicate an impending failure (vibration, temperature, sound, color, etc.). This data is then analyzed to approximate when a failure will occur and maintenance is then scheduled to take place prior to this time. By seeking the correct level of maintenance required, unplanned downtime is minimized.

PREVENTIVE MAINTENANCE

Preventive maintenance encompasses activities, including adjustments, replacement, and basic cleanliness, that forestall machine breakdowns. Preventive activities are primarily condition based. The condition of a component, measured when the equipment is operating, governs planned/scheduled maintenance. Typical preventive maintenance activities include periodic inspections, condition monitoring, critical item replacements, and calibrations. In order to accomplish this, blocks of time are incorporated into the operations schedule. One can easily see that this is the beginning of a proactive mode rather than a reactive one. The purpose of preventive maintenance is to ensure that production quality is maintained and that delivery schedules are met. In addition, a machine that is well cared for will last longer and cause fewer problems.

Current trends in management philosophy such as just-in-time (JIT) and total quality management (TQM) incorporate preventive maintenance as key factors in their success. JIT requires high machine availability, which in turn requires preventive maintenance. Also, TQM requires equipment that is well maintained in order to meet required process capability.

Preventive maintenance is also seen as a measure of management excellence. It requires a long-term commitment, constant monitoring of new technology, a constant assessment of the financial and organizational tradeoffs in contracting out versus in-house maintenance, and an awareness of the impact of the regulatory and legal environment.

The resulting benefits of preventive maintenance are many. Some of them are listed below:

- Safety. Machinery that is not well-maintained can become a safety hazard. Preventive maintenance increases the margin of safety by keeping equipment in top running condition.
- Lower cost. A modern and cost-effective approach to preventive maintenance shows that there is no maintenance cost optimum. However, maintenance costs will decrease as the costs for production losses decreases. Obviously, no preventive maintenance action is performed unless it is less costly that the resulting failure.
- Reduction in failures and breakdowns. Preventive maintenance aims at reducing or eliminating unplanned downtime, thereby increasing machine efficiency. Downtime is also reduced when the preventive maintenance process gives maintenance personnel sufficient warning so repairs can be scheduled during normal outages.

- Extension of equipment life. Obviously, equipment that is cared for will last longer than equipment that is abused and neglected.
- Improved trade-in/resale value of equipment. If the equipment is to be sold or traded in, a preventive maintenance program will help keep the machine in the best possible condition, thereby maximizing its used value.
- Increased equipment reliability. By performing preventive maintenance on equipment, a firm begins to build reliability into the equipment by removing routine and avoidable breakdowns.
- Increased plant productivity. Productivity is enhanced by the decrease in unexpected machine breakdown. Also, forecast shutdown time can allow the firm to utilize alternate routings and scheduling alternatives that will minimize the negative effect of downtime.
- Fewer surprises. Preventive maintenance enables users to avoid the unexpected. Preventive maintenance does not guarantee elimination of all unexpected downtime, but empirically it has proven to eliminate most of it caused by mechanical failure.
- Reduced cycle time. If process equipment is incapable of running the product, then the time it takes to move the product through the factory will suffer. Taninecz found, from an *Industry Week* survey, that there is a strong correlation between preventive maintenance and cycle-time reductions as well as near-perfect on-time delivery rates. Also, approximately 35 percent of the surveyed plants who widely adopted preventive maintenance achieved on-time delivery rates of 98 percent, compared to only 19.5 percent for non-adopters.
- Increased service level for the customer and reduction in the number of defective parts. These have a positive direct effect on stock-outs, backlog, and delivery time to the customer.
- Reduced overall maintenance. By not allowing machinery to fall into a state of disrepair, overall maintenance requirements are greatly decreased.

TOTAL PRODUCTIVE MAINTENANCE

Total productive maintenance (TPM) is preventive maintenance plus continuing efforts to adapt, modify, and refine equipment to increase flexibility, reduce material handling, and promote continuous flows. It is operator-oriented maintenance with the involvement of all qualified employees in all maintenance activities. TPM has been described as preventive maintenance with these three factors added: (1) involving machine operators in preliminary maintenance activities by encouraging them to keep machines clean and well lubricated; (2) encouraging operators to report indications of incipient distress to the maintenance department; and (3) establishing a maintenance education and training program.

Developed in Japan, TPM places a high value on teamwork, consensus building, and continuous improvement. It is a partnership approach among organizational functions, especially production and maintenance. TPM means total employee involvement, total equipment effectiveness, and a total maintenance delivery system. In order to achieve this, machine operators must share the preventive maintenance efforts, assist mechanics with repairs when equipment is down, and work on equipment and process improvements within team activities. Tennessee Eastman found that another employee, such as an equipment operator, with minimal training, could do 40 percent of the traditional maintenance mechanic's work. Another 40 percent could be performed with additional training, but still below the certified level. Only 20 percent of the maintenance tasks actually required a certified mechanic's skills. They also reported that as much as 75 percent of maintenance problems can be prevented by operators at an early stage. This frees maintenance personnel to be responsible for the tasks that require their critical skills, such as breakdown analysis, overhaul, corrective maintenance and root cause analysis. This places them in a "consultant" role with the operators allowing them to:

- help the operator diagnose problems and restore equipment to like-new condition;
- use appropriate technologies and standards to verify that the equipment is in like-new condition after repair, overhaul, or replacement;
- use this knowledge to assess the root cause of the problem so that changes may be made to the design, operation, or maintenance practices in the future;
- work with purchasing, engineering, operations, and maintenance to modify procurement standards to assure maximum reliability in future equipment.

Of course, for all of this to work, the firm must have an organizational culture which supports a high level of employee involvement. Businesses must be willing to provide the necessary training in order to allow production personnel to perform the required tasks.

TPM's focus is on elimination of the major losses or inefficiencies incurred in production activities. These losses include those due to obstruction of equipment efficiency, manpower efficiency, and material and energy efficiency. Based on their link to corporate goals, targets for eliminating or reducing these losses are developed. Just as in activity-based cost accounting where cost drivers are identified, the objective of TPM is to identify variables that can demonstrate improved performance. All major equipment losses are functionally related to availability, performance, efficiency and/or quality rate so the improvement resulting from the maintenance system can be measured by its impact on overall equipment effectiveness (see below).

Beneficial results of TPM include:

- Overall equipment effectiveness and overall efficiency are maximized.
- It takes the guesswork out of determining which machine needs major repairs or rebuilding.
- It provides objectivity by converting the operator's intuition into quantifiable values.
- It pinpoints exact maintenance requirement. The operator carries out only the needed corrective actions so no unnecessary work, beyond routine maintenance, is done.
- It rapidly verifies the effectiveness of major corrective work.
- Operators improve their job skills.
- Operators are motivated by involvement in maintaining their own machines and by involvement in team-based concepts.
- Operator involvement in the process gives them ownership of making the project a success.
- A preventive maintenance program for the lifecycle of the equipment is developed.
- By getting everyone involved in equipment design and selection, a better understanding of why certain decisions and trade-offs are necessary results.
- Equipment and maintenance management (inherent in a reliability strategy) result.
- Capacity is maximized.
- Costs are minimized.
- Product quality is improved.
- Improved safety.
- The manufacturing process is continually improved.

As a final note on TPM, another school of thought holds that TPM can be adopted by continuous diagnostic monitoring of a machine's conditions and establishing a trend line for it. Trend lines approaching or veering into the domain that identifies poor operating conditions will trigger maintenance action.

RELIABILITY-CENTERED MAINTENANCE

It has been assumed that preventive maintenance programs help to ensure reliability and safety of equipment and machinery. However, tests performed by airlines in the mid-1960s showed that scheduled overhaul of complex equipment had little or no positive effect on the reliability of the equipment in service. These tests revealed the need for a new concept of preventive maintenance, which later became known as reliability-centered maintenance (RCM).

The concept of RCM is rooted in a 1968 working paper prepared by the Boeing 747 Maintenance Steering Group. A refined version appeared in 1970. Continued studies at the Department of Defense led to the 1986 publication of the "Reliability Centered Maintenance Requirements for Naval Aircraft, Weapons Systems and Support Equipment," a set of maintenance standards and procedures that certain military maintenance personnel were expected to follow. The RCM methodology was further developed and found application not only in the military and aviation, but also in the energy, manufacturing, foundry, and transport industries.

According to Bulmer, the RCM process can be considered as three separate but associated analyses: failure mode and effects analysis, consequence analysis, and task analysis. These analyses consider the specific characteristics and consequences of a failure and attempt to arrive at the optimal solution based on this information.

OVERALL EQUIPMENT EFFECTIVENESS

Total productive maintenance provides a systematic procedure for linking corporate goals to maintenance goals. This procedure calls for the consideration of external and internal corporate environments, and then the development of a basic maintenance policy congruent with the environments. Next key points for maintenance improvement are identified, which result in the definition of target values for maintenance performance. These values, referred to as overall equipment effectiveness (OEE), are a function of equipment availability, quality rate, and equipment performance efficiency, and provide a starting point for developing quantitative variables for relating maintenance measurement and control to corporate strategy.

Essentially, OEE offers a measurement tool that helps identify the real areas of opportunity within an

operation. These areas have been termed the "six big losses." OEE allows the firm to break these losses into smaller components to better evaluate the impact the maintenance program is making on the operation. The six losses are:

1. Breakdowns from equipment failure (unplanned downtime)
2. Setup and adjustments from product changes and minor adjustments necessary to get the equipment operating properly after the line change
3. Idling and minor stoppages due to abnormal operation of the equipment causing momentary lapses in production, but not long enough to track as downtime
4. Reduced speeds, the discrepancy between design and actual speed the equipment operates
5. Process defects due to scrapped production and defects needing rework
6. Reduced yield and lost materials during the manufacturing process, from start-up to end of production run

If a company has an OEE of 85 percent or more, then it is considered to be a world-class company.

TRENDS IN MAINTENANCE

Two major trends in the development of maintenance management research have been identified: (1) emerging developments and advances in maintenance technology, information and decision technology, and maintenance methods; and (2) the linking of maintenance to quality improvement strategies and the use of maintenance as a competitive strategy.

The first major trend has to do with the impact of artificial intelligence techniques, such as expert systems and neural networks, on the formation of maintenance knowledge in industrial organizations. There is a diverse application of expert systems within the maintenance area. A number of these systems and their applications are listed below:

- CATS—an expert maintenance system for detecting sudden failures in diesel-electric locomotive systems
- INNATE—an expert system used for electronic circuit diagnosis
- FSM—an expert system used by Boeing for continuous condition monitoring of aircraft alarms
- RLA—an expert system developed by Lockheed for repair-level analysis for major parts in an aerospace system
- GEMS-TTS—an expert system used by AT&T maintenance specialists to isolate faults in communication links
- TOPAS—an expert system that diagnoses transmission and signaling problems in real time that may arise on switched circuits.
- CHARLEY—an expert system used by General Motors to diagnose problems with broken machine tools and to instruct less experienced individuals by providing explanations
- XCON—an expert system developed by Digital Equipment Corporation (now part of Compaq) for product configuration

The second major trend is typified by the emergence of total productive maintenance, which must be incorporated into the firm's strategy. In the quest for world-class manufacturing, many industries are appreciating the need for efficient maintenance systems that have been effectively integrated with corporate strategy. It is vital that maintenance management becomes integrated with corporate strategy to ensure equipment availability, quality products, on-time deliveries, and competitive pricing. Managerial attitudes have changed toward maintenance because of the emergence of new management philosophies. In addition, social trends such as lack of capital, fluctuations in currencies, competition, quality, and environmental consciousness, have also encouraged a new focus on maintenance.

Maintenance will continue to be a major area of concern for manufacturers and other forms of business. A study of some seventy manufacturing plants found that over 50 percent of the maintenance work performed by these firms was reactive (run to failure, emergency breakdown). The balance of maintenance work was preventive or period based (25 percent), predictive or condition based (15 percent), and proactive or root-caused based (10 percent). A strong correlation has been found to exist between manufacturing cost reduction and preventive/predictive maintenance. Over a five-year period a study group of companies found that productivity improvements correlated strongly with a number of variables, one of which was preventive/predictive maintenance.

Mike Laskiewicz recommends that organizations recognize maintenance as a key department that needs to be well managed. In addition, the maintenance department should be led by a strong-minded individual who is a good motivator, technically competent, experienced and familiar with advanced industry practices. Finally Laskiewicz notes that maintenance planning must be a top priority.

SEE ALSO: Continuous Improvement; Lean Manufacturing and Just-in-Time Production; Operations Strategy; Organizational Culture

R. Anthony Inman

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MAKE-OR-BUY DECISIONS

The make-or-buy decision is the act of making a strategic choice between producing an item internally (in-house) or buying it externally (from an outside supplier). The buy side of the decision also is referred to as outsourcing. Make-or-buy decisions usually arise when a firm that has developed a product or part—or significantly modified a product or part—is having trouble with current suppliers, or has diminishing capacity or changing demand.

Make-or-buy analysis is conducted at the strategic and operational level. Obviously, the strategic level is the more long-range of the two. Variables considered at the strategic level include analysis of the future, as well as the current environment. Issues like government regulation, competing firms, and market trends all have a strategic impact on the make-or-buy decision. Of course, firms should make items that reinforce or are in-line with their core competencies. These are areas in which the firm is strongest and which give the firm a competitive advantage.

The increased existence of firms that utilize the concept of lean manufacturing has prompted an increase in outsourcing. Manufacturers are tending to purchase subassemblies rather than piece parts, and are outsourcing activities ranging from logistics to administrative services. In their 2003 book *World Class Supply Management,* David Burt, Donald Dobler, and Stephen Starling present a rule of thumb for outsourcing. It prescribes that a firm outsource all items that do not fit one of the following three categories: (1) the item is critical to the success of the product, including customer perception of important product attributes; (2) the item requires specialized design and manufacturing skills or equipment, and the number of capable and reliable suppliers is extremely limited; and (3) the item fits well within the firm's core competencies, or within those the firm must develop to fulfill future plans. Items that fit under one of these three categories are considered strategic in nature and should be produced internally if at all possible.

Make-or-buy decisions also occur at the operational level. Analysis in separate texts by Burt, Dobler, and Starling, as well as Joel Wisner, G. Keong Leong, and Keah-Choon Tan, suggest these considerations that favor making a part in-house:

- Cost considerations (less expensive to make the part)
- Desire to integrate plant operations
- Productive use of excess plant capacity to help absorb fixed overhead (using existing idle capacity)
- Need to exert direct control over production and/or quality
- Better quality control
- Design secrecy is required to protect proprietary technology
- Unreliable suppliers
- No competent suppliers
- Desire to maintain a stable workforce (in periods of declining sales)
- Quantity too small to interest a supplier
- Control of lead time, transportation, and warehousing costs
- Greater assurance of continual supply
- Provision of a second source
- Political, social or environmental reasons (union pressure)
- Emotion (e.g., pride)

Factors that may influence firms to buy a part externally include:

- Lack of expertise
- Suppliers' research and specialized know-how exceeds that of the buyer

- cost considerations (less expensive to buy the item)
- Small-volume requirements
- Limited production facilities or insufficient capacity
- Desire to maintain a multiple-source policy
- Indirect managerial control considerations
- Procurement and inventory considerations
- Brand preference
- Item not essential to the firm's strategy

The two most important factors to consider in a make-or-buy decision are cost and the availability of production capacity. Burt, Dobler, and Starling warn that "no other factor is subject to more varied interpretation and to greater misunderstanding" Cost considerations should include all relevant costs and be long-term in nature. Obviously, the buying firm will compare production and purchase costs. Burt, Dobler, and Starling provide the major elements included in this comparison. Elements of the "make" analysis include:

- Incremental inventory-carrying costs
- Direct labor costs
- Incremental factory overhead costs
- Delivered purchased material costs
- Incremental managerial costs
- Any follow-on costs stemming from quality and related problems
- Incremental purchasing costs
- Incremental capital costs

Cost considerations for the "buy" analysis include:

- Purchase price of the part
- Transportation costs
- Receiving and inspection costs
- Incremental purchasing costs
- Any follow-on costs related to quality or service

One will note that six of the costs to consider are incremental. By definition, incremental costs would not be incurred if the part were purchased from an outside source. If a firm does not currently have the capacity to make the part, incremental costs will include variable costs plus the full portion of fixed overhead allocable to the part's manufacture. If the firm has excess capacity that can be used to produce the part in question, only the variable overhead caused by production of the parts are considered incremental. That is, fixed costs, under conditions of sufficient idle capacity, are not incremental and should not be considered as part of the cost to make the part.

While cost is seldom the only criterion used in a make-or-buy decision, simple break-even analysis can be an effective way to quickly surmise the cost implications within a decision. Suppose that a firm can purchase equipment for in-house use for $250,000 and produce the needed parts for $10 each. Alternatively, a supplier could produce and ship the part for $15 each. Ignoring the cost of negotiating a contract with the supplier, the simple break-even point could easily be computed:

$$\$250{,}000 + \$10Q = \$15Q$$
$$\$250{,}000 = \$15Q - \$10Q$$
$$\$250{,}000 = \$5Q$$
$$50{,}000 = Q$$

Therefore, it would be more cost effective for a firm to buy the part if demand is less than 50,000 units, and make the part if demand exceeds 50,000 units. However, if the firm had enough idle capacity to produce the parts, the fixed cost of $250,000 would not be incurred (meaning it is not an incremental cost), making the prospect of making the part too cost efficient to ignore.

Stanley Gardiner and John Blackstone's 1991 paper in the *International Journal of Purchasing and Materials Management* presented the contribution-per-constraint-minute (CPCM) method of make-or-buy analysis, which makes the decision based on the theory of constraints. They also used this approach to determine the maximum permissible component price (MPCP) that a buyer should pay when outsourcing. In 2005 Jaydeep Balakrishnan and Chun Hung Cheng noted that Gardiner and Blackstone's method did not guarantee a best solution for a complicated make-or-buy problem. Therefore, they offer an updated, enhanced approach using spreadsheets with built-in liner programming (LP) capability to provide "what if" analyses to encourage efforts toward finding an optimal solution.

Firms have started to realize the importance of the make-or-buy decision to overall manufacturing strategy and the implication it can have for employment levels, asset levels, and core competencies. In response to this, some firms have adopted total cost of ownership (TCO) procedures for incorporating non-price considerations into the make-or-buy decision.

SEE ALSO: Break-Even Point

R. Anthony Inman

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MANAGEMENT: ART VS. SCIENCE

SEE: The Art and Science of Management

MANAGEMENT AUDIT

The term *management audit* is commonly used for examination and appraisal of the efficiency and effectiveness of management in carrying out its activities. Areas of auditor interest include the nature and quality of management decisions, operating results achieved, and risks undertaken.

The management audit focuses on results, evaluating the effectiveness and suitability of controls by challenging underlying rules, procedures, and methods. Management audits, which are generally performed internally, are both compliance reviews and goals-and-effect analyses. When performed correctly, they are potentially the most useful of evaluation methods, because they result in change.

The management audit is a process of systematically examining, analyzing, and appraising management's overall performance. The appraisal is composed of ten categories, examined historically and in comparison with other organizations. The audit measures a company's quality of management relative to those of other companies in its particular industry, as well as the finest management in other industries. The ten categories of the management audit are (1) economic function, (2) corporate structure, (3) health of earnings, (4) service to stockholders, (5) research and development, (6) directorate analysis, (7) fiscal policies, (8) production efficiency, (9) sales vigor, and (10) executive evaluation. These categories do not represent single functions of management.

ECONOMIC FUNCTION

The economic function category in the management audit assigns to management the responsibility for the company's importance to the economy. In essence, the public value of the company is determined. The value is based on what the company does, what products or services it sells, and how it goes about its business in a moral and ethical sense. It includes the company's reputation as well as management's view of the purpose of the company.

The public is defined in this sense not only as the consumers of the company's products or services and its shareholders, but also a number of groups that the company must seek to satisfy. These groups include its employees, suppliers, distributors, and the communities in which it operates. A company cannot have achieved maximum economic function unless it has survived trade cycles, met competition, developed and replaced management, and earned a reputation among its various publics.

CORPORATE STRUCTURE

The corporate structure review evaluates the effectiveness of the structure through which a company's management seeks to fulfill its aims. An organization's structure must strengthen decision-making, permit control of the company, and develop the areas of responsibility and authority of its executives. These requirements must be met regardless of the type of company. Companies that have established product divisions or other forms of organization have maximized the delegation of authority, but have not reduced the need for a clear understanding of authority.

Companies are generally decentralized after the lines of authority have been established; but even large

Exhibit 1

Replacement Chart for the Position of District Manager

Candidates	S. Jones	B. Smith	H. Johnson
Performance in present job	4	3	5
When qualified to advance	2 yrs	2 yrs	Now
Advancement potential score	85	78	87
Rank	2	3	1

companies have endured conflicts as the result of a breakdown in the acceptance of authority. An example of this is General Motors in the early 1920s, when the company endured an $85 million inventory loss because division leaders did not accept the authority of principal executives.

HEALTH OF EARNINGS

The health of earnings function analyzes corporate income in a historical and comparative aspect. The question this function seeks to answer is whether assets have been employed for the full realization of their potential. This can be assessed by a study of the risk assumed in the employment of resources, in the profit returns upon employment, and the distribution of assets among various categories. The actual value of the assets may not be able to be determined, but a company can trace the cost of acquisitions, rate of depreciation, and the extent to which assets have been fully profitable or not. The information needed for this category can usually be found within the company's annual reports.

SERVICE TO STOCKHOLDERS

The evaluation of a company's service to its shareholders can be assessed in three areas: (1) the extent to which stockholders' principal is not exposed to unnecessary risks; (2) whether the principal is enhanced as much as possible through undistributed profits; and (3) whether stockholders receive a reasonable rate of return on their investment through the form of dividends.

The evaluation also covers the quality of service provided by the company to its stockholders, mainly in the form of information and advice about their holdings. Although companies and industries vary widely on the amount of earnings they can pay out in the form of dividends, the rate of return and capital appreciation are the most important indicators of fairness to stockholders.

RESEARCH AND DEVELOPMENT

The evaluation of research and development is essential because R&D is often responsible for a company's growth and improvement in its industry. Analyzing research results can show how well research dollars have been utilized, but it does not show whether management has realized the maximum from it potential. Just like health of earnings, research should be examined from a historical and comparative standpoint in dollars expended; the number of research workers employed; the ratio of research costs and staff to total expenses; and new ideas, information, and products turned out. The examination of these figures compared with past results show management's willingness to employ research for future growth and health.

The American Institute of Management's evaluation attempts to determine what part of the company's past progress can properly be credited to research and how well research policies are preparing the company for future progress.

DIRECTORATE ANALYSIS

Directorate analysis covers the quality and effectiveness of the board of directors. Three principal elements are considered in the evaluation of the board. First, the quality of each director is assessed along with the quality and quantity of the contributions he or she makes to the board. Second, how well the directorate works together as a team is evaluated. Third, the directors are assessed to determine if they truly act as trustees for the company and act in the shareholders' best interest. This can best be examined in areas where a conflict of interest exists between a company's executives and its owners and public. One of the best areas to evaluate is corporate incentives. The manner in which a board handles conflicts of compensation provides a good key to its value.

FISCAL POLICY

The fiscal policy function of the management audit expresses the past and present financial policies. This function includes the company's capital structure; its organizations for developing fiscal policies and controls; and the application of these policies and controls in different areas of corporate activity.

PRODUCTION EFFICIENCY

Production efficiency is an important function for manufacturing companies as well as non-manufacturing companies. Production efficiency is divided into two parts. The first part, machinery and material management, evaluates the mechanical production of the company's products. The second aspect, manpower management, includes all personnel policies and practices for non-sales and non-executive employees developed by management. Only when both parts are analyzed can an overall evaluation of production be effectively performed.

SALES VIGOR

Sales vigor can be evaluated even though sales practices vary widely among industries. This can be accomplished after marketing goals have been deter-

mined and assessed. The goals must be assessed in terms of the overall goals of the company. Historical and comparative data are then analyzed to evaluate how well past sales potential has been realized and how well present company sales policies prepare the organization to realize future potential.

EXECUTIVE EVALUATION

Executive evaluation is the most important function of the management audit. The other nine functions indirectly evaluate the organization's management, since they represent the results of management's decisions and actions. This function addresses the quality of the executives and their management philosophy.

The American Institute of Management has found that the three essential elements in a business leader are ability, industry, and integrity. These elements provide a framework for the executive's evaluation in the management audit and should also be the criteria used in selecting and advancing executives. As a group, executives must regard the continuity of the organization as an important goal, assuring it by sound policies of executive selection, development, advancement, and replacement.

The most important management audit activity is an internal audit function. Each enterprise must have an independent source for developing and verifying controls, above and beyond what the external auditors might do in a financial audit.

The functions of the management audit remain the same regardless of the type of business. In order to get good results, companies must observe principles of sound management; the degree to which they succeed can be appraised by systems such as the one outlined here.

SEE ALSO: Effectiveness and Efficiency

Kevin Nelson

Revised by Charalambos Spathis, Eugenia Petridou, and Constantine Zopounidis

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MANAGEMENT AWARDS

One indicator of the growing recognition of management as a field of great importance has been the proliferation in the late twentieth century of prizes that various governments award their most outstanding organizations. Such official recognition of management practice, quality, and contribution to business reflects the belief at the highest levels that good management practice can be learned and nurtured through promoting awareness of best practices and innovative techniques.

THE FIVE MAJOR AWARDS

The five most prestigious management awards are Japan's Deming Prizes, the United States' Malcolm Baldrige National Award, the European Quality Awards, the Canada Awards for Excellence, and the AKAO Prize.

The first widely esteemed management award, Japan's Deming Prize, was only established in 1950. For nearly three decades, the Deming Prize stood essentially alone as a major prize for business management practice.

With the enormous success of Japanese industry in the late twentieth century, interest in Japanese business practices grew, including Japan's recognition of business successes. By the 1980s, Japan's successes in competing worldwide were admired worldwide and Japanese business began to find emulators. Subsequently, the United States and Europe set up their own equivalents to the Deming Prize to honor their own businesses. The United States established the Malcolm Baldrige National Quality Award in 1989, and soon after the 12 nations of the European Community (now the European Union) jointly created the European Quality Awards in 1990, awarding the first recipient in 1992.

To date, only one company—Xerox—has won all three major quality awards. Xerox was one of the first non-Japanese companies to win the Deming Application Prize (in 1980). Xerox then won the Baldrige Award in 1989, and (in the first year the prize was given out) a European Quality Award in 1992.

THE DEMING PRIZE. The Japanese Union of Scientists and Engineers (JUSE) created the first major management award, the Deming Prize, to recognize "contributions to quality and dependability of product." The award is still generally held as the most prestigious of all management awards, and is generally recognized as the most highly esteemed business award offered in Japan. The JUSE instituted the award in 1950, and began awarding the prize annually in 1951.

Interestingly, this most significant of Japan's business awards honors an American, Dr. W. Edwards Deming. Many Japanese government and academic leaders credit Deming with revolutionizing Japanese postwar industry through his advocacy in Japan of quality control and managerial efficiency.

The JUSE's Deming Prize Committee administers two types of awards honoring Deming: the Deming Prize and the Deming Application Prize. The Deming Prize is given to a person or group of people who have advanced the practice and furthered awareness of TQC. The Deming Application Prize, in turn, goes only to companies based on successes attributable to implementing TQC.

Beginning in 1970, the JUSE began to offer the Japan Quality Control Medal. Only those who have formerly won a Deming Application Prize five years or more earlier are eligible for the Quality Control Medal. The medal is intended to upgrade the quality control of former prize recipients. To this end, the criteria for the Quality Control Medal remain the same as the Deming Application Prize and the Medal is awarded at the same time as the other Deming Prize awards. The current aim of the examination is to find out how well a company implements total quality control by assessing its quality-assurance policies and activities, and by measuring the company's results in the areas of productivity improvement, quality improvement, cost reduction, expanded sales, and increased profits.

Non-Japanese companies were allowed to apply for and receive the Deming Prize starting in 1984; the categories that remain unavailable to non-Japanese companies include the individual prize and the factory award.

MALCOLM BALDRIGE NATIONAL QUALITY AWARD. The U.S. Congress created the Malcolm Baldrige National Quality Award in 1987 largely as a counterpart to Japan's Deming Prize. The specific goal of the Baldrige Award is to heighten U.S. awareness of TQM and to formally recognize successful quality management systems. The award is named for the U.S. Secretary of Commerce from 1981 to 1987. Baldrige was actually helping in drafting the creation of the award at the time of his death in a rodeo accident.

The U.S. Commerce Department's National Institute of Standards and Technology (NIST) administers the Baldrige Award. The NIST presents up to two awards each in three divisions: manufacturing, service, and small business. The NIST gave its first awards in 1988.

The Baldrige Award judges results companies have shown through management practices in seven specific areas. These are (1) leadership, (2) information and analysis, (3) strategic planning, (4) human resource focus, (5) process management, (6) business results and company performance, and (7) customer focus and satisfaction.

The Baldrige Award is open to any for-profit business in the United States. Like the Deming Prize, the award may be won by a foreign-owned company, but unlike the Deming Prize only those foreign-owned companies with more than 50 percent of their employees or physical assets located in the United States are eligible.

In addition to its more parochial focus, the Baldrige differs from the Deming Prize in three significant ways. First, the Baldrige Award emphasizes customer perceptions and the bottom line emphasizing clear-cut results through its seven specific areas. This makes the Baldrige more objective-oriented than the more systemic focus of the Deming Prize.

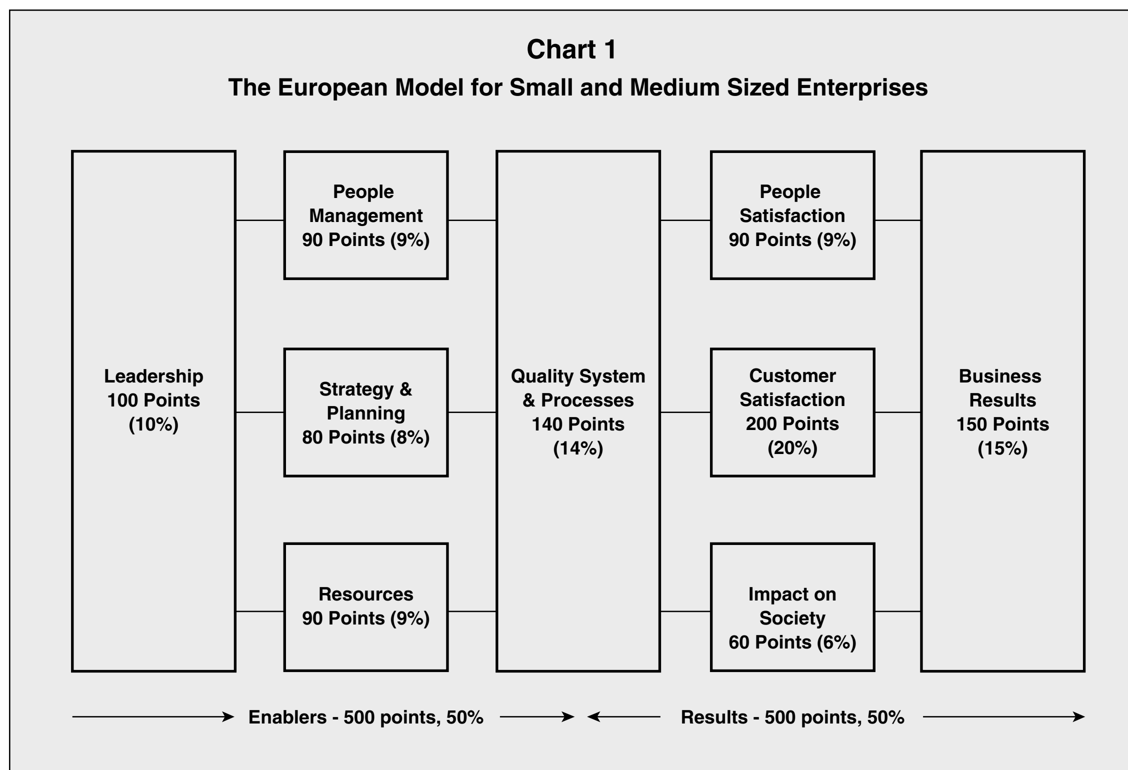
Second, while the NIST is an independent agency, the Baldrige relies on a wide array of professional groups to decide on its winners, while from its inception the Deming Prize has relied solely on the JUSE. The Baldrige is consequently able to draw on a wider range of expertise among its judges than the Deming Prize, but may be more open to charges of conflict of interest among the reviewers.

Finally, the Baldrige Award has a stated objective of sharing information while the Deming Prize does not. Consequently, the Baldrige is more likely to make known to other companies how the winners have achieved their success so that others may emulate them; the Deming Prize is more proprietary, allowing winners more readily to keep company secrets if they wish, thus widening the field of companies which may wish to participate but simultaneously limiting the benefit to other companies and to the dissemination of TQM principles in general.

THE EUROPEAN QUALITY AWARDS. By 1990, the European Community (now the European Union) felt that it had fallen behind Japan and the United States in the recognition of quality management. In that year, the European Foundation for Quality Management, with support from the European Organization for Quality and the European Commission, set about to create its own Deming or Baldrige equivalent, The European Quality Awards. The first winners were announced in October 1992.

The initial awards favored larger, for-profit companies, so by 1996 the European Commission began to give out additional awards for public sector organizations and for small- to mid-sized enterprises. The awards also have a category for operational units of companies, such as factories, research units, or assembly plants.

The European Quality Awards, regardless of category, judges applicants on nine criteria: (1) leadership; (2) people management; (3) policy and strategy,



(4) resource management, (5) process management, (6) customer satisfaction, (7) people satisfaction (defined as the perception of people toward the organization), (8) impact on society, and (9) business results.

While the categories essentially copy those of the Baldrige Award, the emphasis on people's perceptions of the organization and of the organization's impact on society are unique to the European Quality Awards and add a societal element lacking in either the Deming or Baldrige Awards. The European Quality Awards also differ from the Deming and Baldrige, as noted earlier, in the various categories for eligible organizations. The European Quality Awards also differ in the nature of their awards jury, which is made up of business leaders as well as academics. Finally, by its nature, the European Union is more international than either Japan or the United States, and from the start, the award has been open to companies outside the European Union. Still, the award is limited to those companies that have at least 50 percent of their activities in Europe.

Applications to the program are examined by a team of six assessors, each of whom undergo training to ensure a high level of consistency in scoring. Assessors include some academics and quality professionals, but the majority are drawn from the ranks of experienced practicing managers from European countries. The application is assessed and scored on a scale from 0 to 1,000 points. Chart 1 illustrates the scoring system for the small- and medium-sized company award.

THE CANADA AWARDS FOR EXCELLENCE. After Japan established the Deming Prize, Canada was the next major industrialized nation to establish an award honoring managerial practice. Even then, it was not until 1983 that the federal government of Canada created the Canada Awards for Excellence. For the first ten years, the Canada Awards for Excellence were administered by the Canadian government directly. In 1993, Canada handed the administration of the award over to the National Quality Institute, a Canadian nonprofit organization.

From the beginning, the Canada Awards for Excellence differed from the Deming Prizes in significant ways that in some respects laid the foundation of the Baldrige and European Quality Awards. The Canada Awards for Excellence were from their inception more results-oriented than the Deming Prize and in this respect served as a blueprint for the Baldrige Award's results orientation. Indeed, the Canada Awards for Excellence have been judging nominees on their "Seven Drivers" as the criteria for excellence six years before the first Baldrige Award was given for its seven factors. Indeed, most of the Canadian Awards' Seven Drivers are the same as what the Baldrige Award would later adopt. The Canadian Seven Drivers are (1) leadership, (2) planning, (3) customer focus, (4) people focus, (5) process management, (6) supplier focus, and (7) organizational performance.

Similarly, the Canada Awards for Excellence foreshadowed the broader reach of the European Quality Awards. From their beginning, the Canadian

Figure 1
Major Management Prizes

Prize	Year Established	Administrating Organization
Deming Prize	1951	Japanese Union of Scientists and Engineers (JUSE)
Franz Edelman Award for Management Science Achievement	1975	Institute for Operations Research and the Management Sciences
Canada Quality Awards for Excellence	1983	National (Canadian) Quality Institute (since 1993)
Shingo Prize for Excellence in Manufacturing	1988	National (US) Association of Manufacturers
Malcolm Baldridge National Quality Award	1989	National Institute of Standards and of the Technology (NIST) US Department of Commerce
European Quality Awards	1990	European Foundation for Quality Management
ESCAP Human Resources Development Award	1990	United Nations Economic and Social Commission for Asia and the Pacific (ESCAP)
INFORMS Award	1991	Institute for Operations Research and the Management Sciences
EUCUSA Award	1997	European Customer Satisfaction Association
Canada Healthy Workplace Award	1999	National (Canadian) Quality Institute

Awards have been open to both public and private sector organizations that contribute to the nation's economic success. In this respect, the Canada Awards for Excellence foreshadow the decision in Europe over a decade later to expand the scope of the European Quality Awards from solely for-profit companies to include public sector organizations.

In many respects, the Canada Awards for Excellence are as significant as their better known counterparts in Japan, the United States, and Europe, but remain more limited in scope simply because of Canada's relatively small population. Still, the Canada Awards for Excellence are highly regarded within Canada itself, and since their founding over 300 people and organizations have received the award.

Until 1999, Canada offered only one Award for Excellence: the Quality Award. Beginning in 1999, Canada broke new ground by offering a second award previously unprecedented elsewhere in national awards, the Healthy Workplace Award. The Healthy Workplace Award recognizes organizations that "promote, encourage, support and offer exemplary health-related programs in the workplace," judging the organization in five areas: (1) leadership, (2) planning, (3) people focus, (4) process management, and (5) outcomes.

AKAO PRIZE. In 1996, the QFD Institute established the Akao Prize to recognize individuals who have made an "outstanding contribution to the advancement of QFD." The award roughly follows the pattern of the Deming award but differs from other quality awards not only in focusing exclusively on QFD, but in recognizing only individuals, and not organizations as a whole. The prize was named for Dr. Yoji Akao, himself a Deming Award winner and one of the seminal developers of the field of QFD. Dr. Akao personally hands out the award at the annual ceremony.

OTHER QUALITY AWARDS

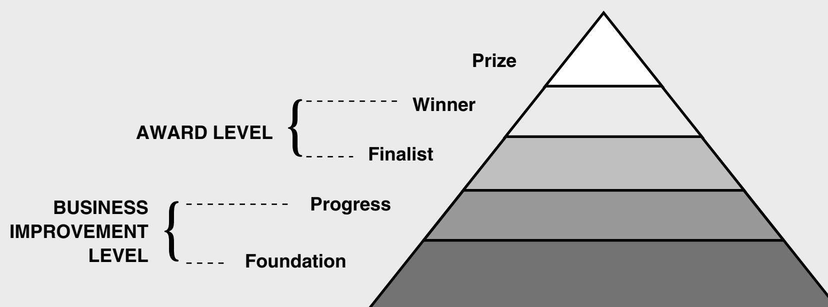
The success of the major awards in attracting attention to management excellence in Japan, the United States, the European nations and Canada has promoted widespread interest in other nations as well as state awards within the United States, provincial awards within Canada, and individual national awards within Europe (as shown in Figure 1).

AUSTRALIA. Australia established its Australian Quality Awards for Business Excellence in 1991. The award is somewhat unique in that it has four tiers of recognition, nurturing companies to maintain ongoing quality management excellence. The first tier is the Business Improvement Level, giving first-level recognition for Progress or Foundation in Business Excellence. The next level, The Australian Quality Award for Business Excellence, is a best practices achievement award. The third level is the Australian Quality for Business Excellence Gold Award, open only to past award winners and intended to demonstrate ongoing improvement. The highest level is the

Table 1
Award Websites

American Society for Training and Development	http://www.astd.org/astd
Australian Business Excellence Awards	http://www.sai-global.com/AWARDS
Connecticut Quality Improvement Award	http://www.ctqualityaward.org/
Deming Prize	http://www.deming.org/demingprize/
The ESCAP Human Resources Development Award	http://www.escap-hrd.org/
European Customer Satisfaction Association	http://www.eucusa.org/de/index.php non-English
European Foundation for Quality Management	http://www.efqm.org/ or http://www.efqm.org/model_awards/eqa/intro.asp
Japanese Union of Scientists and Engineers	http://www.juse.or.jp/e/
Kwaliteit op Internet	http://www.leren.nl/rubriek/computers_en_internet/internetten/zoeken_op_het_web/ non-English site
Malcolm Baldridge National Quality Award	http://www.quality.nist.gov/
Margaret Chase smith Quality Association	http://www.workforce-excellence.net/html/stateawards/state-me.htm
Massachusetts Council for Quality	http://www.massexcellence.com/AboutMax/stakeholders.html
National Quality Institute of Canada	http://www.nqi.ca/CAEAwards/default.aspx or http://www.nqi.ca/
President's Quality Award	http://www.opm.gov/pqa/
Shingo Prize	http://www.flex.net/~mcgovern/shingo.html
Society for Human Resource Management	http://www.shrm.org/
QFD Institute Akao Prize	http://www.qfdi.org/akaoprize.htm
Quality Texas Foundation	http://www.texas-quality.org/
UK Quality Award for Business Excellence	http://www.quality-foundation.co.uk/

Figure 2
The Hierarchy of Recognition



Australian Quality Prize, also open only to former winners and represents best practices internationally throughout the company.

At the awards, organizations can receive kudos via recognition either as a finalist or a winner. Figure 2 depicts the hierarchy of recognition. Winners gain the right to use the Australian Quality Awards for Business Excellence logo for three years.

NEW ZEALAND. The New Zealand Quality Foundation established the New Zealand Excellence Award in the late 1990s. Like its Australian counterpart, it is a tiered award, although with three rather than four tiers.

EUROPE. Several European countries have national prizes honoring business excellence and quality management in their nation. Among these are Denmark's Den *Danske Kvalitets Pris* (the Finnish Quality Award),

the Dutch *Nederlandse Kwaliteitprijs* (Netherlands Quality Award), Ireland's Business Excellence Award, and Switzerland's *Esprix* award, also known as the *Schweizer Qualitätspreis für* Business Excellence (Swiss Quality Award for Business Excellence). The United Kingdom Quality Award for Business Excellence, established in 1994 by the president of the U.K. Board of Trade, was extended beyond for-profit organizations in 1995 to include categories not only for public organizations but, somewhat uniquely, also for voluntary services.

Even some regions within European nations (for example, Northern Ireland within the United Kingdom, and Flanders within Belgium) have begun to offer their own quality management prizes. Most of these competitions use the same guidelines as those used in the European Quality Awards.

UNITED STATES. Soon after the introduction of the Baldrige awards, a majority of the states began to offer their own awards. The oldest of these was the Connecticut Quality Improvement Award, begun in 1987, and so actually preceding the Baldrige Award by a year. Yet within ten years, Connecticut was just one of 41 states offering their own awards for excellence, most based at least in part on the Baldrige Award criteria. Several of these awards modified the Baldrige qualifications to include government, educational, or nonprofit organizations. Several awards from the larger states such as the Texas Quality Award and California's Eureka Award for Quality have tiered levels similar to the Australian Quality Awards described above.

Also notable is the Massachusetts Quality Award, established in 1992. The Massachusetts award is named for Armand Feigenbaum, the Massachusetts native whose book *Total Quality Control* (1951) founded the TQM movement. Most of the state awards are at least partially and usually entirely government funded. Maine's Margaret Chase Smith Maine State Quality Award, however, is unique in that it is entirely privately funded, which its organizers argue makes it freer from political considerations.

In addition to state-sponsored awards, several federal departments offer quality awards. For example, the U.S. Department of Energy Quality Accomplishment Award, begun in 1995, uses the Baldrige Award as its guidelines. The DOE Quality Accomplishment Award is administered by the Department of Commerce (and so independent of the DOE itself).

Similarly, the federal Office of Personnel Management annually offers the President's Award for Quality. The OPM's President's Award also uses the Baldrige Award criteria. The award recognizes federal agencies that have successfully implemented total quality management programs.

CANADA. In addition to the national Canada Awards for Excellence, the provinces of Manitoba and British Columbia offer their own awards. Additionally, Ontario's Durham region also offers its own award.

OTHER COUNTRIES

The Singapore Productivity and Standards Board in 1994 began the Singapore Quality Award to recognize organizations in Singapore for outstanding quality management practices and to enhance Singapore's competitiveness in the global market. Its model uses seven categories for comparing best practices and performances.

In 1995 the Japan Productivity Center for Socio-Economic Development established the Japan Quality Award to be awarded to companies excelling through strong customer focus, competitiveness, employee orientation and social responsibility.

The Costa Rica Excellence Award, a joint effort of the Costa Rican Chamber of Industries and Baxter, Firestone, and Intel, evaluates companies the parameters of ISO 9000 and ISO 14000 standards.

The South African Excellence Award focuses on companies attaining customer satisfaction and is awarded by the South African Excellence Foundation.

The Jordan's King Abdullah II Award for Excellence is the highest level recognition for companies in Jordan. It is aimed at increasing competitiveness by promoting quality awareness, performance and achievement.

AWARDS FOR OTHER MANAGEMENT AREAS

Many awards exist for other areas besides quality management. These awards range from teamwork issues to customer satisfaction and from manufacturing excellence to operations research management.

AQP NATIONAL TEAM EXCELLENCE AWARD. The Association for Quality and Participation annually awards teams within organizations for improving quality through participative teamwork for problem-solving, innovation, or improvement of an existing product, service, or process. The focus of the award is primarily for the United States.

THE INFORMS PRIZE. Since 1991, The Institute for Operations Research and the Management Sciences (INFORMS) has annually awarded their INFORMS Prize to a selected organization for pioneering efforts in the innovation of operations research/management sciences. In 1994, the award took its present name; from 1991 to 1994 the prize had been known as the ORSA Prize.

FRANZ EDELMAN AWARD. In addition to the INFORMS Prize, the Institute for Operations Research and the Management Sciences has since 1975 annually given out the Franz Edelman Award for Management Science Achievement to reward "outstanding examples of management science and operations research practice in the world." Though several Edelman Awards are given each year, the first-place prize carries a substantial $10,000 purse.

FRANK P. RAMSEY MEDAL. The Decision Analysis Society awards the Frank P. Ramsey Medal annually to recognize major contributions to the field of decision analysis. The medal is the most recognized decision analysis award, and takes its name from the Cambridge University probability expert who helped found the field.

SHINGO PRIZE. In 1988, the National Association of Manufacturers established the Shingo Prize for Excellence in Manufacturing. The Shingo Prize is administered by the NAM through the Utah State University College of Business, but is not linked substantively to the state of Utah. Also, while the prize has traditionally been awarded to U.S. companies, it is open to Canadian and Mexican manufacturers as well. The prize honors manufacturers for excellence in productivity and process improvement, quality enhancement, and customer satisfaction. The Shingo Prize rewards "focused improvements in core manufacturing processes, implementing lean, just-in-time philosophies and systems, eliminating waste, and achieving zero defects, while continuously improving products and costs."

EUCUSA AWARD. The European Customer Satisfaction Association (EUCUSA) began in 1997 to give awards annually to recognize European organizations and companies for achievements in improving customer satisfaction. The award categories are for large and small enterprises, nonprofit organizations, and cities or communities.

ISHIKAWA PRIZE. The Ishikawa Prize has been awarded annually since 1970 to recognize companies that have applied new methods or systems of management. The award is given by the same organization that gives the Deming Prize, the JUSE. Ichiro Ishikawa, for whom the award is named, was the first chairman of the JUSE's Board of Directors.

ESCAP AWARD. The United Nations Economic and Social Commission for Asia and the Pacific (ESCAP) in accordance with the Jakarta Plan of Action on Human Resources Development created the ESCAP Human Resources Development Award in 1990. The award is open to organizations in over 50 Asian or Pacific Island nations or territories belonging to the United Nations. The award annually recognizes exceptional work in the field of human resources development (HRD). In addition to the annual honoring ceremony in Bangkok, the winner receives $30,000 for the continuance of their project.

The ESCAP HRD Award has a theme each year. Some years the theme is less closely related to business initiatives than in others. For example, the theme in 1990 emphasized environmental management; the theme in 1992, drug abuse management; and the theme in 1998, education. Still, in most years, the award has recognized HRD for business initiatives. For example, the theme in 1994 was for "Human Resource Development for Women in Extreme Poverty," which was won by the Dhaka Ahsania Mission of Bangladesh. Similarly, the theme in 1995 had a primarily business focus, "HRD for Productive Employment of Youth," and was won by the "Barefoot College" of India's Social Work and Research Centre. In 1996 the theme was "People's Participation in Community Development," won by the Sungi Development Foundation of Pakistan; and in 1997, the theme was "Empowering the Urban Poor," won by Thailand's Human Development Centre.

SHRM AWARDS FOR PROFESSIONAL EXCELLENCE. The Society for Human Resource Management annually gives out four Awards for Professional Excellence. The four categories are for educators and for large, medium, and small organizations.

ASTD AWARDS. The American Society for Training and Development offers several awards in three different categories annually. The three categories are (1) Advancing Workplace Learning and Performance; (2) Excellence in Practice; and (3) Advancing ASTD's Vision.

The Advancing Workplace Learning and Performance Awards category includes awards for Distinguished Contribution, for Lifetime Achievement, for Champion of Workplace Learning and Performance, for Research, for Dissertation, and for Public Policy. Recipients have been of very high caliber, including in 1997 alone such figures as management authors Peter Senge and Peter Drucker, General Electric CEO Jack Welch, Senator Patrick Moynihan (New York), Senator William Roth (Delaware), Congressman Clay Shaw (Florida), and Congressman Sander Levin (Michigan).

The Excellence in Practice Awards category covers contributions in applied training in development in different areas including learning technologies, performance improvement, managing change, valuing differences, career development, organizational learning and technical training. The Vision Awards category covers contributions to the ASTD as an organization.

SEE ALSO: Quality and Total Quality Management; Quality Gurus

David A. Victor and James C. Koch
Revised by Judith M. Nixon

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MANAGEMENT CONTROL

Management control describes the means by which the actions of individuals or groups within an organization are constrained to perform certain actions while avoiding other actions in an effort to achieve organizational goals. Management control falls into two broad categories—regulative and normative controls—but within these categories are several types.

Table 1
Types of Control

Regulative Controls	Normative Controls
Bureaucratic Controls	Team Norms
Financial Controls	Organizational Cultural Norms
Quality Controls	

The following section addresses regulative controls including bureaucratic controls, financial controls, and quality controls. The second section addresses normative controls including team norms and organization cultural norms.

REGULATIVE CONTROLS

Regulative controls stem from standing policies and standard operating procedures, leading some to criticize regulative controls as outdated and counterproductive. As organizations have become more flexible in recent years by flattening organizational hierarchies, expanding organizational boundaries to include suppliers in inventory management and customers in new product development, forging cooperative alliances with competitors, and developing virtual organizations in which employees are geographically dispersed and may meet only a few time each year, critics point out that regulative controls may prevent rather promote goal attainment.

There is some truth to this. Customer service representatives at Holiday Inn are limited in the extent to which they can correct mistakes involving guests. They can move guests to a different room if there is excessive noise in the room next to the guest's room. In some instances, guests may get a gift certificate for an additional night at another Holiday Inn if they have had a particularly bad experience. In contrast, customer service representatives at Tokyo's Marriott Inn have the latitude to take up to $500 off a customer's bill to solve complaints.

The actions of customer service representatives at both Holiday Inn and Marriott Inn must follow policies and procedures, yet those at Marriott are likely to feel less constrained and more empowered by Marriott's policies and procedures compared to Holiday Inn customer service representatives. The key in terms of management control is matching regulative controls such as policies and procedures with organizational goals such as customer satisfaction. Each of the three types of regulative controls discussed in the next few paragraphs has the potential to align or misalign organizational goals with regulative controls. The challenge for managers is striking the right balance between too much control and too little.

BUREAUCRATIC CONTROLS

Bureaucratic controls stem from lines of authority and this authority comes with one's position in the organizational hierarchy. The higher up the chain of command, the more an individual will have authority to dictate policies and procedures. Bureaucratic controls have gotten a bad name and often rightfully so. Organizations placing too much reliance on chain of command authority relationships inhibit flexibility to deal with unexpected events. However, there are ways managers can build flexibility into policies and procedures that make bureaucracies as flexible and able to quickly respond to customer problems as any other form of organizational control.

Consider how hospitals, for example, are structured along hierarchical lines of authority. The Board

Table 2
Definition and Examples of Regulative Controls

Type of Regulative Control	Definition	Example
Bureaucratic Controls	Policies and operating procedures	Employee handbook
Financial Controls	Key financial targets	Return on investment
Quality Controls	Acceptable levels of product or process variation	Defects per million

of Directors is at the top, followed by the CEO and then the Medical Director. Below these top executives are vice presidents with responsibility for overseeing various hospital functions such as human resources, medical records, surgery, and intensive care units. The chain of command in hospitals is clear; a nurse, for example, would not dare increase the dosage of a heart medication to a patient in an intensive care unit without a physician's order. Clearly, this has the potential to slow reaction times—physicians sometimes spread their time across hospital rounds for two or three hospitals and also their individual office practice. Yet, it is the nurses and other direct care providers who have the most contact with patients and are in the best position to rapidly respond to changes in a patient's condition.

The question bureaucratic controls must address is: How can the chain of command be preserved while also building flexibility and quick response times into the system? One way is through standard operating procedures that delegate responsibility downward. Some hospital respiratory therapy departments, for example, have developed standard operating procedures (in health care terms, therapist-driven protocols or TDPs) with input from physicians.

TDPs usually have branching logic structures requiring therapists to perform specific tests prior to certain patient interventions to build safety into the protocol. Once physicians approve a set of TDPs, therapists have the autonomy to make decisions concerning patient care without further physicians' orders as long as these decisions stay within the boundaries of the TDP. Patients need not wait for a physician to make the next set of rounds or patient visits, write a new set of orders, enter the orders on the hospitals intranet, and wait for the manager of respiratory therapy to schedule a therapist to perform the intervention. Instead, therapists can respond immediately because protocols are established that build in flexibility and fast response along with safety checks to limit mistakes.

Bureaucratic control is thus not synonymous with rigidity. Unfortunately, organizations have built rigidity into many bureaucratic systems, but this need not be the case. It is entirely possible for creative managers to develop flexible, quick-response bureaucracies.

FINANCIAL CONTROLS

Financial controls include key financial targets for which managers are held accountable. These types of controls are common among firms that are organized as multiple strategic business units (SBUs). SBUs are product, service, or geographic lines having managers who are responsible for the SBU's profits and losses. These managers are held responsible to upper management to achieve financial targets that contribute to the overall profitability of the corporation.

Managers who are not SBU executives often have financial responsibility as well. Individual department heads are typically responsible for keeping expenses within budgeted guidelines. These managers, however, tend to have less overall responsibility for financial profitability targets than SBU managers.

In either case, financial controls place constraints on spending. For SBU managers, increased spending must be justified by increased revenues. For departmental managers, staying within budget is typically one key measure of periodic performance reviews. The role of financial controls, then, is to increase overall profitability as well as to keep costs in line. To determine which costs are reasonable, some firms will benchmark other firms in the same industry. Such benchmarking, while not always an "apples-to-apples" comparison, provides at least some evidence to determine whether costs are in line with industry averages.

QUALITY CONTROLS

Quality controls describe the extent of variation in processes or products that is considered acceptable. For some companies, zero defects—no variation at all—is the standard. In other companies, statistically insignificant variation is allowable.

Quality controls influence the ultimate product or service outcome offered to customers. By maintaining consistent quality, customers can rely on a firm's product or service attributes, but this also creates an interesting dilemma. An overemphasis on consistency where variation is kept to the lowest levels may also reduce response to unique customer needs. This is not a problem when the product or service is relatively standardized such as a McDonald's hamburger, but

Table 3
Definition and Examples of Normative Controls

Type of Normative Control	Definition	Example
Team Norms	Informal team rules and responsibilities	Task delegation based on team member expertise
Organizational Cultural Norms	Shared organizational values, beliefs, and rituals	Collaboration may be valued more than individual "stars"

may pose a problem when customers have nonstandard situations for which a one-size-fits-all solution is inappropriate. Wealth managers, for example, may create investment portfolios tailored to a single client, but the process used to implement that portfolio such as stock market transactions will be standardized. Thus, there is room within quality control for both creativity; e.g., wealth portfolio solutions, and standardization; e.g., stock market transactions.

NORMATIVE CONTROLS

Rather than relying on written policies and procedures as in regulative controls, normative controls govern employee and managerial behavior through generally accepted patterns of action. One way to think of normative controls is in terms how certain behaviors are appropriate and others are less appropriate. For instance, a tuxedo might be the appropriate attire for an American business awards ceremony, but totally out of place at a Scottish awards ceremony, where a formal kilt may be more in line with local customs. However, there would generally be no written policy regarding disciplinary action for failure to wear the appropriate attire, thus separating formal regulative controls for the more informal normative controls.

TEAM NORMS

Teams have become commonplace in many organizations. Team norms are the informal rules that make team members aware of their responsibilities to the team. Although the task of the team may be formally documented and communicated, the ways in which team members interact are typically developed over time as the team goes through phases of growth. Even team leadership be informally agreed upon; at times, an appointed leader may have less influence than an informal leader. If, for example, an informal leader has greater expertise than a formal team leader, team members may look to the informal leader for guidance requiring specific skills or knowledge. Team norms tend to develop gradually, but once formed, can be powerful influences over behavior.

ORGANIZATIONAL CULTURE NORMS

In addition to team norms, norms based on organizational culture are another type of normative control. Organizational culture involves the shared values, beliefs, and rituals of a particular organization. The Internet search firm, Google, Inc. has a culture in which innovation is valued, beliefs are shared among employees that the work of the organization is important, and teamwork and collaboration are common. In contrast, the retirement specialty firm, VALIC, focuses on individual production for its sales agents, de-emphasizing teamwork and collaboration in favor of personal effort and rewards. Both of these example are equally effective in matching norms with organizational goals; the key is thus in properly aligning norms and goals.

The broad categories of regulative and normative controls are present in nearly all organizations, but the relative emphasis of each type of control varies. Within the regulative category are bureaucratic, financial, and quality controls. Within the normative category are team norms and organization cultural norms. Both categories of norms can be effective and one is not inherently superior to the other. The managerial challenge is to encourage norms that align employee behavior with organizational goals.

SEE ALSO: Organizational Culture; Quality and Total Quality Management; Teams and Teamwork

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MANAGEMENT FUNCTIONS

The functions of management uniquely describe managers' jobs. The most commonly cited functions of management are planning, organizing, leading, and controlling, although some identify additional functions. The functions of management define the process of management as distinct from accounting, finance, marketing, and other business functions. These functions provide a useful way of classifying information about management, and most basic management texts since the 1950s have been organized around a functional framework.

DEVELOPMENT OF THE FUNCTIONAL APPROACH TO MANAGEMENT

Henri Fayol was the first person to identify elements or functions of management in his classic 1916 book *Administration Industrielle et Generale.* Fayol was the managing director of a large French coal-mining firm and based his book largely on his experiences as a practitioner of management. Fayol defined five functions, or elements of management: planning, organizing, commanding, coordinating, and controlling. Fayol argued that these functions were universal, in the sense that all managers performed them in the course of their jobs, whether the managers worked in business, military, government, religious, or philanthropic undertakings.

Fayol defined planning in terms of forecasting future conditions, setting objectives, and developing means to attain objectives. Fayol recognized that effective planning must also take into account unexpected contingencies that might arise and did not advocate rigid and inflexible plans. Fayol defined organizing as making provision for the structuring of activities and relationships within the firm and also the recruiting, evaluation, and training of personnel.

According to Fayol, commanding as a managerial function concerned the personal supervision of subordinates and involved inspiring them to put forth unified effort to achieve objectives. Fayol emphasized the importance of managers understanding the people who worked for them, setting a good example, treating subordinates in a manner consistent with firm policy, delegating, and communicating through meetings and conferences.

Fayol saw the function of coordination as harmonizing all of the various activities of the firm. Most later experts did not retain Fayol's coordination function as a separate function of management but regarded it as a necessary component of all the other management functions. Fayol defined the control function in terms of ensuring that everything occurs within the parameters of the plan and accompanying principles. The purpose of control was to identify deviations from objectives and plans and to take corrective action.

Fayol's work was not widely known outside Europe until 1949, when a translation of his work appeared in the United States. Nevertheless, his discussion of the practice of management as a process consisting of specific functions had a tremendous influence on early management texts that appeared in the 1950s.

Management pioneers such as George Terry, Harold Koontz, Cyril O'Donnell, and Ralph Davis all published management texts in the 1950s that defined management as a process consisting of a set of interdependent functions. Collectively, these and several other management experts became identified with what came to be known as the process school of management.

According to the process school, management is a distinct intellectual activity consisting of several functions. The process theorists believe that all managers, regardless of their industry, organization, or level of management, engage in the functions of management. The process school of management became a dominant paradigm for studying management and the functions of management became the most common way of describing the nature of managerial work.

CRITICISM OF THE FUNCTIONAL APPROACH TO MANAGEMENT

By the early 1970s, some experts suggested that the functions of management as described by Fayol and others of the process school of management were not an accurate description of the reality of managers' jobs. Chief among the critics of the functional approach was Henry Mintzberg.

Mintzberg argued that the functional or process school of management was "folklore" and that functions of management such as planning, organizing, leading, and controlling did not accurately depict the chaotic nature of managerial work. He felt that the functional approach to the managerial job falsely conveyed a sense that managers carefully and deliberately evaluated information before making management decisions.

Based upon an observational study of five executives, Mintzberg concluded that the work managers actually performed could best be represented by three sets of roles, or activities: interpersonal roles, informational roles, and decision-making roles. He described the interpersonal roles as consisting of figurehead, leader, and liaison. He identified three informational roles: monitor, disseminator, and spokesperson. Finally, he described four decision-making roles that included

entrepreneur, disturbance handler, resource allocator, and negotiator.

Mintzberg's challenge to the usefulness of the functions of management and the process school attracted a tremendous amount of attention and generated several empirical studies designed to determine whether his or Fayol's description of the managerial job was most accurate. While this research did indicate that managers performed at least some of the roles Mintzberg identified, there was little in the findings that suggested that the functions of management were not a useful way of describing managerial work.

Scholars continue to debate this question. Research by David Lamond suggests that both approaches had some validity, with Fayol's approach describing the ideal management job and Mintzberg describing the day-to-day activities of managers. Thus, the general conclusion seems to be that while Mintzberg offered a genuine insight into the daily activities of practicing managers, the functions of management still provides a very useful way of classifying the activities managers engage in as they attempt to achieve organizational goals.

PLANNING

Planning is the function of management that involves setting objectives and determining a course of action for achieving these objectives. Planning requires that managers be aware of environmental conditions facing their organization and forecast future conditions. It also requires that managers be good decision-makers.

Planning is a process consisting of several steps. The process begins with environmental scanning, which simply means that planners must be aware of the critical contingencies facing their organization in terms of economic conditions, their competitors, and their customers. Planners must then attempt to forecast future conditions. These forecasts form the basis for planning.

Planners must establish objectives, which are statements of what needs to be achieved and when. Planners must then identify alternative courses of action for achieving objectives. After evaluating the various alternatives, planners must make decisions about the best courses of action for achieving objectives. They must then formulate necessary steps and ensure effective implementation of plans. Finally, planners must constantly evaluate the success of their plans and take corrective action when necessary.

There are many different types of plans and planning.

STRATEGIC PLANNING. Strategic planning involves analyzing competitive opportunities and threats, as well as the strengths and weaknesses of the organization, and then determining how to position the organization to compete effectively in their environment. Strategic planning has a long time frame, often three years or more. Strategic planning generally includes the entire organization and includes formulation of objectives. Strategic planning is often based on the organization's mission, which is its fundamental reason for existence. An organization's top management most often conducts strategic planning.

TACTICAL PLANNING. Tactical planning is intermediate-range planning that is designed to develop relatively concrete and specific means to implement the strategic plan. Middle-level managers often engage in tactical planning. Tactical planning often has a one- to three-year time horizon.

OPERATIONAL PLANNING. Operational planning generally assumes the existence of objectives and specifies ways to achieve them. Operational planning is short-range planning that is designed to develop specific action steps that support the strategic and tactical plans. Operational planning usually has a very short time horizon, from one week to one year.

ORGANIZING

Organizing is the function of management that involves developing an organizational structure and allocating human resources to ensure the accomplishment of objectives. The structure of the organization is the framework within which effort is coordinated. The structure is usually represented by an organization chart, which provides a graphic representation of the chain of command within an organization. Decisions made about the structure of an organization are generally referred to as "organizational design" decisions.

Organizing also involves the design of individual jobs within the organization. Decisions must be made about the duties and responsibilities of individual jobs as well as the manner in which the duties should be carried out. Decisions made about the nature of jobs within the organization are generally called "job design" decisions.

Organizing at the level of the organization involves deciding how best to departmentalize, or cluster jobs into departments to effectively coordinate effort. There are many different ways to departmentalize, including organizing by function, product, geography, or customer. Many larger organizations utilize multiple methods of departmentalization. Organizing at the level of job involves how best to design individual jobs to most effectively use human resources.

Traditionally, job design was based on principles of division of labor and specialization, which assumed that the more narrow the job content, the more proficient the individual performing the job could become.

However, experience has shown that it is possible for jobs to become too narrow and specialized. When this happens, negative outcomes result, including decreased job satisfaction and organizational commitment and increased absenteeism and turnover.

Recently many organizations have attempted to strike a balance between the need for worker specialization and the need for workers to have jobs that entail variety and autonomy. Many jobs are now designed based on such principles as job enrichment and teamwork.

LEADING

Leading involves influencing others toward the attainment of organizational objectives. Effective leading requires the manager to motivate subordinates, communicate effectively, and effectively use power. If managers are effective leaders, their subordinates will be enthusiastic about exerting effort toward the attainment of organizational objectives.

To become effective at leading, managers must first understand their subordinates' personalities, values, attitudes, and emotions. Therefore, the behavioral sciences have made many contributions to the understanding of this function of management. Personality research and studies of job attitudes provide important information as to how managers can most effectively lead subordinates.

Studies of motivation and motivation theory provide important information about the ways in which workers can be energized to put forth productive effort. Studies of communication provide direction as to how managers can effectively and persuasively communicate. Studies of leadership and leadership style provide information regarding questions such as, "What makes a manager a good leader?" and "In what situations are certain leadership styles most appropriate and effective?"

CONTROLLING

Controlling involves ensuring that performance does not deviate from standards. Controlling consists of three steps, which include establishing performance standards, comparing actual performance against standards, and taking corrective action when necessary. Performance standards are often stated in monetary terms such as revenue, costs, or profits, but may also be stated in other terms, such as units produced, number of defective products, or levels of customer service.

The measurement of performance can be done in several ways, depending on the performance standards, including financial statements, sales reports, production results, customer satisfaction, and formal performance appraisals. Managers at all levels engage in the managerial function of controlling to some degree.

The managerial function of controlling should not be confused with control in the behavioral or manipulative sense. This function does not imply that managers should attempt to control or manipulate the personalities, values, attitudes, or emotions of their subordinates. Instead, this function of management concerns the manager's role in taking necessary actions to ensure that the work-related activities of subordinates are consistent with and contributing toward the accomplishment of organizational and departmental objectives.

Effective controlling requires the existence of plans, since planning provides the necessary performance standards or objectives. Controlling also requires a clear understanding of where responsibility for deviations from standards lies. Two traditional control techniques are the budget and the performance audit. Although controlling is often thought of in terms of financial criteria, managers must also control production/operations processes, procedures for delivery of services, compliance with company policies, and many other activities within the organization.

The management functions of planning, organizing, leading, and controlling are widely considered to be the best means of describing the manager's job as well as the best way to classify accumulated knowledge about the study of management. Although there have been tremendous changes in the environment faced by managers and the tools used by managers to perform their roles, managers still perform these essential functions.

SEE ALSO: Management Control; Management Styles; Organizing; Planning

Tim Barnett

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MANAGEMENT INFORMATION SYSTEMS

All businesses share one common asset, regardless of the type of business. It does not matter if they manufacture goods or provide services. It is a vital part of any business entity, whether a sole proprietorship or a multinational corporation. That common asset is information.

Information enables us to determine the need to create new products and services. Information tells us to move into new markets or to withdraw from other markets. Without information, the goods do not get made, the orders are not placed, the materials are not procured, the shipments are not delivered, the customers are not billed, and the business cannot survive.

But information has far lesser impact when presented as raw data. In order to maximize the value of information, it must be captured, analyzed, quantified, compiled, manipulated, made accessible, and shared. In order to accomplish those tasks, an information system (IS) must be designed, developed, administered, and maintained.

INFORMATION SYSTEMS

An information system is a computer system that provides management and other personnel within an organization with up-to-date information regarding the organization's performance; for example, current inventory and sales. It usually is linked to a computer network, which is created by joining different computers together in order to share data and resources. It is designed to capture, transmit, store, retrieve, manipulate, and or display information used in one or more business processes. These systems output information in a form that is useable at all levels of the organization: strategic, tactical, and operational.

Systems that are specifically geared toward serving general, predictable management functions are sometimes called management information systems (MIS). A good example of an MIS report is the information that goes into an annual report created for the stockholders of a corporation (a scheduled report). The administration of an information system is typically the province of the MIS or information technology (IT) department within an organization.

Some applications have infringed on the familiar MIS landscape. Enterprise resource planning (ERP) software and executive information systems (EIS) both provide packaged modules and programs that perform the same functions as traditional MIS, but with greater functionality, flexibility, and integration capabilities.

MAINFRAMES. The original computerized information systems were based on mainframes. "Mainframe" is a term originally referring to the cabinet containing the central processor unit or "main frame" of a room-filling computer. After the emergence of smaller minicomputer designs in the early 1970s, the traditional large machines were described as "mainframe computers," or simply mainframes. The term carries the connotation of a machine designed for batch rather than interactive use, though possibly with an interactive time-sharing operating system retrofitted onto it.

It has been conventional wisdom in most of the business community since the late 1980s that the mainframe architectural tradition is essentially dead, having been swamped by huge advances in integrated circuit design technology and low-cost personal computing. Despite this, mainframe sales in the United States enjoyed somewhat of a resurgence in the 1990s, as prices came down and as large organizations found they needed high-power computing resources more than ever. Supporters claim that mainframes still house 90 percent of the data major businesses rely on for mission-critical applications, attributing this to their superior performance, reliability, scalability, and security compared to microprocessors.

THE INTERNET. The Internet has opened up further developments in information systems and the exchange of information via web-based e-mail, intranets, and extranets. These technologies allow for much faster data and information exchange and greater access for more users. Web-casting and videoconferencing allow for real-time information exchanges. Mobile computing technologies accessed by handheld devices, such as multi-functional mobile phones, personal digital assistants, and podcasting (via iPods), are offering further modes of communication.

INFORMATION SYSTEM DESIGN AND ADMINISTRATION

The design of an information system is based on various factors. Cost is a major consideration, but there certainly are others to be taken into account, such as the number of users; the modularity of the system, or the ease with which new components can be integrated into the system, and the ease with which outdated or failed components can be replaced; the amount of information to be processed; the type of information to be processed; the computing power required to meet the varied needs of the organization; the anticipated functional life of the system and/or components; the ease of use for the people who will be using the system; and the requirements and compatibility of the applications that are to be run on the system.

There are different ways to construct an information system, based upon organizational requirements,

both in the function aspect and the financial sense. Of course, the company needs to take into consideration that hardware that is purchased and assembled into a network will become outdated rather quickly. It is almost axiomatic that the technologies used in information systems steadily increase in power and versatility on a rapid time scale. Perhaps the trickiest part of designing an information system from a hardware standpoint is straddling the fine line between too much and not enough, while keeping an eye on the requirements that the future may impose.

Applying foresight when designing a system can bring substantial rewards in the future, when system components are easy to repair, replace, remove, or update without having to bring the whole information system to its knees. When an information system is rendered inaccessible or inoperative, the system is considered to be "down."

A primary function of the maintaining an information system is to minimize downtime, or hopefully, to eradicate downtime altogether. The costs created by a department, facility, organization, or workforce being idled by an inoperative system can become staggering in a short amount of time. The inconvenience to customers can cost the firm even more if sales are lost as a result, in addition to any added costs the customers might incur.

Another vital consideration regarding the design and creation of an information system is to determine which users have access to which information. The system should be configured to grant access to the different partitions of data and information by granting user-level permissions for access. A common method of administering system access rights is to create unique profiles for each user, with the appropriate user-level permissions that provide proper clearances.

Individual passwords can be used to delineate each user and their level of access rights, as well as identify the tasks performed by each user. Data regarding the performance of any user unit, whether individual, departmental, or organizational can also be collected, measured, and assessed through the user identification process.

The OSI seven-layer model attempts to provide a way of partitioning any computer network into independent modules from the lowest (physical/hardware) layer to the highest (application/program) layer. Many different specifications can exist at each of these layers.

A crucial aspect of administering information systems is maintaining communication between the IS staff, who have a technical perspective on situations, and the system users, who usually communicate their concerns or needs in more prosaic terminology. Getting the two sides to negotiate the language barriers can be difficult, but the burden of translation should fall upon the IS staff. A little patience and understanding can go a long way toward avoiding frustration on the part of both parties.

There is more to maintaining an information system than applying technical knowledge to hardware or software. IS professionals have to bridge the gap between technical issues and practicality for the users. The information system should also have a centralized body that functions to provide information, assistance, and services to the users of the system. These services will typically include telephone and electronic mail "help desk" type services for users, as well as direct contact between the users and IS personnel.

INFORMATION SYSTEM FUNCTIONS

DOCUMENT AND RECORD MANAGEMENT. Document and record management may well be the most crucial aspect of any information system. Some examples of types of information maintained in these systems would be accounting, financial, manufacturing, marketing, and human resources. An information system can serve as a library. When properly collected, organized, and indexed in accordance with the requirements of the organization, its stored data becomes accessible to those who need the information.

The location and retrieval of archived information can be a direct and logical process, if careful planning is employed during the design of the system. Creating an outline of how the information should be organized and indexed can be a very valuable tool during the design phase of a system. A critical feature of any information system should be the ability to not only access and retrieve data, but also to keep the archived information as current as possible.

COLLABORATIVE TOOLS. Collaborative tools can consist of software or hardware, and serve as a base for the sharing of data and information, both internally and externally. These tools allow the exchange of information between users, as well as the sharing of resources. As previously mentioned, real-time communication is also a possible function that can be enabled through the use of collaborative tools.

DATA MINING. Data mining, or the process of analyzing empirical data, allows for the extrapolation of information. The extrapolated results are then used in forecasting and defining trends.

QUERY TOOLS. Query tools allow the users to find the information needed to perform any specific function. The inability to easily create and execute functional queries is a common weak link in many information systems. A significant cause of that inability, as noted earlier, can be the communication difficulties between a management information systems department and the system users.

Another critical issue toward ensuring successful navigation of the varied information levels and partitions

is the compatibility factor between knowledge bases. For maximum effectiveness, the system administrator should ascertain that the varied collection, retrieval, and analysis levels of the system either operate on a common platform, or can export the data to a common platform. Although much the same as query tools in principle, intelligent agents allow the customization of the information flow through sorting and filtering to suit the individual needs of the users. The primary difference between query tools and intelligent agents is that query tools allow the sorting and filtering processes to be employed to the specifications of management and the system administrators, and intelligent agents allow the information flow to be defined in accord with the needs of the user.

KEY POINTS

Managers should keep in mind the following advice in order to get the most out of an information system:

- Use the available hardware and software technologies to support the business. If the information system does not support quality and productivity, then it is misused.
- Use the available technologies to create and facilitate the flow of communication within your organization and, if feasible, outside of it as well. Collaboration and flexibility are the key advantages offered for all involved parties. Make the most of those advantages.
- Determine if any strategic advantages are to be gained by use of your information system, such as in the areas of order placement, shipment tracking, order fulfillment, market forecasting, just-in-time supply, or regular inventory. If you can gain any sort of advantage by virtue of the use of your information system, use it.
- Use the quantification opportunities presented by your information system to measure, analyze, and benchmark the performances of an individual, department, division, plant, or entire organization.

An information system is more than hardware or software. The most integral and important components of the system are the people who design it, maintain it, and use it. While the overall system must meet various needs in terms of power and performance, it must also be usable for the organization's personnel. If the operation of day-to-day tasks is too daunting for the workforce, then even the most humble of aspirations for the system will go unrealized.

A company will likely have a staff entrusted with the overall operation and maintenance of the system and that staff will be able to make the system perform in the manner expected of it. Pairing the information systems department with a training department can create a synergistic solution to the quandary of how to get non-technical staff to perform technical tasks. Oft times, the individuals staffing an information systems department will be as technical in their orientation as the operative staff is non-technical in theirs. This creates a language barrier between the two factions, but the communication level between them may be the most important exchange of information within the organization. Nomenclature out of context becomes little more than insular buzzwords.

If a company does not have a formal training department, the presence of staff members with a natural inclination to demonstrate and teach could mitigate a potentially disastrous situation. Management should find those employees who are most likely to adapt to the system and its operation. They should be taught how the system works and what it is supposed to do. Then they can share their knowledge with their fellow workers. There may not be a better way to bridge the natural chasm between the IS department and non-technical personnel. When the process of communicating information flows smoothly and can be used for enhancing and refining business operations, the organization and its customers will all profit.

SEE ALSO: Knowledge Management

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MANAGEMENT LEVELS

Managers are organizational members who are responsible for the work performance of other organizational members. Managers have formal authority to

use organizational resources and to make decisions. In organizations, there are typically three levels of management: top-level, middle-level, and first-level. These three main levels of managers form a hierarchy, in which they are ranked in order of importance. In most organizations, the number of managers at each level is such that the hierarchy resembles a pyramid, with many more first-level managers, fewer middle managers, and the fewest managers at the top level. Each of these management levels is described below in terms of their possible job titles and their primary responsibilities and the paths taken to hold these positions. Additionally, there are differences across the management levels as to what types of management tasks each does and the roles that they take in their jobs. Finally, there are a number of changes that are occurring in many organizations that are changing the management hierarchies in them, such as the increasing use of teams, the prevalence of outsourcing, and the flattening of organizational structures.

TOP-LEVEL MANAGERS

Top-level managers, or top managers, are also called senior management or executives. These individuals are at the top one or two levels in an organization, and hold titles such as: Chief Executive Officer (CEO), Chief Financial Officer (CFO), Chief Operational Officer (COO), Chief Information Officer (CIO), Chairperson of the Board, President, Vice president, Corporate head.

Often, a set of these managers will constitute the top management team, which is composed of the CEO, the COO, and other department heads. Top-level managers make decisions affecting the entirety of the firm. Top managers do not direct the day-to-day activities of the firm; rather, they set goals for the organization and direct the company to achieve them. Top managers are ultimately responsible for the performance of the organization, and often, these managers have very visible jobs.

Top managers in most organizations have a great deal of managerial experience and have moved up through the ranks of management within the company or in another firm. An exception to this is a top manager who is also an entrepreneur; such an individual may start a small company and manage it until it grows enough to support several levels of management. Many top managers possess an advanced degree, such as a Masters in Business Administration, but such a degree is not required.

Some CEOs are hired in from other top management positions in other companies. Conversely, they may be promoted from within and groomed for top management with management development activities, coaching, and mentoring. They may be tagged for promotion through succession planning, which identifies high potential managers.

MIDDLE-LEVEL MANAGERS

Middle-level managers, or middle managers, are those in the levels below top managers. Middle managers' job titles include: General manager, Plant manager, Regional manager, and Divisional manager.

Middle-level managers are responsible for carrying out the goals set by top management. They do so by setting goals for their departments and other business units. Middle managers can motivate and assist first-line managers to achieve business objectives. Middle managers may also communicate upward, by offering suggestions and feedback to top managers. Because middle managers are more involved in the day-to-day workings of a company, they may provide valuable information to top managers to help improve the organization's bottom line.

Jobs in middle management vary widely in terms of responsibility and salary. Depending on the size of the company and the number of middle-level managers in the firm, middle managers may supervise only a small group of employees, or they may manage very large groups, such as an entire business location. Middle managers may be employees who were promoted from first-level manager positions within the organization, or they may have been hired from outside the firm. Some middle managers may have aspirations to hold positions in top management in the future.

FIRST-LEVEL MANAGERS

First-level managers are also called first-line managers or supervisors. These managers have job titles such as: Office manager, Shift supervisor, Department manager, Foreperson, Crew leader, Store manager.

First-line managers are responsible for the daily management of line workers—the employees who actually produce the product or offer the service. There are first-line managers in every work unit in the organization. Although first-level managers typically do not set goals for the organization, they have a very strong influence on the company. These are the managers that most employees interact with on a daily basis, and if the managers perform poorly, employees may also perform poorly, may lack motivation, or may leave the company.

In the past, most first-line managers were employees who were promoted from line positions (such as production or clerical jobs). Rarely did these employees have formal education beyond the high school level. However, many first-line managers are now graduates of a trade school, or have a two-year associates or a four-year bachelor's degree from college.

MANAGEMENT LEVELS AND THE FOUR MANAGERIAL FUNCTIONS

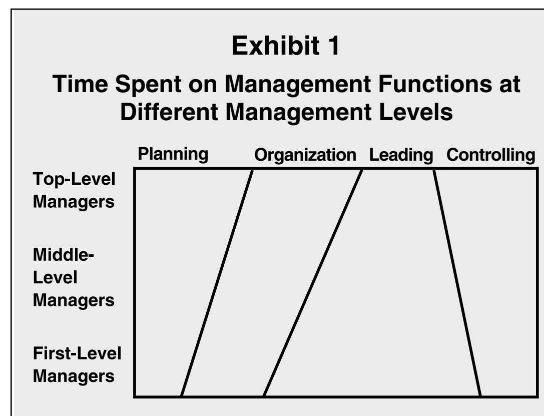
Managers at different levels of the organization engage in different amounts of time on the four managerial functions of planning, organizing, leading, and controlling.

Planning is choosing appropriate organizational goals and the correct directions to achieve those goals. Organizing involves determining the tasks and the relationships that allow employees to work together to achieve the planned goals. With leading, managers motivate and coordinate employees to work together to achieve organizational goals. When controlling, managers monitor and measure the degree to which the organization has reached its goals.

The degree to which top, middle, and supervisory managers perform each of these functions is presented in Exhibit 1. Note that top managers do considerably more planning, organizing, and controlling than do managers at any other level. However, they do much less leading. Most of the leading is done by first-line managers. The amount of planning, organizing, and controlling decreases down the hierarchy of management; leading increases as you move down the hierarchy of management.

Exhibit 1

Time Spent on Management Functions at Different Management Levels



MANAGEMENT ROLES

In addition to the broad categories of management functions, managers in different levels of the hierarchy fill different managerial roles. These roles were categorized by researcher Henry Mintzberg, and they can be grouped into three major types: decisional, interpersonal, and informational.

DECISIONAL ROLES. Decisional roles require managers to plan strategy and utilize resources. There are four specific roles that are decisional. The *entrepreneur* role requires the manager to assign resources to develop innovative goods and services, or to expand a business. Most of these roles will be held by top-level managers, although middle managers may be given some ability to make such decisions. The *disturbance handler* corrects unanticipated problems facing the organization from the internal or external environment. Managers at all levels may take this role. For example, first-line managers may correct a problem halting the assembly line or a middle level manager may attempt to address the aftermath of a store robbery. Top managers are more likely to deal with major crises, such as requiring a recall of defective products. The third decisional role, that of *resource allocator,* involves determining which work units will get which resources. Top managers are likely to make large, overall budget decisions, while middle mangers may make more specific allocations. In some organizations, supervisory managers are responsible for determine allocation of salary raises to employees. Finally, the *negotiator* works with others, such as suppliers, distributors, or labor unions, to reach agreements regarding products and services. First-level managers may negotiate with employees on issues of salary increases or overtime hours, or they may work with other supervisory managers when needed resources must be shared. Middle managers also negotiate with other managers and are likely to work to secure preferred prices from suppliers and distributors. Top managers negotiate on larger issues, such as labor contracts, or even on mergers and acquisitions of other companies.

INTERPERSONAL ROLES. Interpersonal roles require managers to direct and supervise employees and the organization. The *figurehead* is typically a top of middle manager. This manager may communicate future organizational goals or ethical guidelines to employees at company meetings. A *leader* acts as an example for other employees to follow, gives commands and directions to subordinates, makes decisions, and mobilizes employee support. Managers must be leaders at all levels of the organization; often lower-level managers look to top management for this leadership example. In the role of *liaison,* a manger must coordinate the work of others in different work units, establish alliances between others, and work to share resources. This role is particularly critical for middle managers, who must often compete with other managers for important resources, yet must maintain successful working relationships with them for long time periods.

INFORMATIONAL ROLES. Informational roles are those in which managers obtain and transmit information. These roles have changed dramatically as technology has improved. The *monitor* evaluates the performance of others and takes corrective action to improve that performance. Monitors also watch for changes in the environment and within the company that may affect individual and organizational performance. Monitoring occurs at all levels of management, although managers at higher levels of the organization

are more likely to monitor external threats to the environment than are middle or first-line managers. The role of *disseminator* requires that managers inform employees of changes that affect them and the organization. They also communicate the company's vision and purpose.

Managers at each level disseminate information to those below them, and much information of this nature trickles from the top down. Finally, a *spokesperson* communicates with the external environment, from advertising the company's goods and services, to informing the community about the direction of the organization. The spokesperson for major announcements, such as a change in strategic direction, is likely to be a top manager. But, other, more routine information may be provided by a manager at any level of a company. For example, a middle manager may give a press release to a local newspaper, or a supervisor manager may give a presentation at a community meeting.

MANAGEMENT SKILLS

Regardless of organizational level, all managers must have five critical skills: technical skill, interpersonal skill, conceptual skill, diagnostic skill, and political skill.

TECHNICAL SKILL. Technical skill involves understanding and demonstrating proficiency in a particular workplace activity. Technical skills are things such as using a computer word processing program, creating a budget, operating a piece of machinery, or preparing a presentation. The technical skills used will differ in each level of management. First-level managers may engage in the actual operations of the organization; they need to have an understanding of how production and service occur in the organization in order to direct and evaluate line employees. Additionally, first-line managers need skill in scheduling workers and preparing budgets. Middle managers use more technical skills related to planning and organizing, and top managers need to have skill to understand the complex financial workings of the organization.

INTERPERSONAL SKILL. Interpersonal skill involves human relations, or the manager's ability to interact effectively with organizational members. Communication is a critical part of interpersonal skill, and an inability to communicate effectively can prevent career progression for managers. Managers who have excellent technical skill, but poor interpersonal skill are unlikely to succeed in their jobs. This skill is critical at all levels of management.

CONCEPTUAL SKILL. Conceptual skill is a manager's ability to see the organization as a whole, as a complete entity. It involves understanding how organizational units work together and how the organization fits into its competitive environment. Conceptual skill is crucial for top managers, whose ability to see "the big picture" can have major repercussions on the success of the business. However, conceptual skill is still necessary for middle and supervisory managers, who must use this skill to envision, for example, how work units and teams are best organized.

DIAGNOSTIC SKILL. Diagnostic skill is used to investigate problems, decide on a remedy, and implement a solution. Diagnostic skill involves other skills—technical, interpersonal, conceptual, and politic. For instance, to determine the root of a problem, a manager may need to speak with many organizational members or understand a variety of informational documents. The difference in the use of diagnostic skill across the three levels of management is primarily due to the types of problems that must be addressed at each level. For example, first-level managers may deal primarily with issues of motivation and discipline, such as determining why a particular employee's performance is flagging and how to improve it. Middle managers are likely to deal with issues related to larger work units, such as a plant or sales office. For instance, a middle-level manager may have to diagnose why sales in a retail location have dipped. Top managers diagnose organization-wide problems, and may address issues such as strategic position, the possibility of outsourcing tasks, or opportunities for overseas expansion of a business.

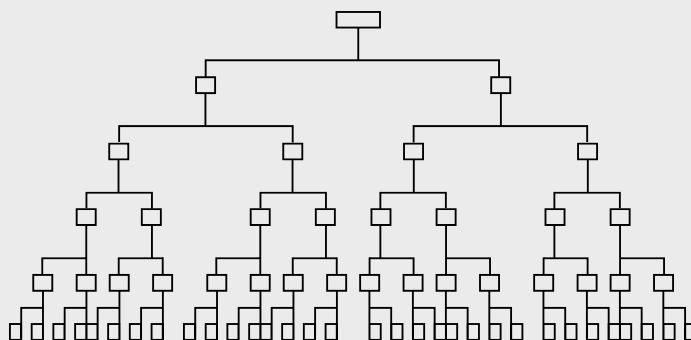
POLITICAL SKILL. Political skill involves obtaining power and preventing other employees from taking away one's power. Managers use power to achieve organizational objectives, and this skill can often reach goals with less effort than others who lack political skill. Much like the other skills described, political skill cannot stand alone as a manager's skill; in particular, though, using political skill without appropriate levels of other skills can lead to promoting a manager's own career rather than reaching organizational goals. Managers at all levels require political skill; managers must avoid others taking control that they should have in their work positions. Top managers may find that they need higher levels of political skill in order to successfully operate in their environments. Interacting with competitors, suppliers, customers, shareholders, government, and the public may require political skill.

CHANGES IN MANAGEMENT HIERARCHIES

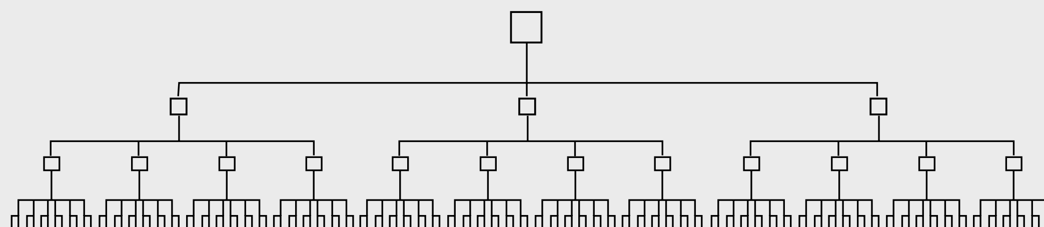
There are a number of changes to organizational structures that influence how many managers are at each level of the organizational hierarchy, and what tasks they perform each day.

Exhibit 2: Flat vs. Tall Organizational Hierarchy

Tall Organizational Structure



Flat Organizational Structure



FLATTER ORGANIZATIONAL STRUCTURES. Organizational structures can be described by the number of levels of hierarchy; those with many levels are called "tall" organizations. They have numerous levels of middle management, and each manager supervises a small number of employees or other managers. That is, they have a small span of control. Conversely, "flat" organizations have fewer levels of middle management, and each manager has a much wider span of control. Examples of organization charts that show tall and flat organizational structures are presented in Exhibit 2.

Many organizational structures are now more flat than they were in previous decades. This is due to a number of factors. Many organizations want to be more flexible and increasingly responsive to complex environments. By becoming flatter, many organizations also become less centralized. Centralized organizational structures have most of the decisions and responsibility at the top of the organization, while decentralized organizations allow decision-making and authority at lower levels of the organization. Flat organizations that make use of decentralization are often more able to efficiently respond to customer needs and the changing competitive environment.

As organizations move to flatter structures, the ranks of middle-level managers are diminishing. This means that there a fewer opportunities for promotion for first-level managers, but this also means that employees at all levels are likely to have more autonomy in their jobs, as flatter organizations promote decentralization. When organizations move from taller to flatter hierarchies, this may mean that middle managers lose their jobs, and are either laid off from the organization, or are demoted to lower-level management positions. This creates a surplus of labor of middle level managers, who may find themselves with fewer job opportunities at the same level.

INCREASED USE OF TEAMS. A team is a group of individuals with complementary skills who work together to achieve a common goal. That is, each team member has different capabilities, yet they collaborate to perform tasks. Many organizations are now using teams more frequently to accomplish work because they may be capable of performing at a level higher than that of individual employees. Additionally, teams tend to be more successful when tasks require speed, innovation, integration of functions, and a complex and rapidly changing environment.

Another type of managerial position in an organization that uses teams is the team leader, who is sometimes called a project manager, a program manager, or task force leader. This person manages the

team by acting as a facilitator and catalyst. He or she may also engage in work to help accomplish the team's goals. Some teams do not have leaders, but instead are self-managed. Members of self-managed teams hold each other accountable for the team's goals and manage one another without the presence of a specific leader.

OUTSOURCING. Outsourcing occurs when an organization contracts with another company to perform work that it previously performed itself. Outsourcing is intended to reduce costs and promote efficiency. Costs can be reduced through outsourcing, often because the work can be done in other countries, where labor and resources are less expensive than in the United States. Additionally, by having an outsourcing company aid in production or service, the contracting company can devote more attention and resources to the company's core competencies. Through outsourcing, many jobs that were previously performed by American workers are now performed overseas. Thus, this has reduced the need for many first-level and middle-level managers, who may not be able to find other similar jobs in another company.

There are three major levels of management: top-level, middle-level, and first-level. Managers at each of these levels have different responsibilities and different functions. Additionally, managers perform different roles within those managerial functions. Finally, many organizational hierarchies are changing, due to changes to organizational structures due to the increasing use of teams, the flattening of organizations, and outsourcing.

SEE ALSO: Management and Executive Development; Management Functions; Organizational Chart; Organizational Structure; Outsourcing and Offshoring; Teams and Teamwork

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MANAGEMENT SCIENCE

Management science generally refers to mathematical or quantitative methods for business decision making. The term "operations research" may be used interchangeably with management science.

HISTORY

Frederick Winslow Taylor is credited with the initial development of scientific management techniques in the early 1900s. In addition, several management science techniques were further developed during World War II. Some even consider the World War II period as the beginning of management science.

World War II posed many military, strategic, logistic, and tactical problems. Operations research teams of engineers, mathematicians, and statisticians were developed to use the scientific method to find solutions for many of these problems.

Nonmilitary management science applications developed rapidly after World War II. Based on quantitative methods developed during World War II, several new applications emerged. The development of the simplex method by George Dantzig in 1947 made application of linear programming practical. C. West Churchman, Russell Ackoff, and Leonard Arnoff made management science even more accessible by publishing the first operations research textbook in 1957.

Computer technology continues to play an integral role in management science. Practitioners and researchers are able to use ever-increasing computing power in conjunction with management science methods to solve larger and more complex problems. In addition, management scientists are constantly developing new algorithms and improving existing algorithms; these efforts also enable management scientists to solve larger and more complex problems.

BREADTH OF MANAGEMENT SCIENCE TECHNIQUES

The scope of management science techniques is broad. These techniques include:

- mathematical programming
- linear programming
- simplex method
- dynamic programming
- goal programming
- integer programming
- nonlinear programming

- stochastic programming
- Markov processes
- queuing theory/waiting-line theory
- transportation method
- simulation

Management science techniques are used on a wide variety of problems from a vast array of applications. For example, integer programming has been used by baseball fans to allocate season tickets in a fair manner. When seven baseball fans purchased a pair of season tickets for the Seattle Mariners, the Mariners turned to management science and a computer program to assign games to each group member based on member priorities.

In marketing, optimal television scheduling has been determined using integer programming. Variables such as time slot, day of the week, show attributes, and competitive effects can be used to optimize the scheduling of programs. Optimal product designs based on consumer preferences have also been determined using integer programming.

Similarly, linear programming can be used in marketing research to help determine the timing of interviews. Such a model can determine the interviewing schedule that maximizes the overall response rate while providing appropriate representation across various demographics and household characteristics.

In the area of finance, management science can be employed to help determine optimal portfolio allocations, borrowing strategies, capital budgeting, asset allocations, and make-or-buy decisions. In portfolio allocations, for instance, linear programming can be used to help a financial manager select specific industries and investment vehicles (e.g., bonds versus stocks) in which to invest.

With regard to production scheduling, management science techniques can be applied to scheduling, inventory, and capacity problems. Production managers can deal with multi-period scheduling problems to develop low-cost production schedules. Production costs, inventory holding costs, and changes in production levels are among the types of variables that can be considered in such analyses.

Workforce assignment problems can also be solved with management science techniques. For example, when some personnel have been cross-trained and can work in more than one department, linear programming may be used to determine optimal staffing assignments.

Airports are frequently designed using queuing theory (to model the arrivals and departures of aircraft) and simulation (to simultaneously model the traffic on multiple runways). Such an analysis can yield information to be used in deciding how many runways to build and how many departing and arriving flights to allow by assessing the potential queues that can develop under various airport designs.

MATHEMATICAL PROGRAMMING

Mathematical programming deals with models comprised of an objective function and a set of constraints. Linear, integer, nonlinear, dynamic, goal, and stochastic programming are all types of mathematical programming.

An objective function is a mathematical expression of the quantity to be maximized or minimized. Manufacturers may wish to maximize production or minimize costs, advertisers may wish to maximize a product's exposure, and financial analysts may wish to maximize rate of return.

Constraints are mathematical expressions of restrictions that are placed on potential values of the objective function. Production may be constrained by the total amount of labor at hand and machine production capacity, an advertiser may be constrained by an advertising budget, and an investment portfolio may be restricted by the allowable risk.

LINEAR PROGRAMMING

Linear programming problems are a special class of mathematical programming problems for which the objective function and all constraints are linear. A classic example of the application of linear programming is the maximization of profits given various production or cost constraints.

Linear programming can be applied to a variety of business problems, such as marketing mix determination, financial decision making, production scheduling, workforce assignment, and resource blending. Such problems are generally solved using the "simplex method."

MEDIA SELECTION PROBLEM. The local Chamber of Commerce periodically sponsors public service seminars and programs. Promotional plans are under way for this year's program. Advertising alternatives include television, radio, and newspaper. Audience estimates, costs, and maximum media usage limitations are shown in Exhibit 1.

If the promotional budget is limited to $18,200, how many commercial messages should be run on each medium to maximize total audience contact? Linear programming can find the answer.

SIMPLEX METHOD

The simplex method is a specific algebraic procedure for solving linear programming problems. The simplex method begins with simultaneous linear

Exhibit 1

Constraint	Television	Radio	Newspaper
Audience per ad	100,000	18,000	40,000
Cost per ad	2,000	300	600
Maximum usage	10	20	10

equations and solves the equations by finding the best solution for the system of equations. This method first finds an initial basic feasible solution and then tries to find a better solution. A series of iterations results in an optimal solution.

SIMPLEX PROBLEM. Georgia Television buys components that are used to manufacture two television models. One model is called High Quality and the other is called Medium Quality. A weekly production schedule needs to be developed given the following production considerations.

The High Quality model produces a gross profit of $125 per unit, and the Medium Quality model has a $75 gross profit. Only 180 hours of production time are available for the next time period. High Quality models require a total production time of six hours and Medium Quality models require eight hours. In addition, there are only forty-five Medium Quality components on hand.

To complicate matters, only 250 square feet of warehouse space can be used for new production. The High Quality model requires 9 square feet of space while the Medium Quality model requires 7 square feet.

Given the above situation, the simplex method can provide a solution for the production allocation of High Quality models and Medium Quality models.

DYNAMIC PROGRAMMING

Dynamic programming is a process of segmenting a large problem into a several smaller problems. The approach is to solve the all the smaller, easier problems individually in order to reach a solution to the original problem.

This technique is useful for making decisions that consist of several steps, each of which also requires a decision. In addition, it is assumed that the smaller problems are not independent of one another given they contribute to the larger question.

Dynamic programming can be utilized in the areas of capital budgeting, inventory control, resource allocation, production scheduling, and equipment replacement. These applications generally begin with a longer time horizon, such as a year, and then break down the problem into smaller time units such as months or weeks. For example, it may be necessary to determine an optimal production schedule for a twelve-month period.

Dynamic programming would first find a solution for smaller time periods, for example, monthly production schedules. By answering such questions, dynamic programming can identify solutions to a problem that are most efficient or that best serve other business needs given various constraints.

GOAL PROGRAMMING

Goal programming is a technique for solving multi-criteria rather than single-criteria decision problems, usually within the framework of linear programming. For example, in a location decision a bank would use not just one criterion, but several. The bank would consider cost of construction, land cost, and customer attractiveness, among other factors.

Goal programming establishes primary and secondary goals. The primary goal is generally referred to as a priority level 1 goal. Secondary goals are often labeled level 2, priority level 3, and so on. It should be noted that trade-offs are not allowed between higher and lower level goals.

Assume a bank is searching for a site to locate a new branch. The primary goal is to be located in a five-mile proximity to a population of 40,000 consumers. A secondary goal might be to be located at least two miles from a competitor. Given the no trade-off rule, we would first search for a target solution of locating close to 40,000 consumers.

BLENDING PROBLEM. The XYZ Company mixes three raw materials to produce two products: a fuel additive and a solvent. Each ton of fuel additive is a mixture of 2/5 ton of material A and 3/5 ton of material C. A ton of solvent base is a mixture of 1/2 ton of material A, 1/5 ton of material B, and 3/10 ton of material C. Production is constrained by a limited availability of the three raw materials. For the current production period XYZ has the following quantities of each raw material: 20 tons of material A, 5 tons of material B, and 21 tons of material C. Management would like to achieve the following priority level goals:

Goal 1. Produce at least 30 tons of fuel additive.

Goal 2. Produce at least 15 tons of solvent.

Goal programming would provide directions for production.

INTEGER PROGRAMMING

Integer programming is useful when values of one or more decision variables are limited to integer values. This is particularly useful when modeling production processes for which fractional amounts of products cannot be produced. Integer variables are often limited to two values—zero or one. Such variables are particularly useful in modeling either/or decisions.

Areas of business that use integer linear programming include capital budgeting and physical distribution. For example, faced with limited capital a firm needs to select capital projects in which to invest. This type of problem is represented in Table 1.

As can be seen in the table, capital requirements exceed the available funds for each year. Consequently, decisions to accept or reject regarding each of the projects must be made and integer programming would require the following integer definitions for each of the projects.

x1 = 1 if the new office project is accepted; 0 if rejected

x2 = 1 if the new warehouse project is accepted; 0 if rejected

x3 = 1 if the new branch project is accepted; 0 if rejected

A set of equations is developed from the definitions to provide an optimal solution.

NONLINEAR PROGRAMMING

Nonlinear programming is useful when the objective function or at least one of the constraints is not linear with respect to values of at least one decision variable. For example, the per-unit cost of a product may increase at a decreasing rate as the number of units produced increases because of economies of scale.

STOCHASTIC PROGRAMMING

Stochastic programming is useful when the value of a coefficient in the objective function or one of the constraints is not know with certainty but has a known probability distribution. For instance, the exact demand for a product may not be known, but its probability distribution may be understood. For such a problem, random values from this distribution can be substituted into the problem formulation. The optimal objective function values associated with these formulations provide the basis of the probability distribution of the objective function.

MARKOV PROCESS MODELS

Markov process models are used to predict the future of systems given repeated use. For example, Markov models are used to predict the probability that production machinery will function properly given its past performance in any one period. Markov process models are also used to predict future market share given any specific period's market share.

COMPUTER FACILITY PROBLEM. The computing center at a state university has been experiencing computer downtime. Assume that the trials of an associated Markov Process are defined as one-hour periods and that the probability of the system being in a running state or a down state is based on the state of the

Table 1
Integer Programming Example

Project	Estimated Net Return	Year 1	Year 2	Year 3
New office	25,000	10,000	10,000	10,000
New warehouse	85,000	35,000	25,000	25,000
New branch	40,000	15,000	15,000	15,000
	Available funds	50,000	45,000	45,000

system in the previous period. Historical data in Table 2 show the transition probabilities.

Table 2

		To	
		Running	Down
From	Running	.9	.1
	Down	.3	.7

The Markov process would then solve for the following: if the system is running, what is the probability of the system being down in the next hour of operation?

QUEUING THEORY/WAITING LINE THEORY

Queuing theory is often referred to as waiting line theory. Both terms refer to decision making regarding the management of waiting lines (or queues). This area of management science deals with operating characteristics of waiting lines, such as:

- the probability that there are no units in the system
- the mean number of units in the queue
- the mean number of units in the system (the number of units in the waiting line plus the number of units being served)
- the mean time a unit spends in the waiting line
- the mean time a unit spends in the system (the waiting time plus the service time)
- the probability that an arriving unit has to wait for service
- the probability of *n* units in the system

Given the above information, programs are developed that balance costs and service delivery levels. Typical applications involve supermarket checkout lines and waiting times in banks, hospitals, and restaurants.

BANK LINE PROBLEM. XYZ State Bank operates a drive-in-teller window, which allows customers to complete bank transactions without getting out of their cars. On weekday mornings arrivals to the drive-in-teller window occur at random, with a mean arrival rate of twenty-four customers per hour or 0.4 customers per minute.

Delay problems are expected if more than three customers arrive during any five-minute period. Waiting line models can determine the probability that delay problems will occur.

TRANSPORTATION METHOD

The transportation method is a specific application of the simplex method that finds an initial solution and then uses iteration to develop an optimal solution. As the name implies, this method is utilized in transportation problems.

TRANSPORTATION PROBLEM. A company must plan its distribution of goods to several destinations from several warehouses. The quantity available at each warehouse is limited. The goal is to minimize the cost of shipping the goods. An example of production capacity can be found in Table 3. The forecast for demand is shown in Table 4.

The transportation method will determine the optimal amount to be shipped from each warehouse and determine the optimal destination.

Table 3

Origin	Warehouse Location	3 month capacity
1	Houston	2,000
2	Dallas	2,500
3	San Antonio	2,800
		Total 7,300

Table 4

Destination	Location	3 month forecast
1	New Orleans	1,800
2	Little Rock	3,200
3	Las Vegas	2,300
		Total 7,300

SIMULATION

Simulation is used to analyze complex systems by modeling complex relationships between variables with known probability distributions. Random values from these probability distributions are substituted

into the model and the behavior of the system is observed. Repeated executions of the simulation model provide insight into the behavior of the system that is being modeled.

SEE ALSO: Operations Management; Operations Scheduling; Operations Strategy; Production Planning and Scheduling

Gene Brown

Revised by James J. Cochran

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MANAGEMENT SOCIETIES AND ASSOCIATIONS: DOMESTIC

SEE: Domestic Management Societies and Associations

MANAGEMENT SOCIETIES AND ASSOCIATIONS: INTERNATIONAL

SEE: International Management Societies and Associations

MANAGEMENT STYLES

A manager's style is determined by the situation, the needs and personalities of his or her employees, and by the culture of the organization. Organizational restructuring and the accompanying cultural change has caused management styles to come in and go out of fashion. There has been a move away from an authoritarian style of management in which control is a key concept, to one that favors teamwork and empowerment. Managerial styles that focus on managers as technical experts who direct, coordinate and control the work of others have been replaced by those that focus on managers as coaches, counselors, facilitators, and team leaders.

Successful management styles involve building teams, networks of relationships, and developing and motivating others. There is a greater emphasis on participative management styles and people management skills. Management theorists have repeatedly found evidence to support the advantages of management styles such as participative management; Theory Y versus Theory X; Theory Z; Total Quality Management (TQM); Management by Walking Around; Management by Objectives; and employee empowerment.

PARTICIPATIVE MANAGEMENT

Participative management involves sharing information with employees and involving them in decision-making. Employees are encouraged to run their own departments and make decisions regarding policies and processes. It has often been promoted as the quick cure for poor morale and low productivity. It is not, however, appropriate in every organization and at every level.

Employees must have the skills and abilities to participate. Employees must have the technical background, communication skills, and intelligence to make decisions and communicate those decisions effectively. The organization's culture must support employee involvement and the issues in which employees get involved must be relevant to them.

Representative participation allows workers to be represented by a small group who actually participate. The goal of representative participation is to redistribute power within the organization. Employees' interests become as important as those interests of management and stockholders.

According to Stephen P. Robbins, author of *Essentials of Organizational Behavior,* the two most popular forms of representative participation are works councils and board representatives. Works councils are groups of employees who have been elected by their peers and who must be consulted by management when making personnel decisions. Board representatives are employees that sit on the board of directors and represent labor interests.

As with participative management, representative participation is a poor choice for improving performance or morale. Evidence suggests that the overall influence of representative participation is small. The

employees involved in representing personnel receive more benefit than those who they represent.

THEORY X AND THEORY Y

Douglas McGregor's Theory X assumes that people are lazy, they don't want to work, and it is the job of the manager to force or coerce them to work. McGregor's Theory X makes three basic assumptions: (1) The average human being dislikes work and will do anything to get out of it; (2) most people must be coerced, controlled, directed, and threatened or punished to get them to work toward organizational objectives; and (3) the average human being prefers to be directed, wishes to avoid responsibility, has relatively little ambition, and places job security above ambition. According to this theory, responsibility for demonstrating initiative and motivation lies with the employee and failure to perform is his or her fault. Employees are motivated by extrinsic rewards such as money, promotions, and tenure.

Theory Y suggests employees would behave differently if treated differently by managers. Theory Y assumes that higher-order needs dominate individuals. The set of assumptions for Theory Y is (1) the average human does not dislike work and it is as natural as play; (2) people will exercise self-direction and self-control in order to achieve objectives; (3) rewards of satisfaction and self-actualization are obtained from effort put forth to achieve organizational objectives; (4) the average human being not only accepts but also seeks responsibility; (5) human beings are creative and imaginative in solving organizational problems; and (6) the intellectual potential of the average human is only partially realized. If productivity is low and employees are not motivated, then it is considered failure on the manager's part.

THEORY Z

William Ouchi studied management practices in the United States and Japan and developed Theory Z. Theory Z combines elements of both U.S. and Japanese management styles and is sometimes called Japanese Management. It assumes that the best management style involves employees at all levels of the organization. Specific characteristics included in Theory Z are long-term employment, less specialized career paths, informal control, group decision making, and concern for the individual rises above work-related issues. This theory satisfies both lower order and higher order needs.

Looking out for employees' well being satisfies the lower-level needs. Incorporating group processes in decision making satisfy middle-level needs and encouraging employees to take responsibility for their work and decisions satisfy higher-level needs. Many firms are increasing productivity by placing more emphasis on group decision-making and teams. Firms are also showing more concern for family-related issues like childcare, flexible work schedules, and telecommuting.

TOTAL QUALITY MANAGEMENT

Total Quality Management (TQM) is a management style that integrates of all functions of a business to achieve a high quality of product. The major hallmarks are customer satisfaction, quality as the responsibility of all employees, and teamwork. As an integrated method, it involves every aspect of the company. The entire workforce, from the CEO to the line worker, must be involved in a shared commitment to improving quality.

TQM encourages employees to grow and learn and to participate in improvements, so it exemplifies a participative management style. TQM also encourages an ever-changing or continuous process, and emphasizes the ideas of working constantly toward improved quality.

Americans W. Edward Deming and Joseph M. Juran were the pioneers of the quality movement. Both did their major work in post-World War II Japan, and are credited with the major turnaround in the quality of Japanese products by the 1970s. In the 1980s both men were highly influential in the quality management movement in the United States.

MANAGEMENT BY WALKING AROUND

Management by Walking Around (MBWA) is a classic technique used by good managers who are proactive listeners. Managers using this style gather as much information as possible so that a challenging situation doesn't turn into a bigger problem. Listening carefully to employees' suggestions and concerns will help evade potential crises. MBWA benefits managers by providing unfiltered, real-time information about processes and policies that is often left out of formal communication channels. By walking around, management gets an idea of the level of morale in the organization and can offer help if there is trouble.

A potential concern of MBWA is that the manager will second-guess employees' decisions. The manager must maintain his or her role as coach and counselor, not director. By leaving decision-making responsibilities with the employees, managers can be assured of the fastest possible response time.

According to Max Messmer, another mistake managers make is to inadvertently create more work for employees. By offering suggestions that may be interpreted as assignments, managers can increase the workload and slow down progress.

Messmer illustrates an example of a team working on a project that needs a supplier of plastic molding. When the manager shows up, the team has reviewed three companies and selected the best one. The manager also knows of a good company, and suggests that team members give this company a call. They may not feel comfortable in saying that the decision has already been made, and will take the extra time to call the company in order to please the manager.

MANAGEMENT BY OBJECTIVES

Management by Objectives (MBO) is a company-wide process in which employees actively participate in setting goals that are tangible, verifiable, and measurable. Management theorist Peter Drucker pioneered this style in his 1954 book, *The Practice of Management.*

MBO provides a systematic method of assuring that all employees and work groups set goals that are in alignment with achieving the organization's goals. Xerox, Intel, and Du Pont are just a few examples of companies that use MBO at all levels of the organization. Overall organizational objectives are converted into specific objectives for employees. Objectives at each level of the organization are linked together through a "bottom up" approach as well as a "top down" approach. In this manner, if each individual achieves his/her goals, then the department will achieve its goals and the organization objectives will in turn be met.

There are four steps involved in the MBO process: setting goals, participative decision-making, implementing plans, and performance feedback. Top managers work with middle managers and middle managers work with lower level managers to set goals for their departments. Each manager then works with employees in the department to set individual performance goals. The participative decision-making step allows managers and employees to jointly set goals, define responsibility for achieving those goals, and set the evaluation process.

Managers are allowed to implement their plans and control their own performance. This step of MBO utilizes every manager's expertise to benefit the organization and permits managers to continuously improve their skills.

The final step is to continuously provide feedback on performance and achievement of objectives. By periodically reviewing employees' performance goals can be modified or new goals can be set. This step complements the formal appraisal system because the continuous feedback throughout the year keeps individuals informed of their progress.

As with any other management style, the organization's culture must be conducive for MBO to work. Top management must be committed and involved in the MBO program for it to be beneficial. This management style is not without its problems. Managers often set their departmental goals and objectives too narrowly at the expense of the organization's strategic goals or objectives.

Another problem arises when managers are not flexible in setting up the goal setting and evaluation processes and employees lose the ability to respond to issues quickly. Unrealistic expectations about results are often a problem with MBO programs as well as the unwillingness of management to allocate rewards based on the accomplishment of individual goals.

EMPLOYEE EMPOWERMENT

Employee empowerment is a style of management that puts managers in the role of coach, adviser, sponsor, or facilitator. Decision-making is being pushed down to the lowest levels of the organization. The way work is designed and the way organizations are structured are changing.

Empowerment involves delegating the decision-making authority regarding the action to be taken on a task that is considered to be important to both the manager and employee. The main reasons for implementing an empowerment program are to provide fast solutions to business problems; to provide growth opportunities for employees and; to lower organizational costs while allowing the manager to work on multiple projects.

Employee empowerment is the most effective when management has set clear obtainable goals and defined specific accountability standards. The success of employee empowerment relies on the ability of management to provide resources such as time and money; to provide support by way of legitimacy; and to provide relevant and factual information so employees can make educated decisions. Training employees to take responsibility and make sound decisions that are supported by upper management as well as lower level managers are other areas that are important to the success of empowerment programs.

Employees benefit from empowerment because they have more responsibility in their jobs. Employee empowerment increases the level of employee involvement and therefore creates a deeper sense of satisfaction and higher levels of motivation. There are potential problems with empowerment programs that often result in unfavorable outcomes.

Many times managers delegate trivial, unimportant and boring tasks to employees and they retain the complicated and important tasks for themselves. Empowerment will not work unless the authority and decision-making tasks are perceived as meaningful by the employee.

Another problem arises when managers not only assign meaningless tasks to their employees but also then expect the employee to continuously consult them for approval. Managers must evaluate their employees' skills and abilities and determine if the organization's culture can support an empowerment program before beginning.

SELF-MANAGED WORK TEAMS

Employee empowerment led to the development of self-managed work teams. This management style delegates the authority to make decisions such as how to spend money, whom to hire, and what projects to undertake. Self-managed work teams are generally composed of 10 to 15 people and require minimal supervision. Xerox, General Motors, PepsiCo, Hewlett-Packard, and M&M/Mars are just a few organizations that have implemented self-managed work teams. According to Stephen P. Robbins, one in every five companies uses self-managed work teams.

Managers must select a management style that is best suited for them, their department, their subordinates, and finally the organization they work for. The situations managers encounter may require varying management styles depending on a specific assignment, the employees being managed, or the manager's personality. Management style can ultimately determine the performance outcome of employees and a company's growth depends on the management styles of its executives. Therefore, in order to determine the most appropriate management style, it is necessary to first review previous results produced as a result of a particular management approach.

Management positions require a certain degree of authority and therefore managers may often find themselves in leadership positions. However, not all leaders are managers and not all managers are leaders. Managers who possess good leadership skills influence and motivate employees to achieve organizational goals. It is therefore noteworthy to mention that certain leadership styles lend themselves to effective management styles as well.

SEE ALSO: Leadership Styles and Bases of Power; Leadership Theories and Studies; Quality and Total Quality Management; Theory X and Theory Y; Theory Z

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MANAGEMENT THOUGHT

The schools of management thought are theoretical frameworks for the study of management. Each of the schools of management thought are based on somewhat different assumptions about human beings and the organizations for which they work. Since the formal study of management began late in the 19th century, the study of management has progressed through several stages as scholars and practitioners working in different eras focused on what they believed to be important aspects of good management practice. Over time, management thinkers have sought ways to organize and classify the voluminous information about management that has been collected and disseminated. These attempts at classification have resulted in the identification of management schools.

Disagreement exists as to the exact number of management schools. Different writers have identified as few as three and as many as twelve. Those discussed below include (1) the classical school, (2) the behavioral school, (3) the quantitative or management science school, (4) the systems school, (5) and the contingency school. The formal study of management is largely a twentieth-century phenomenon, and to some degree the relatively large number of management schools of thought reflect a lack of consensus among management scholars about basic questions of theory and practice.

Table 1 provides a brief summary of five major schools of management thought, their approximate dates of origin, and their relative areas of emphasis. The following sections discuss each of the management

Table 1
Five Major Schools of Management Thought

MANAGEMENT SCHOOLS	Beginning Dates	Emphasis
CLASSICAL SCHOOL		Managing workers and organizations more efficiently.
Scientific Management	1880s	
Administrative Management	1940s	
Bureaucratic Management	1920s	
BEHAVIORAL SCHOOL		Understanding human behavior in the organization.
Human Relations	1930s	
Behavioral Science	1950s	
QUANTITATIVE SCHOOL		Increasing quality of managerial decision-making through the application of mathematical and statistical methods.
Management Science	1940s	
Operations Management	1940s	
Management Information Systems	1950s—1970s	
SYSTEMS SCHOOL	1950s	Understanding the organization as a system that transforms inputs into outputs while in constant interaction with its' environment.
CONTINGENCY SCHOOL	1960s	Applying management principles and processes as dictated by the unique characteristics of each situation.

schools in more detail. In addition, three contemporary management perspectives are discussed.

THE CLASSICAL SCHOOL

The classical school is the oldest formal school of management thought. Its roots pre-date the twentieth century. The classical school of thought generally concerns ways to manage work and organizations more efficiently. Three areas of study that can be grouped under the classical school are scientific management, administrative management, and bureaucratic management.

SCIENTIFIC MANAGEMENT. In the late 19th century, management decisions were often arbitrary and workers often worked at an intentionally slow pace. There was little in the way of systematic management and workers and management were often in conflict. Scientific management was introduced in an attempt to create a mental revolution in the workplace. It can be defined as the systematic study of work methods in order to improve efficiency. Frederick W. Taylor was its main proponent. Other major contributors were Frank Gilbreth, Lillian Gilbreth, and Henry Gantt.

Scientific management has several major principles. First, it calls for the application of the scientific method to work in order to determine the best method for accomplishing each task. Second, scientific management suggests that workers should be scientifically selected based on their qualifications and trained to perform their jobs in the optimal manner. Third, scientific management advocates genuine cooperation between workers and management based on mutual self-interest. Finally, scientific management suggests that management should take complete responsibility for planning the work and that workers' primary responsibility should be implementing management's plans. Other important characteristics of scientific management include the scientific development of difficult but fair performance standards and the implementation of a pay-for-performance incentive plan based on work standards.

Scientific management had a tremendous influence on management practice in the early twentieth century. Although it does not represent a complete theory of management, it has contributed to the study of management and organizations in many areas, including human resource management and industrial engineering. Many of the tenets of scientific management are still valid today.

ADMINISTRATIVE MANAGEMENT. Administrative management focuses on the management process and principles of management. In contrast to scientific management, which deals largely with jobs and work at the individual level of analysis, administrative management provides a more general theory of management. Henri Fayol is the major contributor to this school of management thought.

Fayol was a management practitioner who brought his experience to bear on the subject of management functions and principles. He argued that

management was a universal process consisting of functions, which he termed planning, organizing, commanding, coordinating, and controlling. Fayol believed that all managers performed these functions and that the functions distinguished management as a separate discipline of study apart from accounting, finance, and production. Fayol also presented fourteen principles of management, which included maxims related to the division of work, authority and responsibility, unity of command and direction, centralization, subordinate initiative, and team spirit.

Although administrative management has been criticized as being rigid and inflexible and the validity of the functional approach to management has been questioned, this school of thought still influences management theory and practice. The functional approach to management is still the dominant way of organizing management knowledge, and many of Fayol's principles of management, when applied with the flexibility that he advocated, are still considered relevant.

BUREAUCRATIC MANAGEMENT. Bureaucratic management focuses on the ideal form of organization. Max Weber was the major contributor to bureaucratic management. Based on observation, Weber concluded that many early organizations were inefficiently managed, with decisions based on personal relationships and loyalty. He proposed that a form of organization, called a bureaucracy, characterized by division of labor, hierarchy, formalized rules, impersonality, and the selection and promotion of employees based on ability, would lead to more efficient management. Weber also contended that managers' authority in an organization should be based not on tradition or charisma but on the position held by managers in the organizational hierarchy.

Bureaucracy has come to stand for inflexibility and waste, but Weber did not advocate or favor the excesses found in many bureaucratic organizations today. Weber's ideas formed the basis for modern organization theory and are still descriptive of some organizations.

THE BEHAVIORAL SCHOOL

The behavioral school of management thought developed, in part, because of perceived weaknesses in the assumptions of the classical school. The classical school emphasized efficiency, process, and principles. Some felt that this emphasis disregarded important aspects of organizational life, particularly as it related to human behavior. Thus, the behavioral school focused on trying to understand the factors that affect human behavior at work.

HUMAN RELATIONS. The Hawthorne Experiments began in 1924 and continued through the early 1930s. A variety of researchers participated in the studies, including Clair Turner, Fritz J. Roethlisberger, and Elton Mayo, whose respective books on the studies are perhaps the best known. One of the major conclusions of the Hawthorne studies was that workers' attitudes are associated with productivity. Another was that the workplace is a social system and informal group influence could exert a powerful effect on individual behavior. A third was that the style of supervision is an important factor in increasing workers' job satisfaction. The studies also found that organizations should take steps to assist employees in adjusting to organizational life by fostering collaborative systems between labor and management. Such conclusions sparked increasing interest in the human element at work; today, the Hawthorne studies are generally credited as the impetus for the human relations school.

According to the human relations school, the manager should possess skills for diagnosing the causes of human behavior at work, interpersonal communication, and motivating and leading workers. The focus became satisfying worker needs. If worker needs were satisfied, wisdom held, the workers would in turn be more productive. Thus, the human relations school focuses on issues of communication, leadership, motivation, and group behavior. The individuals who contributed to the school are too numerous to mention, but some of the best-known contributors include Mary Parker Follett, Chester Barnard, Abraham Maslow, Kurt Lewin, Renais Likert, and Keith Davis. The human relations school of thought still influences management theory and practice, as contemporary management focuses much attention on human resource management, organizational behavior, and applied psychology in the workplace.

BEHAVIORAL SCIENCE. Behavioral science and the study of organizational behavior emerged in the 1950s and 1960s. The behavioral science school was a natural progression of the human relations movement. It focused on applying conceptual and analytical tools to the problem of understanding and predicting behavior in the workplace. However, the study of behavioral science and organizational behavior was also a result of criticism of the human relations approach as simplistic and manipulative in its assumptions about the relationship between worker attitudes and productivity. The study of behavioral science in business schools was given increased credence by the 1959 Gordon and Howell report on higher education, which emphasized the importance to management practitioners of understanding human behavior.

The behavioral science school has contributed to the study of management through its focus on personality, attitudes, values, motivation, group behavior, leadership, communication, and conflict, among other issues. Some of the major contributors to this school include Douglas McGregor, Chris Argyris, Frederick

Herzberg, Renais Likert, and Ralph Stogdill, although there are many others.

THE QUANTITATIVE SCHOOL

The quantitative school focuses on improving decision making via the application of quantitative techniques. Its roots can be traced back to scientific management.

MANAGEMENT SCIENCE AND MIS. Management science (also called operations research) uses mathematical and statistical approaches to solve management problems. It developed during World War II as strategists tried to apply scientific knowledge and methods to the complex problems of war. Industry began to apply management science after the war. George Dantzig developed linear programming, an algebraic method to determine the optimal allocation of scarce resources. Other tools used in industry include inventory control theory, goal programming, queuing models, and simulation. The advent of the computer made many management science tools and concepts more practical for industry. Increasingly, management science and management information systems (MIS) are intertwined. MIS focuses on providing needed information to managers in a useful format and at the proper time. Decision support systems (DSS) attempt to integrate decision models, data, and the decision maker into a system that supports better management decisions.

PRODUCTION AND OPERATIONS MANAGEMENT. This school focuses on the operation and control of the production process that transforms resources into finished goods and services. It has its roots in scientific management but became an identifiable area of management study after World War II. It uses many of the tools of management science.

Operations management emphasizes productivity and quality of both manufacturing and service organizations. W. Edwards Deming exerted a tremendous influence in shaping modern ideas about improving productivity and quality. Major areas of study within operations management include capacity planning, facilities location, facilities layout, materials requirement planning, scheduling, purchasing and inventory control, quality control, computer integrated manufacturing, just-in-time inventory systems, and flexible manufacturing systems.

SYSTEMS SCHOOL

The systems school focuses on understanding the organization as an open system that transforms inputs into outputs. This school is based on the work of a biologist, Ludwig von Bertalanffy, who believed that a general systems model could be used to unite science. Early contributors to this school included Kenneth Boulding, Richard Johnson, Fremont Kast, and James Rosenzweig.

The systems school began to have a strong impact on management thought in the 1960s as a way of thinking about managing techniques that would allow managers to relate different specialties and parts of the company to one another, as well as to external environmental factors. The systems school focuses on the organization as a whole, its interaction with the environment, and its need to achieve equilibrium. General systems theory received a great deal of attention in the 1960s, but its influence on management thought has diminished somewhat. It has been criticized as too abstract and too complex. However, many of the ideas inherent in the systems school formed the basis for the contingency school of management.

CONTINGENCY SCHOOL

The contingency school focuses on applying management principles and processes as dictated by the unique characteristics of each situation. It emphasizes that there is no one best way to manage and that it depends on various situational factors, such as the external environment, technology, organizational characteristics, characteristics of the manager, and characteristics of the subordinates. Contingency theorists often implicitly or explicitly criticize the classical school for its emphasis on the universality of management principles; however, most classical writers recognized the need to consider aspects of the situation when applying management principles.

The contingency school originated in the 1960s. It has been applied primarily to management issues such as organizational design, job design, motivation, and leadership style. For example, optimal organizational structure has been theorized to depend upon organizational size, technology, and environmental uncertainty; optimal leadership style, meanwhile, has been theorized to depend upon a variety of factors, including task structure, position power, characteristics of the work group, characteristics of individual subordinates, quality requirements, and problem structure, to name a few. A few of the major contributors to this school of management thought include Joan Woodward, Paul Lawrence, Jay Lorsch, and Fred Fiedler, among many others.

CONTEMPORARY "SCHOOLS" OF MANAGEMENT THOUGHT

Management research and practice continues to evolve and new approaches to the study of management continue to be advanced. This section briefly

reviews two contemporary approaches: total quality management (TQM) and the learning organization. While neither of these management approaches offer a complete theory of management, they do offer additional insights into the management field.

TOTAL QUALITY MANAGEMENT. Total quality management (TQM) is a philosophy or approach to management that focuses on managing the entire organization to deliver quality goods and services to customers. This approach to management was implemented in Japan after World War II and was a major factor in their economic renaissance. TQM has at least four major elements. Employee involvement is essential in preventing quality problems before they occur. A customer focus means that the organization must attempt to determine customer needs and wants and deliver products and services that address them.

Benchmarking means that the organization is always seeking out other organizations that perform a function or process more effectively and using them as a standard, or benchmark, to judge their own performance. The organization will also attempt to adapt or improve the processes used by other companies. Finally, a philosophy of continuous improvement means that the organization is committed to incremental changes and improvements over time in all areas of the organization. TQM has been implemented by many companies worldwide and appears to have fostered performance improvements in many organizations. Perhaps the best-known proponent of this school of management was W. Edwards Deming.

LEARNING ORGANIZATION. The contemporary organization faces unprecedented environmental and technological change. Thus, one of the biggest challenges for organizations is to continuously change in a way that meets the demands of this turbulent competitive environment. The learning organization can be defined as one in which all employees are involved in identifying and solving problems, which allows the organization to continually increase its ability to grow, learn, and achieve its purpose. The organizing principle of the learning organization is not efficiency, but problem solving. Three key aspects of the learning organization are a team-based structure, empowered employees, and open information. Peter Senge is one of the best-known experts on learning organizations.

SEE ALSO: Knowledge Management; Management Functions; Management Information Systems; Management Science; Management Styles; Organizational Behavior; Organizational Development; Organizational Learning; Organizing; Quality and Total Quality Management

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MANAGEMENT AND EXECUTIVE DEVELOPMENT

Manager effectiveness has an enormous impact on a firm's success. Therefore, companies must provide instruction for managers and high-potential management candidates in order to help them perform current and future jobs with the utmost proficiency. Management development has long been an important component of corporate strategic planning. In fact, many companies consider the identification and development of next-generation managers to be their top human resource challenge.

Management development is important for new managers because these individuals really need instruction on how to perform their new supervisory jobs. Even so, companies often allow employees to make the transition to management with little or no training, leaving them with feelings of frustration, inadequacy, and dismay. More experienced managers also benefit from management development. A majority of first-line managers have their sights set on higher-level management jobs. Given these ambitions, companies need to provide lower-level and mid-level managers with formal development programs in order to help them climb the corporate ladder.

Management instruction programs should bridge gaps between what individuals already know and what they need to know for their new positions. Managers

need different skills at each managerial level. The instructional programs needed to produce these skills are shown in Table 1.

Table 1

Instructional Needs at Different Managerial Levels

First-line managers need training in
- basic supervision
- motivation
- career planning
- performance feedback

Middle managers need training in
- designing and implementing effective group and intergroup work and information systems
- defining and monitoring group-level performance indicators
- diagnosing and resolving problems within and among work groups
- designing and implementing reward systems that support cooperative behavior

Executives need training in
- broadening their understanding of how factors such as competition, world economies, politics, and social trends influence the effectiveness of the organization

A variety of approaches are used to teach these subjects. Some are in traditional classroom-type settings, while others are taught outside of the classroom via career resource centers, job rotation, mentoring, and special projects.

CLASSROOM INSTRUCTION

Classroom training takes place within the organization or outside at seminars and universities. The subjects typically covered in these programs are briefly described in Table 2.

Table 2

Content Areas of Classroom Instruction

Job Duties and Responsibilities. Trainees learn what they must do to fulfill the company's expectations of them.

Policies and Procedures. Trainees learn company police and procedures.

Employee Familiarization. Trainees become familiar with the job functions of their employees. The training provides specific instructions on how to review job descriptions, performance standards, personnel files, and so forth.

Attitudes and Confidence. The training attempts to establish new attitudes toward the job employees, and the manager, and to build the confidence necessary for managers to be effective on the job.

Handling Employee Interactions. Trainees are taught how to handle interpersonal problems effectively through such techniques as behavior modeling.

Career Development. Trainees learn about career opportunities in higher levels of management and how they may advance in the future.

General Management Training. These courses typically cover labor relations, management theory and practice, labor economics, and general management functions.

Human Relations/Leadership Programs. These topics are narrower than general management programs. They focus on the human relations problems of leadership, supervision, attitude toward employees, and communication.

Self-Awareness Program. The content of these programs is understanding one's own behavior and how that behavior is viewed by others, identifying the so-called games people play, and learning about one's strengths and weaknesses.

Problem-Solving/Decision-Making Programs. The emphasis is on teaching generalized problem-solving and decision-making skills that would be applicable to the wide range of work problems that managers encounter.

LECTURE. Most training experts criticize lectures because they are passive learning devices, focusing on one-way communication to learners who do not have the opportunity to clarify material. Lectures generally fail to gain and maintain learner attention unless they are given by someone who is able to make the material meaningful and promote questions and discussions. Lectures are most appropriate for situations where simple knowledge acquisition is the goal (e.g., describing company history during a new employee orientation session). However, lectures are not well suited to serve as the sole training method for teaching management skills, because the format does not provide trainees with feedback or the opportunity for practice.

CASE METHOD. As the name suggests, the case method requires management trainees to analyze cases or scenarios depicting realistic job situations. Cases often are structured like a play that opens in the middle of a story and uses flashbacks to describe the action that led up to the opening scene, where an employee has just made a key decision. The rest of the case lays out the documentation and data available to the decision maker at the time of the decision. Questions are posed at the end of the case that ask the trainees to analyze the situation and recommend a solution. For instance, they may be asked to state the nature of the problem, identify the events that led to the problem, and indicate what the individual should do to resolve the problem.

The case method rests on the assumption that people are most likely to retain and use what they learn if they reach an understanding through "guided dis-

covery." Trainers act as guides or facilitators. Cases typically do not have right or wrong answers. Therefore, the aim of the method is not to teach trainees the "right" answer, but rather to teach them how to identify potential problems and recommend realistic actions.

Critics of this method balk at the lack of direction trainees receive when analyzing a case. What if they arrive at a poor decision? Moreover, trainees do not get the opportunity to practice their skills. For instance, after analyzing a case involving a subordinate who has repeatedly arrived at work late, the trainees may conclude that the manager should have said something sooner and must now provide counsel. However, the case method does not afford trainees the opportunity to practice their counseling skills.

ROLE-PLAYING. As an instructional technique, role-playing presents a hypothetical problem involving human interaction. Trainees spontaneously act out that interaction face-to-face. Participants are then given feedback by the trainer and the rest of the group on their performance so they may gain insight regarding the impact of their behavior on others. The issues addressed during feedback typically revolve around these types of questions:

- What was correct about the participant's behavior?
- What was incorrect about the participant's behavior?
- How did the participant's behavior make the other participants feel?
- How could the trainee have handled the situation more effectively?

Role-playing may be used to develop skill in any area that involves human interaction. The method is most often used for teaching human relations skills and sales techniques. Role-playing provides management trainees with an opportunity to practice the skill being taught. It thus goes beyond the case method, which merely requires the trainee to make a decision regarding how to handle a situation. These two methods are often used in conjunction with one another. That is, after analyzing a case and recommending a solution, trainees are asked to act out the solution in the form of a role-play.

Critics of the role-playing method point out that role-players are often given little guidance beforehand on how to handle transactions. This may cause them to make mistakes, resulting in embarrassment and a loss of self-confidence. When their mistake-ridden role-play is finished, they sit, never getting the opportunity to do it correctly.

BEHAVIOR MODELING. Behavior modeling is based on the idea that workers learn best when they see how a task should be performed and then practice the task with feedback until they are competent. This method is similar to role-playing in that the trainees act out situations playing certain roles. However, the methods differ in two important ways. First, behavior modeling teaches trainees a preferred way to perform a task. Second, the interactions occurring during behavior modeling are practice sessions, not role plays. The trainees practice only the right way. If they make a mistake, the trainer immediately corrects them and asks them to repeat the step correctly.

A behavior modeling program typically consists of the following steps:

1. Present an overview of the material. This usually consists of a brief lecture that describes training objectives and the importance of the skill to be learned.
2. Describe the procedural steps. The trainee learns the one best way (or at least an effective way) to handle a situation. Case and role-playing methods, on the other hand, stress the variety of effective ways to handle a situation and do not emphasize any one particular approach.
3. Model or demonstrate the procedural steps. The trainee is shown a "model" of how the task is to be performed correctly. The model usually is presented in the form of a videotape or live demonstration.
4. Allow guided practice. Trainees then practice the modeled behaviors. As previously stated, these sessions are similar to role-plays, except that trainees are given feedback by the instructor (or classmates) during the skill practice session, rather than after. This procedure forces trainees to correct mistakes as soon as they are made, assuring them an opportunity to practice the correct way of performing the task. Practice sessions start with simple problems, similar to those depicted in the model. Later practice sessions are made more realistic by adding complexity to the situation.
5. Provide on-the-job reinforcement. Participants' managers often go through identical training programs to ensure that they will understand what their employees are learning and, hence, support these new behaviors back on the job.

Behavior modeling has become very popular. Research examining its effectiveness has been quite favorable. Behavior modeling works because it successfully incorporates each of the aforementioned learning principles: it captures and maintains trainees' attention and provides ample opportunity for practice and feedback.

NONCLASSROOM METHODS

Nonclassroom methods include career resource centers, job rotation, coaching and mentoring, and special assignments.

CAREER RESOURCE CENTERS. Some organizations make learning opportunities available to interested candidates by establishing career resource centers, which usually include an in-house library with relevant reading material. In some companies, candidates simply are given recommended readings lists. Other companies provide management candidates with comprehensive career-planning guides that contain company-related information about available resources, career options, and counseling contacts. These individuals also may be given workbooks that provide written assignments.

JOB ROTATION. Job rotation exposes management trainees to various organizational settings by rotating them through a number of departments. Thus, trainees have an opportunity to gain an overall perspective of the organization and learn how various parts interrelate. Additionally, they face new challenges during these assignments that may foster new skill development. Trainees usually have full management responsibility during these assignments. For example, in one hospital new department supervisors rotate through all major departments on a monthly basis, serving in a managerial capacity during their "tours." Although they often learn a lot from such training, they also may make harmful mistakes during their learning period because they lack knowledge of the functional area that they are supervising.

COACHING AND MENTORING. Coaching is a method of management development that is conducted on the job, in which experienced managers or peers advise and guide trainees in solving managerial problems. Typically, less experienced managers are coached by their direct supervisor or a coworker on their specific performance of managerial tasks. An upper-level manager is likely to coach several lower-level managers at once, offering feedback, helping them to find expert advice, and providing resources.

Mentoring is different from coaching in several ways. Mentors are experienced supervisors who establish close, one-on-one relationships with new managers, called protégés. A mentor usually is someone two or three levels higher in the organization than the protégé who teaches, guides, advises, counsels, and serves as a role model; the mentor is not necessarily the protégé's direct supervisor. Mentoring can help the protégé to form common values with the organization's senior leadership and better understand his or her role in the company. Additionally, protégés are often advocated for and protected by a mentor. A mentor may ensure that the protégé is assigned high-visibility projects, or even change negative opinions about the protégé that may be held by others in the company. While a coach focuses on job-specific advice, a mentor is likely to give advice on a broader range of topics related to the protégé's career success.

SPECIAL ASSIGNMENT. Companies sometimes assign special, nonroutine job duties to trainees in order to prepare them for future assignments. One such special project is called action learning, which derives its name from the fact that the trainees can learn by doing. Candidates are given real problems generated by management. Trainees might be given a written assignment that specifies objectives, action plans, target dates, and the name of the person responsible for monitoring the completion of the assignment. For instance, trainees might be asked to study the company's budgeting procedures and submit a written critique.

Another type of special project is the task force, where trainees are grouped together and asked to tackle an actual organizational problem. For example, the task force may be asked to develop a new performance appraisal form, solve a quality problem, or design a program to train new employees. Trainees not only gain valuable experience by serving on a task force, they also have the opportunity to "show their stuff" to others within the organization.

MANAGEMENT SUCCESSION PLANNING

Most organizations base their management development and training efforts on succession planning, a systematic process of defining future management requirements and identifying the candidates who best meet them. Unfortunately, many companies take a very informal approach to succession planning. Identification of high-potential candidates is largely subjective, based on the opinions of the nominating managers, who choose "fast-track" or "superstar" employees with little consideration of the actual requirements of future positions. Research has found that promotions within the management ranks are often based on employee behaviors that have no bearing on managerial effectiveness; specifically, networking had the greatest influence on managerial promotions, even though networking made no contribution to actual performance. Additionally, ill-conceived succession planning activities can have disastrous consequences; as many as 30 percent of all newly placed executives are unprepared for their jobs and ultimately fail to meet company expectations.

Elements of an effective succession planning program involve human resource planning, defining qualifications for positions, identifying career paths, and developing replacement charts. The first step in succession planning is human resource planning, in which forecasting is used to determine projected

staffing needs for the next several years. Based on these needs, management succession plans should specify key management positions for which staffing should be targeted. Succession plans should next define pertinent individual qualifications needed for each targeted position, which are based on information derived from a job analysis. A firm then identifies individuals with high potential for promotion into or through the management ranks. This is accomplished by assessing employee abilities and career interests through records of career progress, experience, past performance, and self-reported interests regarding future career steps.

Following the above steps, an organization identifies a career path for each high-potential candidate (i.e., those who have the interest and ability to move upward in the organization). A career path typically appears as a flow chart, indicating the sequencing of specific jobs that may lead one up the organizational ladder to a targeted job. The final step is to develop replacement charts that indicate the availability of candidates and their readiness to step into the various management positions. Such charts usually are depicted as diagrams superimposed onto the organizational chart. These show possible replacement candidates, in rank order, for each management position. Rank orders are often based on the candidates' "overall potential scores," derived on the basis of their past performance, experience, test scores, and so on.

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

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MANAGING CHANGE

One of the concepts discussed, written about, and analyzed most frequently in recent years has been organizational change and the related concepts of resistance to change and management of change. Change has been variously defined as making a material difference in something compared to an earlier state, transforming or converting something, or simply becoming different. All of these definitions can be applied to change as it occurs within organizations and businesses. Organizational change may mean changing technological infrastructures (e.g., moving from a mainframe environment to distributed computing), marketing strategies (targeting a new customer base), or management and decision-making practices.

Organizational change is not new to the American business landscape. Since the nineteenth century and the Industrial Revolution, corporations have had to deal with change on an increasingly rapid scale. The greater the technological developments and the greater the amount of products and information generated, the more necessary it becomes for corporations to provide effective management and develop solid organizational practices. The most revered business professionals of the United States have been those who were best able to exploit changes in business and the economy. For example, in the late nineteenth century, Andrew Carnegie greatly expanded his empire by purchasing the very businesses he depended on for his steel business, making his company one of the first successful examples of vertical integration.

Beginning in the 1990s, change came at an exponentially faster rate due to factors such as increased competition in a global economy, expanding markets, new ways of doing business (such as e-commerce), and the omnipresent task of keeping up with the latest technology. Management guru Peter F. Drucker devoted his book *Management Challenges of the 21 Century* to that very topic. As a result, businesses had to revise (or devise) corporate missions and goals, management practices, and day-to-day business functions. Companies routinely began redesigning business strategies, often replacing traditional hierarchical organization charts with flatter structures centered around "empowered" teams.

The ultimate goal for most organizations is to change corporate climate and culture. An organization's climate can be defined by how its employees view the organization's fundamental reason for being, specifically, the company's overall mission and goals and how important the employees' sense of well-being is to those goals. The corporate climate then breeds an organizational culture that consists of what employees see as management's beliefs and value systems. These two things, climate and culture, then determine how each manager and employee shapes his or her own performance, usually in order to most successfully meet company goals and hopefully ensuring his or her own success as well as the company's. These factors affect every aspect of each person's job, including decision-making processes, communication patterns

within the organization, and individual accountability and responsibility.

INDICATORS OF CHANGE

There are four primary indicators of major workplace change. They are a change to the organizational structure, a new product or service, new management, and new technology. Organizational structure may change through major downsizing, outsourcing, acquisitions, or mergers. These actions are often accompanied by layoffs, particularly as certain positions become redundant. A new product or service has implications for changes in production, sales, and customer service. Additionally, by changing product or service the organization may face new competitors or new markets. New management, such as a change in chief executive officer or president, often brings a period of transition during which upper-level managers are likely to alter existing business processes and personnel policies. Finally, new technology can create vast changes to the organization. Technology can change the production process or the working conditions (i.e., telecommuting), and these changes may influence the skills that employees use on the job.

ROUTINE VERSUS NON-ROUTINE CHANGE

There are changes in organizations that are routine (e.g., they are commonplace and often expected), and there are those that are not routine (e.g., unique and unexpected). Examples of routine changes are organizational turnover and staffing replacements, small changes to products or services, or changes in human resources policies. Routine changes are the easiest to manage, and employees are somewhat accustomed to routine changes. There is typically little concern over implementing such changes. However, if not handled properly by management, even routine change can prove to be difficult. If changes are not implemented properly or not well communicated, problems may arise. For example, a small change to the company vacation policy may seem insignificant to management, but if employees are not properly apprised of the change it could result in considerable difficulty if employees do not follow the new policy.

Non-routine change is much more difficult than routine change; it can be unpredictable, significant, or even radical, and employees are much less likely to adapt well to non-routine change. In general, a non-routine change is seen as threatening, and employees are likely to be resistant. For instance, if a company announces a merger with a former competitor, this non-routine change is very likely to create anxiety about compensation and job security.

TYPES OF CHANGE

In addition to some of the major indicators of organizational change and the broad distinction of routine versus non-routine change, change can be categorized even more specifically into four categories: structural change, cost change, process change, and cultural change. Structural change occurs when there is an alteration to the company's organizational structure. This reorganization may occur due to a merger or acquisition, or it may be the result of a restructuring. For instance, an organization that is intent on increasing its innovation may reorganize its traditional functional structure into a more flexible matrix structure that uses small, self-managed teams. Or, an organization that is expanding into new markets may adopt a divisional structure in which different geographic locations operate nearly independently of one another.

Cost changes are those that occur when an organization attempts to reduce costs in order to improve efficiency or performance. Major adjustments may be made to departments to cut costs; reducing budgets, laying off employees in redundant positions, and eliminating nonessential activities may all be a result of cost change.

Process changes are implemented to improve efficiency or effectiveness of organizational procedures. This may occur in production settings; there may be changes to how a product is created, assembled, packaged, or shipped. Or, in a service organization, there may be changes to the procedures used to accomplish work; new computer systems may create the need to change how paperwork is completed, or a new manager may modify the process used to handle customer complaints.

Cultural changes are the least tangible of all the types of change, but they can be the most difficult. An organization's culture is its shared set of assumptions, values, and beliefs. A prototypical culture is the very bureaucratic, top-down style in which stability and standard processes are valued. When such an organization tries to adopt a more participative, involved style, this requires a shift in many organizational activities. Primarily, manager-employee relations are altered with a change in culture.

IMPLEMENTING CHANGE

To properly implement change, management must take a number of steps: involving key people, developing a plan, supporting the plan, and communicating often.

1. The first step in implementing change is involving the key people; this typically means upper-level management and other

executives whose processes and employees will be affected by the change. For instance, if a new computer system is to be installed in all areas of a company, key people would be not only top managers, but also lower-level managers who supervise the employees' use of the new technology. A different set of key people would be involved in a cost-cutting change. If the company is reducing its operating budget in a specific division, the managers of that division and also human resources personnel should be involved. In any circumstance in which there is a change to personnel policies or in which demotions, transfers, or layoffs occur, the human resources department should be involved to manage this change.

2. After key personnel have been identified and properly involved, the second step in implementing change is to develop a plan for effective transformation. The plan should help to define the responsibilities of the key people involved while also laying out short-term and long-term objectives for the changes. Because change can be unpredictable, the plan should also be flexible enough to accommodate new occurrences.

3. The third step in implementing change is to support the plan; this means that management follows through on the plan it created. Key to this step is enabling employees to adapt to the change. Employees may need training, reward systems may need to be adapted, or hiring may be required. If the organization does not provide the support necessary for the plan to take effect, it is unlikely to succeed.

4. The final step in successful change implementation should occur throughout the change process. Communicating with employees about what is occurring, why the changes are being made, and how they will develop is critical. Because change can create a lot of fear, increased communication can be used to calm employees and encourage their continued support. In addition to downward communication, managers should pay attention to any upward communication that occurs. They should be available to take suggestions or answer questions that employees might have. Creating opportunities for employee feedback, such as holding meetings or having an open-door management policy, may facilitate change more successfully.

RESISTANCE TO CHANGE

As a general rule, it is not the proposed changes that people resist, but the impact that the changes will have on them, personally. People become comfortable in their jobs, in their areas of expertise, and in their relationships with coworkers and managers. Even when personnel are not very satisfied with the current workplace and therefore welcome change, they may find change to be stressful. Helping employees anticipate difficulties and informing employees of how these challenges will be handled can be a source of comfort to them. When an organization proposes large-scale change, those affected begin to worry about how their jobs will change, what new skills they will need, if their responsibilities will change, how established lines of communication will be altered, and how working relationships will change. The most successful members of a company may feel threatened because they were able to perform so well under the old organizational structure. Some common employee reactions to change include confusion, denial, loss of identity, and anger. And this resistance is not limited to employees—managers and executives may be just as prone as employees to experiencing problems with radical organizational change.

In their article "Challenging 'Resistance to Change,'" Eric B. Dent and Susan Galloway Goldberg discuss their research on the origins of this concept and the prevalent idea that managers must overcome this resistance or are doomed to failure. Kurt Lewin, the mid-twentieth-century social psychologist, introduced the term "resistance to change" as a systems concept affecting managers and employees equally. The term, and not its original context, was adopted and used as a psychological concept placing employees against managers. Dent and Goldberg feel that letting go of the term and its associations could help more useful models of change dynamics move forward.

There are theories of handling resistance to change that are related to this idea. While not explicitly questioning the use of the term, changing how organizations view resistance allows change to become an opportunity and not just a potential threat. Change is a personally challenging issue for everyone affected, but it also carries with it new possibilities. How corporate management responds to employee resistance can determine the fate of the organization. For example, a sense of confusion—usually represented by constant questioning from management and/or employees—usually means that not enough information has been provided. This can become an opportunity to convey additional information to employees, such as reiterating the big picture and why the company is working so hard to redefine its corporate culture. This is also a good time to provide assurances that management is going to take the time to address concerns.

Another common reaction is doubt or denial that actual change will occur. This reaction occurs sometimes because employees do not want change, and at other times because they do not believe management is fully committed to the idea. In any case, these reactions can also represent an opportunity for management to identify issues that may be present across the organization and address them. They can also alert management and higher-ups that actual implementation is not consistent with the plan that was put forth. A possibly related reaction is anger, sometimes accompanied by attempts to sabotage the company's efforts to change. Again, there can be benefits to this type of behavior. Employees who so visually make their feelings known let organizational leaders in on which impediments to change are likely to occur, and management can then formulate ways to address them. It also opens up areas for negotiation.

Peter Senge and his co-authors identified ten "challenges of change" (preferring the term "challenges" to "resistance") in the 1999 work *The Dance of Change: The Challenges to Sustaining Momentum in Learning Organizations.* As reported in *Fast Company,* he formalized these challenges as common excuses that are offered as reasons for resistance. These excuses can then be countered by addressing the real concerns behind them. For example, "This stuff isn't relevant" indicates the need for continuous and open communication from people who can convince others of the driving need for change in an organization. "This stuff isn't working" indicates a need for management to provide measurable criteria for success and clear expectations. "They. . .never let us do this stuff" indicates that, while management may be claiming to offer groups and teams more autonomy, they are really having trouble letting go of their control.

Another concern is the fact that people who consider themselves specialists or experts in a given area are often asked to start over (e.g., working in a different functional area or using different technology), sometimes more than once when companies make cross-training one of their goals. Again, this threatens the comfort zone for many people at all levels of an organization. Having proven themselves once, they are being asked to do so over again. In order to allay these fears, management needs to encourage people to ask questions, take initiative, and take risks. Fear of failure is possibly one of the strongest reasons for resisting change. Companies that hope change will be embraced need to view risks and failures as tools through which the organization can learn and grow.

Along these same lines, resistance need not be a dirty word. Whereas organizations once felt it was most important to put a positive spin on everything, corporate management is realizing that showing their own concerns about organizational change helps other personnel to deal with theirs. It also affords them the opportunity to teach others how to identify best practices under less than ideal circumstances, and to let employees know they empathize with their concerns.

Resistance to change, as put forth by Kurt Lewin, affects managers and employees equally when systems undergo change. As such, resistance is a naturally occurring phenomenon that can be dealt with in a constructive manner. In a sense, resistance is a sign that radical change is indeed occurring and that an organization is not just redefining the status quo. Management can help by anticipating common reactions and using them to their best advantage. For instance, if an employee is able to make requested changes to his or her performance but not willing to do so, some negotiation might be all that is required to convince that person to follow along with the company's new direction. For those who buy into the need for change but lack some of the necessary skills, targeted training could be all that is needed to quell the fears of those people. Whatever the resistance an organization encounters, it is almost a guaranteed part of change, which has become a constant in the business landscape. With the globalization of markets and speeding technological innovation, an organization cannot afford to rest on its laurels.

SEE ALSO: Organizational Culture; Trends in Organizational Change

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MANUFACTURING RESOURCES PLANNING

Manufacturing resource planning, also known as MRP II, is a method for the effective planning of a manufacturer's resources. MRP II is composed of several linked functions, such as business planning, sales and operations planning, capacity requirements planning, and all related support systems. 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. It has the capability of specifically addressing operational planning and financial planning, and has simulation capability that allows its users to conduct sensitivity analyses (answering "what if" questions).

The earliest form of manufacturing resource planning was known as material requirements planning (MRP). This system was vastly improved upon until it no longer resembled the original version. The newer version was so fundamentally different from MRP, that a new term seemed appropriate. Oliver Wight coined the acronym MRP II for manufacturing resource planning.

In order to best understand MRP II, one must have a basic understanding of MRP, so we will begin with a look at MRP and then expand into MRP II.

MATERIAL REQUIREMENTS PLANNING

Material requirements planning (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. All MRP systems are computer based since the detail involved and the inherent burden of computation make manual use prohibitive. MRP is time phased because it not only determines what and how much needs to be made or purchased, but also when.

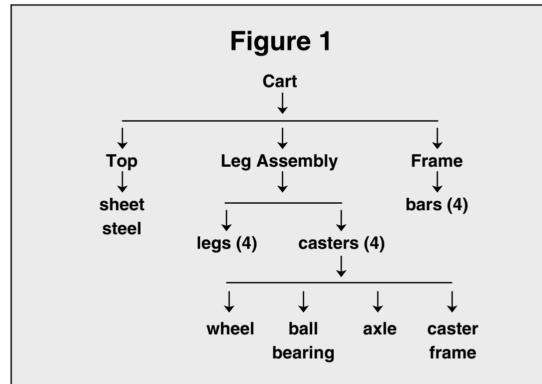
Material requirements planning first appeared in the early 1970s and was popularized by a book of the same name by Joseph Orlicky. Its use was quickly heralded as the new manufacturing panacea, but enthusiasm slowed somewhat when firms began to realize the difficulty inherent in its implementation.

The MRP system is composed of three primary modules, all of which function as a form of input. These are the master production schedule, the bill-of-materials, and the inventory status file. Each module serves a unique purpose that is inter-related with the purpose of the other modules, and produces several forms of usable output.

MASTER PRODUCTION SCHEDULE. The master production schedule (MPS) is basically the production schedule for finished goods. This schedule is usually derived from current orders, plus any forecast requirements. The MPS is divided into units of time called "buckets." While any time frame may be utilized, usually days or weeks is appropriate. The MPS is also said to be the aggregate plan "disaggregated." In other words, the plan for goods to be produced in aggregate is broken down into its individual units or finished goods.

BILL-OF-MATERIALS. The bill-of-materials is a file made up of bills-of-material (BOM). Each BOM is a hierarchical listing of the type and number of parts needed to produce one unit of finished goods. Other information, such as the routings (the route through the system that individual parts take on the way to becoming a finished good), alternate routings, or substitute materials may be also be contained with the BOM.

A tool known as a product structure tree is used to clarify the relationship among the parts making up each unit of finished goods. Figure 1 details how a product structure tree for a rolling cart might appear on a bill-of-material. This cart consists of a top that is pressed from a sheet of steel; a frame formed from four steel bars; and a leg assembly consisting of four legs, each with a caster attached. Each caster is made up of a wheel, a ball bearing, an axle, and a caster frame.



The bill-of-material can be used to determine the gross number of component parts needed to manufacturer a given number of finished goods. Since a gross number is determined, safety stock can be reduced because component parts may be shared by any number of finished goods (this is known as commonality).

The process of determining gross requirements of components is termed the "explosion" process, or "exploding" the bill-of-material. Assuming we need 100 rolling carts, we can use our example product structure tree to compute the gross requirements for each rolling cart component. We can easily see that in order to produce 100 rolling carts, we would need 100

tops, which would require 100 sheets of steel; 100 leg assemblies, which would require 400 legs and 400 casters (requiring 400 wheels, 400 ball bearings, 400 axles, and 400 caster frames); and 100 frames, which would require 400 bars.

INVENTORY STATUS FILE. The inventory status file, or inventory records file, contains a count of the on-hand balance of every part held in inventory. In addition, the inventory status file contains all pertinent information regarding open orders and the lead time (the time that elapses between placing an order and actually receiving it) for each item.

Open orders are purchase orders (orders for items purchased outside the firm) or shop orders (formal instructions to the plant floor to process a given number of parts by a given date) that have not been completely satisfied. In other words, they are items that have been ordered, but are yet to be received.

THE MRP PROCESS. The MRP logic starts at the MPS, where it learns the schedule for finished goods (how many and when). It takes this information to the BOM where it "explodes" the gross requirements for all component parts. The MRP package then takes its knowledge of the gross requirements for all components parts to the inventory status file, where the on-hand balances are listed. It then subtracts the on-hand balances and open orders from the gross requirements for components yielding the net requirements for each component.

Of course, we now know not only how many components are needed but when they are needed in order to complete the schedule for finished goods on time. By subtracting the lead time from the due date for each part, we now see when an order must be placed for each part so that it can be received in time to avoid a delay in the MPS. A manual version of MRP for a part with requirements of 100 in period 3 and 250 in period 6 and with a two-period lead time is shown in Figure 2.

Notice that in order for the firm to meet demand on time (the MPS), they must place an order for 25 in Period 1 and an order for 200 in Period 4. The reader should be aware that this is an overly simplified version of MRP, which does not include such relevant factors as lot sizing and safety stock.

EXPANDING INTO MRP II

With MRP generating the material and schedule requirements necessary for meeting the appropriate sales and inventory demands, more than the obvious manufacturing resources for supporting the MRP plan was found to be needed. Financial resources would have to be generated in varying amounts and timing. Also, the process would require varying degrees of marketing resource support. Production, marketing, and finance would be operating without complete knowledge or even regard for what the other functional areas of the firm were doing.

In the early 1980s MRP was expanded into a much broader approach. This new approach, manufacturing resource planning (MRP II), was an effort to expand the scope of production resource planning and to involve other functional areas of the firm in the planning process, most notably marketing and finance, but also engineering, personnel, and purchasing. Incorporation of other functional areas allows all areas of the firm to focus on a common set of goals. It also provides a means for generating a variety of reports to help managers in varying functions monitor the process and make necessary adjustments as the work progresses.

When finance knows which items will be purchased and when products will be delivered, it can accurately project the firm's cash flows. In addition, personnel can project hiring or layoff requirements, while marketing can keep track of up-to-the-minute changes in delivery times, lead times, and so on. Cost accounting information is gathered, engineering input

Figure 2

	1	2	3	4	5	6
Gross Requirements			100			250
Scheduled Receipts (open orders)			50		50	
On Hand (inventory balance)	25	25	25	0	0	50
Net Requirements			25			200
Planned Order Receipt			25			200
Planned Order Release	25			200		

is recorded, and distribution requirements planning is performed.

An MRP II system also has a simulation capability that enables its users to conduct sensitivity analyses or evaluate a variety of possible scenarios. The MRP II system can simulate a certain decision's impact throughout the organization, and predict its results in terms of customer orders, due dates, or other "what if" outcomes. Being able to answer these "what if" questions provides a firmer grasp of available options and their potential consequences.

As with MRP, MRP II requires a computer system for implementation because of its complexity and relatively large scale. Pursuit of MRP or MRP II in a clerical fashion would prove far too cumbersome to ever be useful.

In addition to its efficient performance of the data processing and file handling, a computer also allows the system to run remarkably quick, providing near-immediate results and reports when asked to simulate a decision.

CLASSES OF FIRMS USING MRP AND MRP II

MRP and MRP II users are classified by the degree to which they utilize the various aspects of these systems. Class D companies have MRP working in their data processing area, but utilize little more than the inventory status file and the master production schedule, both of which may be poorly used and mismanaged. Typically, these firms are not getting much return for the expense incurred by the system.

Class C firms use their MRP system as an inventory ordering technique but make little use of its scheduling capabilities.

Class B companies utilize the basic MRP system (MPS, BOM, and Inventory file) with the addition of capacity requirements planning and a shop floor control system. Class B users have not incorporated purchasing into the system and do not have a management team that uses the system to run the business, but rather see it as a production and inventory control system.

Class A firms are said use the system in a closed loop mode. Their system consists of the basic MRP system, plus capacity planning and control, shop floor control, and vendor scheduling systems. In addition, their management uses the system to run the business. The system provides the game plan for sales, finance, manufacturing, purchasing, and engineering. Management then can use the system's report capability to monitor accuracy in the BOM, the inventory status file, and routing, as well as monitor the attainment of the MPS and capacity plans.

Class A firms have also tied in the financial system and have developed the system's simulation capabilities to answer "what if" questions. Because everyone is using the same numbers (e.g., finance and production), management has to work with only one set of numbers to run the business.

DEVELOPMENTS

With the advent of lean manufacturing and just-in-time (JIT), MRP and MRP II have fallen into disfavor with some firms, with some feeling that the systems are obsolete. However, research has found that in certain environments with advance demand information, MRP-type push strategies yield better performance in term of inventories and service levels than did JIT's kanban-based pull strategies.

A further extension of MRP and MRP II has been developed to improve resource planning by broadening the scope of planning to include more of the supply chain. The Gartner Group of Stamford, Connecticut, coined the term "enterprise resource planning" (ERP) for this system.

The authors of *Manufacturing Planning and Control for Supply Chain Management* note that MRP and ERP have become so entrenched in businesses that they no longer provide a source of competitive advantage. They feel that a sustaining competitive advantage will now require that manufacturing planning and control (MPC) systems to cross organizational boundaries and coordinate company units that have traditionally worked independently.

It is recommended that in the near future organizations will need to work in pairs or dyads. This means that pairs, or dyads, of firms will jointly develop new MPC systems that allow integrated operations. Organizations will learn as much as possible from each dyad and then leverage what they have learned into other dyads. They term this approach the "next frontier" for manufacturing planning and control systems.

SEE ALSO: Competitive Advantage; Enterprise Resource Planning; Inventory Types; Lean Manufacturing and Just-in-Time Production; Quality and Total Quality Management

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MARKET SHARE

Firms are always concerned with the size of the potential market for their products or services and the proportion of that market they actually reach—often referred to as a company's market share. Market share is the percentage of the total market (or industry) sales made by one firm. As a formula, Market Share = Firm's Sales ÷ Total Market Sales. Share can be reflected as either percentage of sales dollars, percentage of units sold or percentage of customers. Percentage of sales dollars is the most common reference.

Market share is one of the most commonly quoted measures of success in any industry. To correctly determine market share, one must clearly define the market. Having a small share of a large market can be as profitable as a large share of a small market. A producer of leather horse saddles must determine if his market is made up of saddle sales, equestrian sales, or all leather goods sales. Obviously, his market share in the saddle industry is much larger than his share in the leather goods market.

There are two sources for measuring market share: competitors and consumers. Surveying competitors gives a more accurate and reliable picture of market share. It is possible to interview 100 percent of competitors, but not all consumers. To get a reliable figure from consumers, a large number of people would have to be interviewed. For many industries, sales and market share figures may already be compiled by government agencies, trade associations, or private research firms.

MARKET PLAYERS

Market share defines the roles played by various firms in an industry. The firm with the largest market share is the market leader. The market leader usually has the highest marketing expenditures, distribution, price changes, and new product innovations. Market challengers are the firms working to increase their market share. Firms in an industry that are content with their share of the market or doing little to increase sales are considered the market followers. The market niche brand is the player that targets its business toward serving smaller, overlooked segments that are often ignored by the larger players. The niche marketer can be very profitable, opting for high margins over higher volume.

MARKET STRATEGIES

The leader must constantly monitor the market because the challenger is constantly trying to take away market share. The market leader has three options to keep its market position: expand the total market, protect market share, or expand market share. Creating more usage, new uses, or users expands markets. Leaders can protect market share by monitoring their position and rushing to remedy any weaknesses. Continuous innovation is the best way to protect market share. When leaders become complacent with their products or services, it becomes easier for the challenger to make progress. In large markets, small increases in market share can translate into very large sales increases; a one-point gain in market share can be worth hundreds of millions of dollars.

The market challenger must attempt to gain market share from the leader. The challenger must have some sustainable competitive advantage to attack the leader's market share. The challenger can attack other competitors through a direct attack by altering price, promotion, or distribution, or indirectly by diversifying or catering to underserved segments. Followers must keep quality high and prices low to maintain their positions. As Armstrong and Kolter point out in *Principles of Marketing* (1999), the market follower must "find the right balance between following closely enough to win customers from the market leader but . . . at enough of a distance to avoid retaliation."

Niche marketers have many options available to them. The company must find a niche that is safe and profitable. It must be large enough to sustain growth but small enough that it does not look attractive to the market's larger players. Targeting multiple niches is an option that offers the niche marketer a higher chance of survival because the firm is not dependent on one segment.

Across segments, attempts to affect market share take place across the four "P's" of the marketing mix: product, price, place, and promotion. However, there are instances in which increasing market share is not necessarily desirable. The costs to increase production, or improve the product, may not be covered by the incremental profits.

Market share is easily understood by most managers, employees, and shareholders; therefore, it is

often used as a primary measure of success. It is critical to understand market share, how it is used to identify market participants, and how the different participants use it to determine their market strategy.

SEE ALSO: Generic Competitive Strategies

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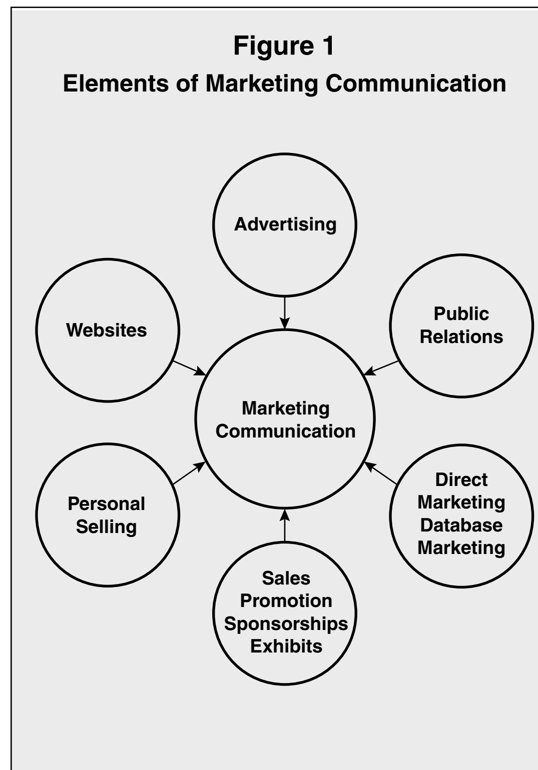
MARKETING COMMUNICATION

As the term suggests, marketing communication functions within a marketing framework. Traditionally known as the promotional element of the four Ps of marketing (product, place, price, and promotion), the primary goal of marketing communication is to reach a defined audience to affect its behavior by informing, persuading, and reminding. Marketing communication acquires new customers for brands by building awareness and encouraging trial. Marketing communication also maintains a brand's current customer base by reinforcing their purchase behavior by providing additional information about the brand's benefits. A secondary goal of marketing communication is building and reinforcing relationships with customers, prospects, retailers, and other important stakeholders.

Successful marketing communication relies on a combination of options called the promotional mix. These options include advertising, sales promotion, public relations, direct marketing, and personal selling. The Internet has also become a powerful tool for reaching certain important audiences. The role each element takes in a marketing communication program relies in part on whether a company employs a push strategy or a pull strategy. A pull strategy relies more on consumer demand than personal selling for the product to travel from the manufacturer to the end user. The demand generated by advertising, public relations, and sales promotion "pulls" the good or service through the channels of distribution. A push strategy, on the other hand, emphasizes personal selling to push the product through these channels.

Figure 1
Elements of Marketing Communication



For marketing communication to be successful, however, sound management decisions must be made in the other three areas of the marketing mix: the product, service or idea itself; the price at which the brand will be offered; and the places at or through which customers may purchase the brand. The best promotion cannot overcome poor product quality, inordinately high prices, or insufficient retail distribution.

Likewise, successful marketing communication relies on sound management decisions regarding the coordination of the various elements of the promotional mix. To this end, a new way of viewing marketing communication emerged in the 1990s. Called integrated marketing communication, this perspective seeks to orchestrate the use of all forms of the promotional mix to reach customers at different levels in new and better ways.

INTEGRATED MARKETING COMMUNICATION

The evolution of this new perspective has two origins. Marketers began to realize that advertising, public relations, and sales were often at odds regarding responsibilities, budgets, management input and myriad other decisions affecting the successful marketing of a brand. Executives in each area competed

with the others for resources and a voice in decision making. The outcome was inconsistent promotional efforts, wasted money, counterproductive management decisions, and, perhaps worst of all, confusion among consumers.

Secondly, the marketing perspective itself began to shift from being market oriented to market driven. Marketing communication was traditionally viewed as an inside-out way of presenting the company's messages. Advertising was the dominant element in the promotional mix because the mass media could effectively deliver a sales message to a mass audience. But then the mass market began to fragment. Consumers became better educated and more skeptical about advertising. A variety of sources, both controlled by the marketer and uncontrolled, became important to consumers. News reports, word-of-mouth, experts' opinions, and financial reports were just some of the "brand contacts" consumers began to use to learn about and form attitudes and opinions about a brand or company, or make purchase decisions. Advertising began to lose some of its luster in terms of its ability to deliver huge homogeneous audiences. Companies began to seek new ways to coordinate the multiplicity of product and company messages being issued and used by consumers and others.

Thus, two ideas permeate integrated marketing communication: relationship building and synergy. Rather than the traditional inside-out view, IMC is seen as an outside-in perspective. Customers are viewed not as targets but as partners in an ongoing relationship. Customers, prospects, and others encounter the brand and company through a host of sources and create from these various contacts ideas about the brand and company. By knowing the media habits and lifestyles of important consumer segments, marketers can tailor messages through media that are most likely to reach these segments at times when these segments are most likely to be receptive to these messages, thus optimizing the marketing communication effort.

Ideally, IMC is implemented by developing comprehensive databases on customers and prospects, segmenting these current and potential customers into groups with certain common awareness levels, predispositions, and behaviors, and developing messages and media strategies that guide the communication tactics to meet marketing objectives. In doing this, IMC builds and reinforces mutually profitable relationships with customers and other important stakeholders and generates synergy by coordinating all elements in the promotional mix into a program that possesses clarity, consistency, and maximum impact.

Practitioners and academics alike, however, have noted the difficulty of effectively implementing IMC. Defining exactly what IMC is has been difficult. For example, merely coordinating messages so that speaking "with one clear voice" in all promotional efforts does not fully capture the meaning of IMC. Also, changing the organization to accommodate the integrated approach has challenged the command and control structure of many organizations. However, studies suggest that IMC is viewed by a vast majority of marketing executives as having the greatest potential impact on their company's marketing strategies, more so than the economy, pricing, and globalization.

ADVERTISING

Advertising has four characteristics: it is persuasive in nature; it is non-personal; it is paid for by an identified sponsor; and it is disseminated through mass channels of communication. Advertising messages may promote the adoption of goods, services, persons, or ideas. Because the sales message is disseminated through the mass media—as opposed to personal selling—it is viewed as a much cheaper way of reaching consumers. However, its non-personal nature means it lacks the ability to tailor the sales message to the message recipient and, more importantly, actually get the sale. Therefore, advertising effects are best measured in terms of increasing awareness and changing attitudes and opinions, not creating sales. Advertising's contribution to sales is difficult to isolate because many factors influence sales. The contribution advertising makes to sales are best viewed over the long run. The exception to this thinking is within the internet arena. While banner ads, pop-ups and interstitials should still be viewed as brand promoting and not necessarily sales drivers, technology provides the ability to track how many of a website's visitors click the banner, investigate a product, request more information, and ultimately make a purchase.

Through the use of symbols and images advertising can help differentiate products and services that are otherwise similar. Advertising also helps create and maintain brand equity. Brand equity is an intangible asset that results from a favorable image, impressions of differentiation, or consumer attachment to the company, brand, or trademark. This equity translates into greater sales volume, and/or higher margins, thus greater competitive advantage. Brand equity is established and maintained through advertising that focuses on image, product attributes, service, or other features of the company and its products or services.

Cost is the greatest disadvantage of advertising. The average cost for a 30-second spot on network television increased fivefold between 1980 and 2005. Plus, the average cost of producing a 30-second ad for network television is quite expensive. It is not uncommon for a national advertiser to spend in the millions of dollars for one 30-second commercial to be produced. Add more millions on top of that if celebrity talent is utilized.

Credibility and clutter are other disadvantages. Consumers have become increasingly skeptical about advertising messages and tend to resent advertisers' attempt to persuade. Advertising is everywhere, from network television, to daily newspapers, to roadside billboards, to golf course signs, to stickers on fruit in grocery stores. Clutter encourages consumers to ignore many advertising messages. New media are emerging, such as DVRs (digital video recorders) which allow consumers to record programs and then skip commercials, and satellite radio which provides a majority of its channels advertising free.

PUBLIC RELATIONS

Public relations is defined as a management function which identifies, establishes, and maintains mutually beneficial relationships between an organization and the publics upon which its success or failure depends. Whereas advertising is a one-way communication from sender (the marketer) to the receiver (the consumer or the retail trade), public relations considers multiple audiences (consumers, employees, suppliers, vendors, etc.) and uses two-way communication to monitor feedback and adjust both its message and the organization's actions for maximum benefit. A primary tool used by public relations practitioners is publicity. Publicity capitalizes on the news value of a product, service, idea, person or event so that the information can be disseminated through the news media. This third party "endorsement" by the news media provides a vital boost to the marketing communication message: credibility. Articles in the media are perceived as being more objective than advertisements, and their messages are more likely to be absorbed and believed. For example, after the CBS newsmagazine *60 Minutes* reported in the early 1990s that drinking moderate amounts of red wine could prevent heart attacks by lowering cholesterol, red wine sales in the United States increased 50 percent. Another benefit publicity offers is that it is free, not considering the great amount of effort it can require to get out-bound publicity noticed and picked up by media sources.

Public relations' role in the promotional mix is becoming more important because of what Philip Kotler describes as an "over communicated society." Consumers develop "communication-avoidance routines" where they are likely to tune out commercial messages. As advertising loses some of its cost-effectiveness, marketers are turning to news coverage, events, and community programs to help disseminate their product and company messages. Some consumers may also base their purchase decisions on the image of the company, for example, how environmentally responsible the company is. In this regard, public relations plays an important role in presenting, through news reports, sponsorships, "advertorials" (a form of advertising that instead of selling a product or service promotes the company's views regarding current issues), and other forms of communication, what the company stands for.

DIRECT MARKETING AND DATABASE MARKETING

DIRECT MARKETING. Direct marketing, the oldest form of marketing, is the process of communicating directly with target customers to encourage response by telephone, mail, electronic means, or personal visit. Users of direct marketing include retailers, wholesalers, manufacturers, and service providers, and they use a variety of methods including direct mail, telemarketing, direct-response advertising, online computer shopping services, cable shopping networks, and infomercials. Traditionally not viewed as an element in the promotional mix, direct marketing represents one of the most profound changes in marketing and promotion in the last 25 years. Aspects of direct marketing, which includes direct response advertising and direct mail advertising as well as the various research and support activities necessary for their implementation, have been adopted by virtually all companies engaged in marketing products, services, ideas, or persons.

Direct marketing has become an important part of many marketing communication programs for three reasons. First, the number of two-income households has increased dramatically. About six in every ten women in the United States work outside the home. This has reduced the amount of time families have for shopping trips. Secondly, more shoppers than ever before rely on credit cards for payment of goods and services. These cashless transactions make products easier and faster to purchase. Finally, technological advances in telecommunications and computers allow consumers to make purchases from their homes via telephone, television, or computer with ease and safety. These three factors have dramatically altered the purchasing habits of American consumers and made direct marketing a growing field worldwide.

Direct marketing allows a company to target more precisely a segment of customers and prospects with a sales message tailored to their specific needs and characteristics. Unlike advertising and public relations, whose connections to actual sales are tenuous or nebulous at best, direct marketing offers accountability by providing tangible results. The economics of direct marketing have also improved over the years as more information is gathered about customers and prospects. By identifying those consumers they can serve more effectively and profitably, companies may be more efficient in their marketing efforts. Whereas network television in the past offered opportunities to

reach huge groups of consumers at a low cost per thousand, direct marketing can reach individual consumers and develop a relationship with each of them.

Research indicates that brands with strong brand equity are more successful in direct marketing efforts than little-known brands. Direct marketing, then, works best when other marketing communication such as traditional media advertising supports the direct marketing effort.

Direct marketing has its drawbacks also. Just as consumers built resistance to the persuasive nature of advertising, so have they with direct marketing efforts. Direct marketers have responded by being less sales oriented and more relationship oriented. Also, just as consumers grew weary of advertising clutter, so have they with the direct marketing efforts. Consumers are bombarded with mail, infomercials, and telemarketing pitches daily. Some direct marketers have responded by regarding privacy as a customer service benefit. Direct marketers must also overcome consumer mistrust of direct marketing efforts due to incidents of illegal behavior by companies and individuals using direct marketing. The U.S. Postal Service, the Federal Trade Commission, and other federal and state agencies may prosecute criminal acts. The industry then risks legislation regulating the behavior of direct marketers if it is not successful in self-regulation. The Direct Marketing Association, the leading trade organization for direct marketing, works with companies and government agencies to initiate self-regulation. In March of 2003 the National Do Not Call Registry went into affect whereby consumers added their names to a list that telemarketers had to eliminate from their out-bound call database.

DATABASE MARKETING. Database marketing is a form of direct marketing that attempts to gain and reinforce sales transactions while at the same time being customer driven. Successful database marketing continually updates lists of prospects and customers by identifying who they are, what they are like, and what they are purchasing now or may be purchasing in the future. By using database marketing, marketers can develop products and/or product packages to meet their customers' needs or develop creative and media strategies that match their tastes, values, and lifestyles. Like IMC, database marketing is viewed by many marketers as supplanting traditional marketing strategies and is a major component of most IMC programs.

At the core of database marketing is the idea that market segments are constantly shifting and changing. People who may be considered current customers, potential customers, and former customers and people who are likely never to be customers are constantly changing. By identifying these various segments and developing a working knowledge of their wants, needs, and characteristics, marketers can reduce the cost of reaching non-prospects and build customer loyalty. Perhaps the most important role of database marketing is its ability to retain customers. The cumulative profit for a five-year loyal customer is between seven and eight times the first-year profit.

Since database marketing is expensive to develop and complex to implement effectively, companies considering database marketing should consider three important questions. First, do relatively frequent purchasers or high dollar volume purchasers for the brand exist? Secondly, is the market diverse enough so that segmenting into subgroups would be beneficial? Finally, are there customers that represent opportunities for higher volume purchases?

SALES PROMOTION/SPONSORSHIPS/ EXHIBITIONS

SALES PROMOTION. Sales promotions are direct inducements that offer extra incentives to enhance or accelerate the product's movement from producer to consumer. Sales promotions may be directed at the consumer or the trade. Consumer promotions such as coupons, sampling, premiums, sweepstakes, price packs (packs that offer greater quantity or lower cost than normal), low-cost financing deals, and rebates are purchase incentives in that they induce product trial and encourage repurchase. Consumer promotions may also include incentives to visit a retail establishment or request additional information. Trade promotions include slotting allowances ("buying" shelf space in retail stores), allowances for featuring the brand in retail advertising, display and merchandising allowances, buying allowances (volume discounts and other volume-oriented incentives), bill back allowances (pay-for-performance incentives), incentives to salespeople, and other tactics to encourage retailers to carry the item and to push the brand.

Two perspectives may be found among marketers regarding sales promotion. First, sales promotion is supplemental to advertising in that it binds the role of advertising with personal selling. This view regards sales promotion as a minor player in the marketing communication program. A second view regards sales promotion and advertising as distinct functions with objectives and strategies very different from each other. Sales promotion in this sense is equal to or even more important than advertising. Some companies allocate as much as 75 percent of their advertising/promotion dollars to sales promotion and just 25 percent to advertising. Finding the right balance is often a difficult task. The main purpose of sales promotion is to spur action. Advertising sets up the deal by developing a brand reputation and building market value. Sales promotion helps close the deal by providing incentives that build market volume.

Sales promotions can motivate customers to select a particular brand, especially when brands appear to be equal, and they can produce more immediate and measurable results than advertising. However, too heavy a reliance on sales promotions results in "deal-prone" consumers with little brand loyalty and too much price sensitivity. Sales promotions can also force competitors to offer similar inducements, with sales and profits suffering for everyone.

SPONSORSHIPS. Sponsorships, or event marketing, combine advertising and sales promotions with public relations. Sponsorships increase awareness of a company or product, build loyalty with a specific target audience, help differentiate a product from its competitors, provide merchandising opportunities, demonstrate commitment to a community or ethnic group, or impact the bottom line. Like advertising, sponsorships are initiated to build long-term associations. Organizations sometimes compare sponsorships with advertising by using gross impressions or cost-per-thousand measurements. However, the value of sponsorships can be very difficult to measure. Companies considering sponsorships should consider the short-term public relations value of sponsorships and the long-term goals of the organization. Sports sponsorships make up about two-thirds of all sponsorships.

EXHIBITS. Exhibits, or trade shows, are hybrid forms of promotion between business-to-business advertising and personal selling. Trade shows provide opportunities for face-to-face contact with prospects, enable new companies to create a viable customer base in a short period of time, and allow small and midsize companies that may not be visited on a regular basis by salespeople to become familiar with suppliers and vendors. Because many trade shows generate media attention, they have also become popular venues for introducing new products and providing a stage for executives to gain visibility.

PERSONAL SELLING

Personal selling includes all person-to-person contact with customers with the purpose of introducing the product to the customer, convincing him or her of the product's value, and closing the sale. The role of personal selling varies from organization to organization, depending on the nature and size of the company, the industry, and the products or services it is marketing. Many marketing executives realize that both sales and non-sales employees act as salespeople for their organization in one way or another. One study that perhaps supports this contention found that marketing executives predicted greater emphasis being placed on sales management and personal selling in their organization than on any other promotional mix element. These organizations have launched training sessions that show employees how they act as salespeople for the organization and how they can improve their interpersonal skills with clients, customers, and prospects. Employee reward programs now reward employees for their efforts in this regard.

Personal selling is the most effective way to make a sale because of the interpersonal communication between the salesperson and the prospect. Messages can be tailored to particular situations, immediate feedback can be processed, and message strategies can be changed to accommodate the feedback. However, personal selling is the most expensive way to make a sale, with the average cost per sales call ranging from $235 to $332 and the average number of sales calls needed to close a deal being between three and six personal calls.

Sales and marketing management classifies salespersons into one of three groups: creative selling, order taking, and missionary sales reps. Creative selling jobs require the most skills and preparation. They are the "point person" for the sales function. They prospect for customers, analyze situations, determine how their company can satisfy wants and needs of prospects, and, most importantly, get an order. Order takers take over after the initial order is received. They handle repeat purchases (straight rebuys) and modified rebuys. Missionary sales reps service accounts by introducing new products, promotions, and other programs. Orders are taken by order takers or by distributors.

INTERNET MARKETING

Just as direct marketing has become a prominent player in the promotional mix, so too has the Internet. Virtually unheard of in the 1980s, the 1990s saw this new medium explode onto the scene, being adopted by families, businesses and other organizations more quickly than any other medium in history. Web sites provide a new way of transmitting information, entertainment, and advertising, and have generated a new dimension in marketing: electronic commerce. E-commerce is the term used to describe the act of selling goods and services over the Internet. In other words, the Internet has become more that a communication channel; it is a marketing channel itself with companies such as Amazon.com, CDNow, eBay, and others selling goods via the Internet to individuals around the globe. In less than 10 years advertising expenditures on the Internet will rival those for radio and outdoor. Public relations practitioners realize the value that web sites offer in establishing and maintaining relationships with important publics. For example, company and product information can be posted on the company's site for news reporters researching stories and for current and potential customers seeking information. Political candidates have

web sites that provide information about their background and their political experience.

The interactivity of the Internet is perhaps its greatest asset. By communicating with customers, prospects, and others one-on-one, firms can build databases that help them meet specific needs of individuals, thus building a loyal customer base. Because the cost of entry is negligible, the Internet is cluttered with web sites. However, this clutter does not present the same kind of problem that advertising clutter does. Advertising and most other forms of promotion assume a passive audience that will be exposed to marketing communication messages via the mass media or mail regardless of their receptivity. Web sites require audiences who are active in the information-seeking process to purposely visit the site. Therefore, the quality and freshness of content is vital for the success of the web site.

THE FUTURE OF MARKETING COMMUNICATION

Marketing communication has become an integral part of the social and economic system in the United States. Consumers rely on the information from marketing communication to make wise purchase decisions. Businesses, ranging from multinational corporations to small retailers, depend on marketing communication to sell their goods and services. Marketing communication has also become an important player in the life of a business. Marketing communication helps move products, services, and ideas from manufacturers to end users and builds and maintains relationships with customers, prospects, and other important stakeholders in the company. Advertising and sales promotion will continue to play important roles in marketing communication mix. However, marketing strategies that stress relationship building in addition to producing sales will force marketers to consider all the elements in the marketing communication mix. In the future new information gathering techniques will help marketers target more precisely customers and prospects using direct marketing strategies. New media technologies will provide businesses and consumers new ways to establish and reinforce relationships that are important for the success of the firm and important for consumers as they make purchase decisions. The Internet will become a major force in how organizations communicate with a variety of constituents, customers, clients, and other interested parties.

SEE ALSO: Communication; Marketing Concept and Philosophy; Marketing Research

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MARKETING CONCEPT AND PHILOSOPHY

The marketing concept and philosophy is one of the simplest ideas in marketing, and at the same time, it is also one of the most important marketing philosophies. At its very core are the customer and his or her satisfaction. The marketing concept and philosophy states that the organization should strive to satisfy its customers' wants and needs while meeting the organization's goals. In simple terms, "the customer is king".

The implication of the marketing concept is very important for management. It is not something that the marketing department administers, nor is it the sole domain of the marketing department. Rather, it is adopted by the entire organization. From top management to the lowest levels and across all departments of the organization, it is a philosophy or way of doing business. The customers' needs, wants, and satisfaction should always be foremost in every manager and employees' mind. Wal-Mart's motto of "satisfaction guaranteed" is an example of the marketing concept. Whether the Wal-Mart employee is an accountant or a cashier, the customer is always first.

As simple as the philosophy sounds, the concept is not very old in the evolution of marketing thought. However, it is at the end of a succession of business philosophies that cover centuries. To gain a better understanding of the thought leading to the marketing concept, the history and evolution of the marketing concept and philosophy are examined first. Next, the marketing concept and philosophy and some misconceptions about it are discussed.

EVOLUTION OF THE MARKETING CONCEPT AND PHILOSOPHY

The marketing concept and philosophy evolved as the last of three major philosophies of marketing. These three philosophies are the product, selling, and marketing philosophies. Even though each philosophy has a particular time when it was dominant, a philosophy did not die with the end of its era of dominance. In fact, all three philosophies are being used today.

PRODUCT PHILOSOPHY. The product philosophy was the dominant marketing philosophy prior to the Industrial Revolution and continued to the 1920s. The product philosophy holds that the organization knows its product better than anyone or any organization. The company knows what will work in designing and producing the product and what will not work. For example, the company may decide to emphasize the low cost or high quality of their products. This confidence in their ability is not a radical concept, but the confidence leads to the consumer being overlooked. Since the organization has the great knowledge and skill in making the product, the organization also assumes it knows what is best for the consumer.

This philosophy of only relying on the organization's skill and desires for the product did not lead to poor sales. In much of the product philosophy era, organizations were able to sell all of the products that they made. The success of the product philosophy era is due mostly to the time and level of technology in which it was dominant. The product era spanned both the pre-Industrial Revolution era and much of the time after the Industrial Revolution.

The period before the Industrial Revolution was the time when most goods were made by hand. The production was very slow and few goods could be produced. However, there was also a demand for those goods, and the slow production could not fill the demand in many cases. The importance for management of this shortage was that very little marketing was needed.

An example illustrates the effects of the shortages. Today, the gunsmith shop in Williamsburg, Virginia, still operates using the product philosophy. The gunsmiths produce single-shot rifles using the technology available during the 1700s. They are only able to produce about four or five rifles every year, and they charge from $15,000 to $20,000 for each rifle. However, the high price does not deter the demand for the guns; their uniqueness commands a waiting list of three to four years. Today's Williamsburg Gunsmith Shop situation was typical for organizations operating before the Industrial Revolution. Most goods were in such short supply that companies could sell all that they made. Consequently, organizations did not need to consult with consumers about designing and producing their products.

When mass production techniques created the Industrial Revolution, the volume of output was greatly increased. Yet the increased production of goods did not immediately eliminate the shortages from the pre-industrial era. The new mass production techniques provided economies of scale allowing for lower costs of production and corresponding lower prices for goods. Lower prices greatly expanded the market for the goods, and the new production techniques were struggling to keep up with the demand. This situation meant that the product philosophy would work just as well in the new industrial environment. Consumers still did not need to be consulted for the organization to sell its products.

One of the many stories about Henry Ford illustrates the classic example of the product philosophy in use after the Industrial Revolution. Henry Ford pioneered mass production techniques in the automobile industry. With the techniques, he offered cars at affordable prices to the general public. Before this time, cars were hand made, and only the very wealthy could afford them. The public enthusiastically purchased all the Model T Fords that the company could produce. The evidence that the product philosophy was alive and well in Ford Motor Company came in Henry Ford's famous reaction to consumer requests for more color options. He was said to have responded that "you can have any color car you want as long as it is black." Realizing that different colors would increase the cost of production and price of the Model T's, Henry Ford, using the product philosophy, decided that lower prices were best for the public.

SELLING PHILOSOPHY. The selling era has the shortest period of dominance of the three philosophies. It began to be dominant around 1930 and stayed in widespread use until about 1950. The selling philosophy holds that an organization can sell any product it produces with the use of marketing techniques, such as advertising and personal selling. Organizations could create marketing departments that would be concerned with selling the goods, and the rest of the organization could be left to concentrate on producing the goods.

The reason for the emergence of the selling philosophy was the ever-rising number of goods available after the Industrial Revolution. Organizations became progressively more efficient in production, which increased the volume of goods. With the increased supply, competition also entered production. These two events eventually led to the end of product shortages and the creation of surpluses. It was because of the surpluses that organizations turned to the use of advertising and personal selling to reduce their inventories and sell their goods. The selling philosophy also enabled part of the organization to keep focusing on the product, via the product philosophy. In addition, the selling philosophy held that a sales or marketing

department could sell whatever the company produced.

The Ford Motor Company is also a good example of the selling philosophy and why this philosophy does not work in many instances. Ford produced and sold the Model T for many years. During its production, the automobile market attracted more competition. Not only did the competition begin to offer cars in other colors, the styling of the competition was viewed as modern and the Model T became considered as old-fashioned. Henry Ford's sons were aware of the changes in the automobile market and tried to convince their father to adapt. However, Henry Ford was sure that his standardized low-price automobile was what the public needed. Consequently, Ford turned to marketing techniques to sell the Model T. It continued to sell, but its market share began to drop. Eventually, even Henry Ford had to recognize consumer desires and introduce a new model.

The selling philosophy assumes that a well-trained and motivated sales force can sell any product. However, more companies began to realize that it is easier to sell a product that the customer wants, than to sell a product the customer does not want. When many companies began to realize this fact, the selling era gave way to the marketing era of the marketing concept and philosophy.

MARKETING PHILOSOPHY. The marketing era started to dominate around 1950, and it continues to the present. The marketing concept recognizes that the company's knowledge and skill in designing products may not always be meeting the needs of customers. It also recognizes that even a good sales department cannot sell every product that does not meet consumers' needs. When customers have many choices, they will choose the one that best meets their needs.

MARKET CONCEPT AND PHILOSOPHY

The marketing concept and philosophy states that the organization should strive to satisfy its customers' wants and needs while meeting the organization's goals. The best way to meet the organization's goals is also by meeting customer needs and wants. The marketing concept's emphasis is to understand the customers before designing and producing a product for them. With the customer's wants and needs incorporated into the design and manufacture of the product, sales and profit goals are far more likely to be met.

With the customer's satisfaction the key to the organization, the need to understand the customer is critical. Marketing research techniques have been developed just for that purpose. Smaller organizations may keep close to their customers by simply talking with them. Larger corporations have established methods in place to keep in touch with their customers, be it consumer panels, focus groups, or third-party research studies. Whatever the method, the desire is to know the customers so the organization can better serve them and not lose sight of their needs and wants.

The idea of keeping close to the organization's customers seems simple. In reality, it is very easy to forget the customer's needs and wants. Sometimes the management is so involved with the product that their own desires and wants begin to take dominance, even though they have adopted the marketing concept.

Yet it is easy for managers to forget the marketing concept and philosophy. For example, many years ago—before there was a Subway on every corner—a college student opened a small submarine sandwich shop near his university's campus. The sub shop was an immediate success. By using the marketing concept, the young entrepreneuer had recognized an unmet need in the student population and opened a business that met that need.

Unfortunately, the story does not end at this point. The sub shop was so successful that it began to outgrow its original location after about three years. The shop moved to a larger location with more parking spaces, also near the university. At the new sub shop, waiters in tuxedos met the students and seated them at tables with tablecloths. Besides the traditional subs, the shop now served full meals and had a bar. Within a few months the sub shop was out of business. The owner of the shop had become so involved with his business vision that he forgot the customers' needs and wants. They did not want an upscale restaurant—there were other restaurants in the area that met that need, they just wanted a quick sub sandwich. By losing sight of the customers' wants and needs, the owner of the sub shop lost his successful business.

MEETING CUSTOMER NEEDS WHILE MEETING ORGANIZATIONAL GOALS

Sometimes in the zeal to satisfy a customer's wants and needs, the marketing concept is construed to mean that the customer is always right. However, the marketing concept also states that it is important to meet organizational goals as well as satisfy customer wants and needs. Satisfying customer needs and organizational goals may involve conflicts that sometimes cannot be resolved. The organization that adopts the marketing concept will do everything in its power to meet the needs of its customers, but it must also make a profit. Sometimes the wants of the customers may include a low price or features that are not attainable for the organization if it is to make a profit. Consequently, the organization must hope for a compromise

between what the consumer wants and what is practical for the business to provide.

CRITICISM OF THE MARKETING CONCEPT

Interpreted literally, the marketing concept only advocates discovering consumers' wants and needs and satisfying them. Critics assert that consumers may not be aware of all of their wants and needs. In the 1950s, were consumers aware of a need to cook their food by sending microwaves through their food? In the 1960s, were consumers aware of a need to have personal computers in their homes? Critics argue that the marketing concept's concentration on consumers' wants and needs stifle innovation. Organizations will no longer concentrate on research and development in hopes that one product in ten might meet with consumer acceptance, and will less likely come up with innovative products such as microwaves and personal computers.

Supporters of the marketing concept have contended that it does not stifle innovation and that it does recognize that consumers cannot conceive of every product that they may want or need. However, need is defined in a very broad sense. In the microwave and personal computer examples, the need was not for the specific product, but there was a need to cook food faster and a need for writing and calculating. The microwave and personal computer satisfied those needs though the consumer never imagined these products. The marketing concept does not stifle creativity and innovation. It seeks to encourage creativity to satisfy customer needs.

The marketing concept is a relative newcomer as a philosophy of doing business. However, its evolution started before the Industrial Revolution. As time progressed, customer and business needs also evolved. The product and selling philosophies eventually evolved into the marketing concept and philosophy. Today, the marketing concept and philosophy stands as a formula for doing business and many believe it is a prescription for success. It aims to satisfy customers by guiding the organization to meet the customers' needs and wants while meeting the organization's goals.

SEE ALSO: Market Share; Marketing Communication; Marketing Research

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MARKETING RESEARCH

Marketing research is the function that links the consumer, customer, and public to the marketer through information. This information is used to identify and define marketing opportunities and problems; to generate, refine, and evaluate marketing actions; to monitor marketing performance; and to improve understanding of the marketing process. Marketing research specifies the information, manages and implements the data-collection process, analyzes the results, and communicates the findings and their implications. Marketing research is concerned with the application of theories, problem-solving methods, and techniques to identify and solve problems in marketing. In order to offset unpredictable consumer behavior, companies invest in market research.

Increased customer focus, demands for resource productivity, and increased domestic and international competition has prompted an increased emphasis on marketing research. Managers cannot always wait for information to arrive in bits and pieces from marketing departments. They often require formal studies of specific situations. For example, Dell Computer might want to know a demographic breakdown of how many and what kinds of people or companies will purchase a new model in its personal computer line. In such situations, the marketing department may not be able to provide from existing knowledge the detailed information needed, and managers normally do not have the skill or time to obtain the information on their own. This formal study, whether performed internally or externally, is called marketing research.

The marketing research process consists of four steps: defining the problem and research objectives, developing the research plan, implementing the research plan, and interpreting and reporting the findings.

DEFINING THE OBJECTIVES

The marketing manager and the researcher must work closely together to define the problem carefully and agree on the research objectives. The manager best understands the decision for which information is needed; the researcher best understands marketing research and how to obtain the information.

Managers must know enough about marketing research to help in the planning and to interpret research results. Managers who know little about the importance of research may obtain irrelevant information or accept inaccurate conclusions. Experienced marketing researchers who understand the manager's problem should also be involved at this stage. The researcher must be able to help the manager define the problem

and to suggest ways that research can help the manager make better decisions.

Defining the problem and research objectives is often the hardest step in the research process. The manager may know that something is wrong without knowing the specific causes. For example, managers of a retail clothing store chain decided that falling sales were caused by poor floor set-up and incorrect product positioning. However, research concluded that neither problem was the cause. It turned out that the store had hired sales persons who weren't properly trained in providing good customer service. Careful problem definition would have avoided the cost and delay of research and would have suggested research on the real problem.

When the problem has been defined, the manager and researcher must set the research objectives. A marketing research project might have one of three types of objectives. Sometimes the objective is exploratory—to gather preliminary information that will help define the problem and suggest hypotheses. Sometimes the objective is descriptive—to describe things such as the market potential for a product or the demographics and attitudes of consumers who buy the product. Sometimes the objective is casual—to test hypotheses about cause-and-effect relationships.

DEVELOPING THE RESEARCH PLAN

The second step of the marketing research process calls for determining the information needed, developing a plan for gathering it efficiently, and presenting the plan to marketing management. The plan outlines sources of secondary data and spells out the specific research approaches, contact methods, sampling plans, and instruments that researchers will use to gather primary data.

A marketing researcher can gather secondary data, primary data, or both. Primary data consists of information collected for the specific purpose at hand. Secondary data consists of information that already exists somewhere, having been collected for another purpose. Sources of secondary data include internal sources such as profit and loss statements, balance sheets, sales figures, and inventory records; and external sources such as government publications, periodicals, books, and commercial data. Primary data collection requires more extensive research, more time, and more money. Secondary sources can sometimes provide information that is not directly available or would be too expensive to collect.

Secondary data also present problems. The needed information may not exist. Researchers can rarely obtain all the data they need from secondary sources. The researcher must evaluate secondary information carefully to make certain of its relevance (fits research project needs), accuracy (reliably collected and reported), currency (up to date enough for current decisions), and impartiality (objectively collected and reported). Researchers must also understand how secondary sources define basic terms and concepts, as different sources often use the same terms but mean slightly different things, or they attempt to measure the same thing but go about it in different ways. Either way, the result can be that statistics found in secondary sources may not be as accurate or as relevant as they appear on the surface.

RESEARCH APPROACHES

Observational research is the gathering of primary data by observing relevant people, actions, and situations. Observational research can be used to obtain information that people are unwilling or unable to provide. In some cases, observation may be the only way to obtain the needed information.

Survey research is the approach best suited for gathering descriptive information. A company that wants to know about people's knowledge, attitudes, preferences, or buying behavior can often find out by asking them directly. Survey research is the most widely used method for primary data collection, and it is often the only method used in a research study. The major advantage of survey research is its flexibility. It can be used to obtain many different kinds of information in many different marketing situations. In the early and mid-1980s, some cola companies created a taste test against their competitors. This is an example of survey research. Participants were allowed to taste different cola brands without knowing which was which. The participant then decided which brand was preferred.

Whereas observation is best suited for exploratory research and surveys for descriptive research, experimental research is best suited for gathering causal information. Experiments involve selecting matched groups of subjects, giving them different treatments, controlling unrelated factors, and checking for differences in group responses. Thus, experimental research tries to explain cause-and-effect relationships.

RESEARCH CONTACT METHODS

Research may be collected by mail, telephone, e-mail, fax, or personal interview. Mail questionnaires can be used to collect large amounts of information at a low cost per respondent. Respondents may give more honest answers to more personal questions on a mail questionnaire than to an unknown interviewer in person or over the phone. However, mail questionnaires lack flexibility in that they require simply worded questions. They can also take a long time to complete, and the response rate—the number of people returning completed questionnaires—is often very low.

Telephone interviewing is the best method for gathering information quickly, and it provides greater flexibility than mail questionnaires. Interviewers can explain questions that are not understood. Telephone interviewing also allows greater sample control. Response rates tend to be higher than with mail questionnaires. But telephone interviewing also has its drawbacks. The cost per respondent is higher than with mail questionnaires, people may regard a phone call as more of an inconvenience or an intrusion, and they may not want to discuss personal questions with an interviewer. In the latter part of the 1990s, laws were also passed to guard against the invasion of privacy. If a person wishes to be taken off a solicitation or interview list, companies can be sued if they persist in calling.

Personal interviewing consists of inviting several people to talk with a trained interviewer about a company's products or services. The interviewer needs objectivity, knowledge of the subject and industry, and some understanding of group and consumer behavior. Personal interviewing is quite flexible and can be used to collect large amounts of information. Trained interviewers can hold a respondent's attention for a long time and can explain difficult questions. They can guide interviews, explore issues, and probe as the situation requires. The main drawbacks of personal interviewing are costs and sampling problems. Personal interviews may cost three to four times as much as telephone interviews.

SAMPLING PLAN

Marketing researchers usually draw conclusions about large groups of consumers by studying a relatively small sample of the total consumer population. A sample is a segment of the population selected to represent the population as a whole. Ideally, the sample should be representative so that the researcher can make accurate estimates of the thoughts and behaviors of the larger population. If the sample is not representative, it may lead the company to draw the wrong conclusions and misuse its resources.

The marketing researcher must design a sampling plan, which calls for three decisions:

1. Sampling unit—determining who is to be surveyed. The marketing researcher must define the target population that will be sampled. If a company wants feedback on a new basketball shoe, it would be wise to target active players and even professional players.
2. Sample size—determining the number of people to be surveyed. Large samples give more reliable results than small samples. Samples of less than 1 percent of a population can often provide good reliability, given a credible sampling procedure. Most commercial samples consist of between several hundred and several thousand respondents.
3. Sampling procedure—determining how the respondents should be chosen. To obtain a representative sample, a probability (random) sampling of the population should be drawn. This is a means of determining who is reached by the survey to ensure they are indeed a valid cross-section of the sampling unit. Choosing passersby on a street corner, for example, would not produce a random sample, whereas allowing a computer to pick names randomly from a relevant calling list probably would (depending on how the list was compiled). Probability sampling allows the calculation of confidence limits for sampling error.

RESEARCH INSTRUMENTS

In collecting primary data, marketing researchers have a choice of two main research instruments—the questionnaire and mechanical devices. The questionnaire is by far the most common instrument. A questionnaire consists of a set of questions presented to a respondent for his or her answers. In preparing a questionnaire, the marketing researcher must decide what questions to ask, the form of the questions, the wording of the questions, and the ordering of the questions. Each question should be checked to see that it contributes to the research objectives.

Although questionnaires are the most common research instrument, mechanical instruments are also used. Two examples of mechanical instruments are people meters and supermarket scanners. These techniques are not widely used because they tend to be expensive, require unrealistic advertising exposure conditions, and are hard to interpret.

COLLECTING THE INFORMATION

The researcher must now collect the data. This phase is generally the most expensive and the most liable to error. In the case of surveys, four major problems arise. Some respondents will not be at home and will have to be replaced. Other respondents will refuse to cooperate. Still others will give biased or dishonest answers. Finally, some interviewers will occasionally be biased or dishonest.

CHARACTERISTICS OF GOOD MARKETING RESEARCH

Following are the characteristics of good marketing research

1. Scientific method. Effective marketing research uses the principles of the scientific

method: careful observation, formulation of hypotheses, prediction, and testing.

2. Research creativity. At its best, marketing research develops innovative ways to solve a problem.
3. Multiple methods. Competent marketing researchers shy away from over-reliance on any one method, preferring to adapt the method to the problem rather than the other way around. They also recognize the desirability of gathering information from multiple sources to give greater confidence.
4. Interdependence of models and data. Competent marketing researchers recognize that the facts derive their meaning from models of the problem. These models guide the type of information sought and therefore should be made as explicit as possible.
5. Value and cost of information. Competent marketing researchers show concern for estimating the value of information against its cost. Value/cost evaluation helps the marketing research department determine which research projects to conduct, which research designs to use, and whether to gather more information after the initial results are in. Research costs are typically easy to quantify, while the value is harder to anticipate. The value depends on the reliability and validity of the research findings and management's willingness to accept and act on its findings. In general, the most valuable information tends to cost the most because it requires more intensive methods, but of course it is easy to spend a great deal of money on poorly conceived research.
6. Healthy skepticism. Competent marketing researchers will show a healthy skepticism toward assumptions made by managers about how the market works.
7. Ethical marketing. Most marketing research benefits both the sponsoring company and its consumers. Through marketing research, companies learn more about consumers' needs, and are able to supply more satisfying products and services. However, the misuse of marketing research can also harm or annoy consumers. There are professional ethical standards guiding the proper conduct of research.

PRESENTING THE RESEARCH PLAN

The last step in market research is the presentation of a formal plan. At this stage, the marketing researcher should summarize the plan in a written proposal to management. A written proposal is especially important when the research project will be large and complex or when an outside firm carries it out. The proposal should cover the management problems addressed and the research objectives, the information to be obtained, the sources of secondary information or methods for collecting primary data, and the way the results will help management decision making. A written research plan or proposal makes sure that the marketing manager and researchers have considered all the important aspect of the research and that they agree on why and how the research will be done.

MANAGEMENT'S USE OF MARKETING RESEARCH

In spite of the rapid growth of marketing research, many companies still fail to use it sufficiently or correctly. Several factors can stand in the way of its greater utilization.

1. A narrow conception of marketing research. Many managers see marketing research as only a fact-finding operation. The marketing researcher is supposed to design a questionnaire, choose a sample conduct interviews, and report results, often without being given a careful definition of the problem or of the decision alternatives facing management. As a result, some fact finding fails to be useful. This reinforces management's idea of the limited usefulness of some marketing research.
2. Uneven caliber of marketing researchers. Some managers view marketing research as little better than a clerical activity and reward it as such. Poorly qualified marketing researchers are hired, and their weak training and deficient creativity lead to unimpressive results. The disappointing results reinforce management's prejudice against expecting too much from marketing research. Management continues to pay low salaries, perpetuating the basic difficulty.
3. Late and occasional erroneous findings by marketing research. Managers want quick results that are accurate and conclusive. But good marketing research takes time and money. If they can't perceive the difference between quality and shoddy research, managers become disappointed, and they lower their opinion of the value of marketing research. This is especially a problem in conducting marketing research in foreign countries.
4. Intellectual differences. Intellectual divergences between the mental styles of line

managers and marketing researchers often get in the way of productive relationships. The marketing researcher's report may seem abstract, complicated, and tentative, while the line manager wants concreteness, simplicity, and certainty. Yet in the more progressive companies, marketing researchers are increasingly being included as members of the product management team, and their influence on marketing strategy in growing.

SEE ALSO: Marketing Concept and Philosophy; Research Methods and Processes

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Revised by Deborah Hausler

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MECHANISTIC ORGANIZATIONS

Nearly one-half century ago, Burns and Stalker noted that mechanistic organizations are often appropriate in stable environments and for routine tasks and technologies. In some ways similar to bureaucratic structures, mechanistic organizations have clear, well-defined, centralized, vertical hierarchies of command, authority, and control. Efficiency and predictability are emphasized through specialization, standardization, and formalization. This results in rigidly defined jobs, technologies, and processes. The term mechanistic suggests that organizational structures, processes, and roles are like a machine in which each part of the organization does what it is designed to do, but little else.

It is easy to confuse mechanistic organizations with bureaucracies due to the considerable overlap between these two concepts. Yet despite the overlaps, a primary difference between mechanistic organizations and bureaucracy is the rationale for utilizing each of these. A goal of bureaucratic structures is to protect lower-level administrative positions from arbitrary actions of owners and higher-level managers. For example, an individual holding the job title of vice-president of production would, in a bureaucracy, be protected from indiscriminant changes in work hours, wages, and responsibilities through formal rules, regulations, and grievance procedures. The goal of the bureaucracy is protection of positions within the organization.

Mechanistic organizations, on the other hand, are utilized to increase efficiency when tasks and technologies are relatively stable. The vice-president of production in a mechanistic organization would employ production processes and techniques that minimize waste and maximize outputs for a given quantity of inputs. The goal of mechanistic structures is efficiency. Thus, the rationale for bureaucracy is protection while the rationale for mechanistic organizations is efficiency. Clearly, the two are not mutually exclusive; an organization could be structured as a bureaucracy and also be mechanistic. On the other hand, many examples of inefficient bureaucracies can quickly come to mind, suggesting that while there is overlap between the concepts, there are distinctions as well.

Mechanistic structures are highly formalized, which simply means that nearly all processes and procedures have been administratively authorized. The organization considers processes and procedures outside these established protocols as variances that must be brought under control. Such formalization is driven by efficiency; reduction in variance increases predictability, and increases in predictability allow for improvements in efficiency. Examples pertinent to product or service distribution include the processes a store clerk uses when presented with a customer's credit card or how returns of products by customers are to be handled. Examples pertinent to product or service production and assembly include how a book publisher manages the workflow from completed manuscripts to final bookbinding and how Dell Computer manages assembly of made-to-order personal computers. Decision making is largely concerned with application of the appropriate predetermined rule, policy, procedure, or criteria.

Environmental and technological stability allow work to be clearly defined and differentiated. The work of the organization is divided into specific, precise tasks. Created from one or more such specific tasks, specialized job positions rigidly define skills needed, task methodology and procedures to be used, and specific responsibilities and authority. In effect, lower-level managers and other employees simply follow procedures, and while this may have the side effect of stifling creativity, it also increases efficiency of established processes. In stable environments, however, stifling creativity may be worth the improvements in efficiency. Few customers, for instance,

would want a McDonald's employee to use creativity in preparing their hamburger. Instead, the repetitiveness and stability of the procedures needed to cook a hamburger are more efficient when the employee follows established procedures and customers can trust that each hamburger they purchase will taste the same.

However, specialized tasks are repetitive and can sometimes be boring. For example, at a Sam's Club store, one person stands at the door to perform the single task of marking customer receipts. Because employees often work separately with little interaction, it is often hard for them to see how one's small, specialized task relates to overall organizational objectives. Also, the work of mechanistic organizations tends to be impersonal. Jobs are designed around the task rather than the individual. Personnel selection, assignment, and promotion are based on the possession of skills required for specific tasks. Other people, like interchangeable parts of a machine, can replace people in a position.

Specialization carries throughout the organization. Positions are grouped together into specialized work units and, ultimately, into specialized functional departments such as production, marketing, or finance. Each organizational unit has clear and specific responsibilities and objectives. Communication is primarily vertical, with more emphasis on downward directives than on upward communication. Thus, such matters as goals, strategies, policies, and procedures are determined by top-level management and communicated downward as instructions and decisions to be implemented.

Upward communication usually involves transmittal of reports and other information for management to consider, usually at the request of management. Coordination is maintained through the chain of command. For example, top-level management is responsible for coordination across functional departments such as integrating marketing sales forecasts with production schedules. Within a department, the department manager is responsible for coordination across department subunits; production managers, for example, coordinate raw inventory requirements with work-in-process inventory.

At least two criticisms are generally made about mechanistic organizations. First, while focusing on task concerns such as efficiency and standardization, mechanistic organizations tend to ignore human needs and dynamics. Second, creativity, and thus innovation, are restricted by the rigidity of standardized and formalization. Thus, the appropriate environment for mechanistic organizations is a stable environment, while rapidly changing environments require more flexibility. Highly mechanized organizations operating in rapidly changing environments run the risk of becoming obsolete as competitors sacrifice maximum efficiency in exchange for flexibility to tackle new environmental conditions.

SEE ALSO: Effectiveness and Efficiency; Organic Organizations; Organization Theory; Organizational Behavior; Organizational Structure

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Revised by Scott B. Droege

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MEETING MANAGEMENT

Most organizations use meetings in the course of their work, and these meetings can be successful or unsuccessful, depending on whether they are managed properly. Managers must learn to properly organize and conduct meetings to contribute to organizational effectiveness. There are several important principles to meeting management: determining situations that require a meeting, understanding types of meetings, planning a meeting, running a meeting, closing the meeting, and managing people after the meeting.

SITUATIONS REQUIRING A MEETING

Before calling a meeting, it is important to know if one is needed. Some situations benefit from having a meeting, and in other situations, one is unnecessary. There are some common situations in which a meeting is needed.

First, you are likely to need to meet if you are managing a project. Because projects involve multiple people and a lot of information, you will likely need to meet with individuals at various stages: at the beginning of the project, throughout the project, and at the end of the project. Meetings may change in terms of content and frequency, depending on the stage of the project.

A second reason that a meeting is often called is when a supervisor needs to manage people. Managers need to meet with staff as a group or one-on-one to direct employees effectively. Typically, meetings to manage people are held at regular intervals.

A third reason to meet is when a manager must interact with a client. Client relationships may require meetings to pitch ideas, update the client on progress, or present a completed product or service.

A fourth situation in which a meeting is preferable is when written communication, such as interoffice memos or email, is burdensome. If issues are too complex for memos or email, a meeting may be a more efficient way to communicate.

Finally, managers may call meetings to address workplace problems. If a project is on the wrong course, or if there are interpersonal problems, a meeting may be the best way to address such problems.

While a meeting is often the best way to accomplish work objectives, there are times in which a meeting is simply a waste of people's time. There may be situations in which bringing a large group together to address an issue may only cause confusion or conflict. Additionally, there are some tasks that may be accomplished more easily and quickly, but just as effectively, by a smaller group (subcommittee) or an individual, then presented to the larger group for approval. Thus, while meetings can be very useful in the workplace, managers should take care to determine whether they are truly necessary.

TYPES OF MEETINGS

The reasons for calling the meeting should help to determine how the meeting should be formatted, or whether a meeting is really necessary. The length and formality of a meeting will differ depending on what type of meeting it is. There are six basic types of meeting: standing meeting, topical meeting, presentation, conference, emergency meeting, and seminar.

1. A *standing meeting* is a regularly scheduled meeting, such as a weekly check-in with employees or a project meeting that occurs every month. Because these meetings are recurring, they are easier to manage, with similar formats and agendas. Typically, these meetings are held on the same day and time, but they may be rescheduled if necessary.
2. A *topical meeting* is one that is called to discuss one specific subject. This may be a work issue or a project task. The invitees and format are dependent on the subject being addressed.
3. A *presentation* occurs when one or more people speak, and one moderator leads the meeting. Presentation meetings tend to be highly structured, and there purpose is usually to inform. It may be to inform clients, employees, or managers.
4. A *conference* is also highly structured, but it is used to solicit contributions from participants on a particular topic.
5. An *emergency meeting* is used to address a crisis, and they are often called with very little advance notice. These meetings may be used to address internal problems, such as a theft in the building, or external problems, such as a natural disaster.
6. A *seminar* is typically educational—someone with expertise provides participants with specific information.

The type of meeting will dictate who is invited to participate and how the participants are arranged in the meeting room. Topical meetings, conferences, and emergency meetings are best run in seating arrangements in which participants can all see one another and therefore be more likely to engage in discussion.

Conversely, presentations and seminars require a different seating arrangement where all participants can see the speaker, but do not need to see one another. These arrangements are presented in Figure 1, in which the ovals represent meeting participants and the shaded oval is the presenter or facilitator.

Standing meetings may vary in seating, depending on what is discussed; if a supervisor is giving information, then there is no need for participants to group themselves in order to see one another. Some standing meetings may literally be "standing" if participants only need to meet briefly to get information from a supervisor or team leader.

PLANNING A MEETING

The most critical part of planning a meeting is determining whether a meeting is actually necessary. There are many organizational issues that can be addressed without needing to hold a meeting. Meetings are time-consuming, and because they require many different people to leave their work to meet, they can hinder productivity if they are called when unnecessary. Additionally, some standing meetings are kept without any assessment as to whether or not that weekly or monthly meeting is actually productive and useful.

To determine whether a meeting is necessary, consider the problem that needs to be solved or the issue that must be addressed. If all that is required is dissemination of information, then a memo or email may be sufficient. If you need information, decide if you can get that information from one person or if a

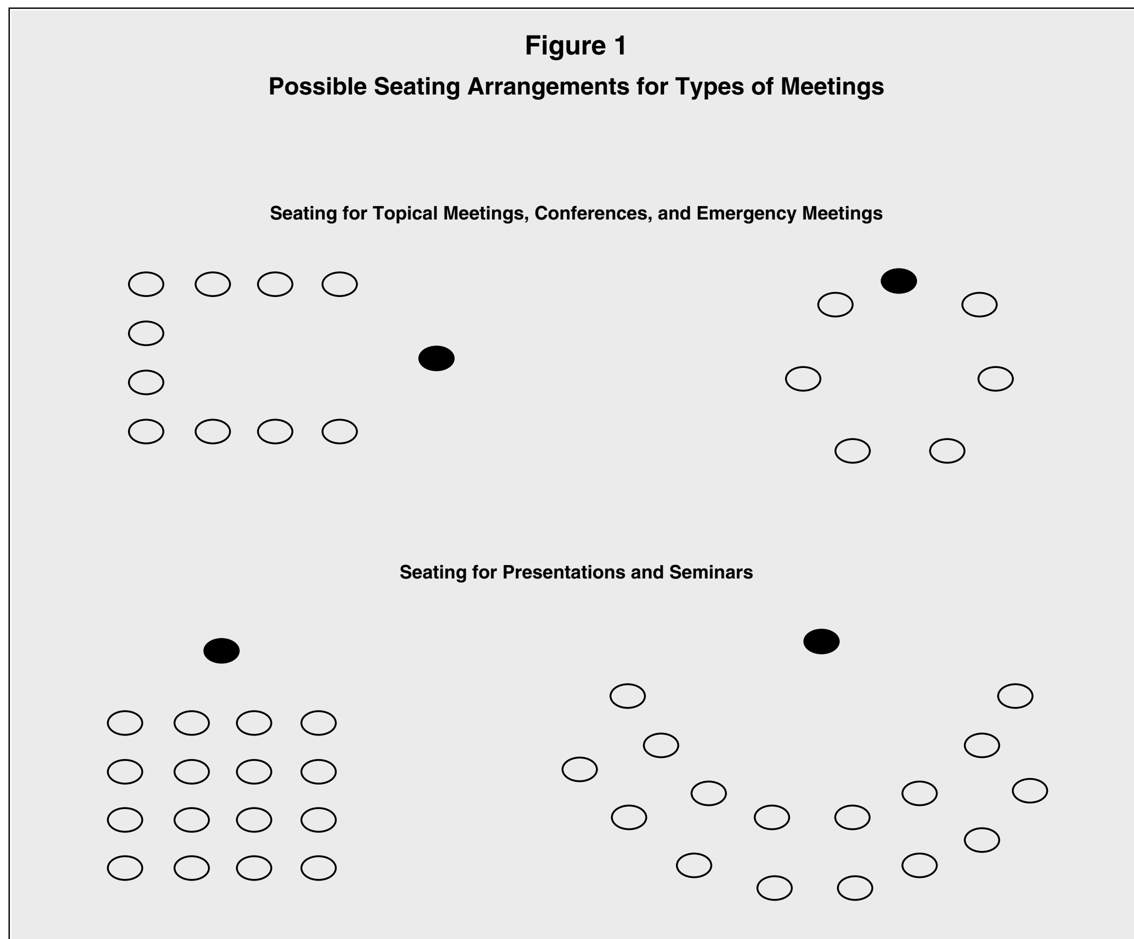

Figure 1
Possible Seating Arrangements for Types of Meetings

meeting with several people is necessary. It is appropriate to call a meeting if you have to solicit information or feedback from a group of people, if a group decision must be made, or if a group will have questions regarding the information being given.

Once you have determined that a meeting is necessary, you must decide who should participate. Consider the goal or purpose of the meeting and be sure to invite those members of the organization who have the information or opinions necessary for the meeting. It may be helpful to ask others for their opinions as to who should attend the meeting, since you may not have all of the necessary information.

After the list of participants has been compiled, the participants should be contacted as soon as possible to ensure that all of the necessary people can attend. When contacting individuals about the meeting, let them know the time, place, and purpose of the meeting.

Additionally, if the meeting participants need to bring any documents or information to the meeting, be sure to ask them specifically for these things. It will be a waste of time to call a meeting without properly preparing yourself and the participants. Finally, if you have scheduled a meeting in advance, give participants a reminder of the meeting time and place as the meeting draws nearer. A quick email or telephone call can remind participants of the meeting.

The final step in preparing for a meeting is to develop a meeting agenda. The agenda should indicate the desired outcome of the meeting, the major topics to address, and the type of action needed. You may also want to list a name of a participant next to an agenda item. For example, an agenda item might be: "Update on monthly sales numbers (Linda Smith)."

By determining which participants will need to be involved with each meeting agenda item, you may discover that a critical person has been overlooked and must be invited to the meeting. If possible, distribute the agenda to the meeting participants before the meeting so that they know what will be discussed and what they will be responsible for doing before and during the meeting. This agenda will also give you and the participants a better idea of how long the meeting should last.

RUNNING A MEETING

Deciding a meeting's purpose and preparing to hold the meeting are critical steps for an effective meeting. However, if the actual meeting is not properly run, it can be a waste of time and resources for

everyone involved. The first and easiest step in running a meeting properly is to start the meeting on time. This indicates respect for meeting participants and their time.

When beginning the meeting, be sure to thank the participants for taking time to attend, and thank those who have done prior preparation for the meeting. Review the purpose of the meeting with the participants and determine who will take minutes of the meeting (if necessary). It may also be necessary to clarify your role in the meeting, which is dependent on the purpose of the meeting.

For instance, if the purpose of the meeting is to come to a group decision on a topic, your role may be to facilitate discussion and decision-making. If the meeting's purpose is to provide information on a new organizational policy and answer questions about that policy, your role will be quite different. You will be an information provider and a representative of the organization. Thus, to ensure smooth interactions in the meeting, it may be helpful to inform participants of your role.

Once the meeting is underway, you may need to establish some guidelines or rules for how the meeting should progress. Many of these guidelines for interaction are understood by members of the organization, but how strong unwritten rules are may depend on the people who attend the meeting. Therefore, there may be times in which it is necessary to establish or reiterate ground rules.

Ground rules might include: meeting attendees must participate in the meeting by providing information or opinions; participants must listen when others are speaking and not interrupt; members must maintain the momentum of the meeting and not get distracted with tangential topics. In some meetings it may be necessary to request that participants maintain confidentiality about what was discussed in the meeting.

Facilitating the meeting can be a daunting task. First, as meeting facilitator, you may have to enforce the established ground rules. For instance, if one participant is dominating discussion and preventing others from voicing opinions, you may need to ask that person to give others a chance to participate. Second, you are responsible for managing the time used in the meetings. It can be very difficult to keep a meeting's momentum and accomplish the tasks set forth in the agenda.

Be mindful of the time, and if necessary, get a meeting participant to help monitor the time. If the time seems to be getting out of hand, you may choose to table a certain topic to be addressed at a later time, or you may ask participants for their suggestions to resolve the impasse and move on.

While it is often difficult to encourage meeting participants to stop discussing a particularly interesting or controversial topic, this is often necessary. At times, you may be able to ask certain participants to gather more information related to a difficult topic, which will be shared in a later meeting and discussed further at that time.

CLOSING THE MEETING

Try to end the meeting on time; if necessary, schedule another meeting to address agenda items that need more time. At the close of the meeting, reiterate any conclusions, decisions, or assignments to participants, so that you are sure that you have summarized the meeting properly. Any meeting minutes should reflect these outcomes of the meeting, so that there is a record of tasks and responsibilities that were decided. Often during the course of the meeting, it is easy to forget specific issues that have been resolved.

In closing the meeting, you may also want to ask participants to evaluate the effectiveness of the meeting. Participants may be able to identify issues that should be addressed in a memo or another meeting. Additionally, participants may tell you that the meeting was unnecessary, which will aid in future meeting planning. Without such evaluation, unnecessary meetings may continue to be scheduled, or you may have some participants who are absent from future meetings, believing them to be a waste of time.

Regardless of the purpose of the meeting or the way in which it progressed, you should try to close the meeting on a positive note. Even if a meeting has involved difficult discussion or disagreements, try to find something positive to mention. This may be a conclusion that has been reached or a decision about the need for more information, or that all participants have voiced their concerns and that those concerns have been heard.

Finally, be sure to thank all participants for coming to the meeting.

AFTER THE MEETING

After the meeting, the most critical task is to disseminate information about the conclusions reached in the meeting. This is easily done by distributing the meeting minutes. However, if minutes have not been taken, you should record important outcomes of the meeting as soon as possible after the meeting. The distribution of information regarding the outcomes of the meeting helps participants know that their voices were heard and that the tasks accomplished in the meeting are recognized.

If tasks were assigned for people to complete after the meeting, distribute those via email, memo, or personal request. It is helpful to remind people of the tasks they were asked to do.

Post-meeting follow-up tasks should be carried out as soon as possible. To keep the momentum of the meeting and of the agenda, it is useful to provide information quickly.

TECHNOLOGY-ENABLED MEETINGS

Technology now allows people in remote locations to meet in a way that is similar to face-to-face meetings. Conference telephone calls and videoconferencing are alternatives when parties cannot meet in person.

Conference calls are made via telephone, and all parties are able to listen to and speak to one another. Many workplace telephones have the ability to place conference calls, and these calls are relatively inexpensive, especially when compared to the cost of an employee or client traveling long distances to attend a meeting.

The major difficulty associated with conference calls is the participants' inability to see one another. Because of this, participants may not know who is speaking; therefore, it is important that individuals identify themselves before speaking. Another problem with not seeing others is that interruptions are common in conference calls; care must be taken to wait for each person to speak in turn. Finally, as with all telephone conversations, facial expressions and eye contact are not possible, and thus, the meaning of a person's words may be lost.

Videoconferencing is done through an Internet connection, and it allows participants to see and hear one another through a video or computer screen. Because participants can see one another, many of the limitations associated with telephone conference calls are eliminated. However, many videoconferences have a short time delay; a person speaking in one location must wait for the others in the other location to receive the message. This means that reactions to speaker may lag such that the speaker cannot easily understand the reaction to his or her words.

Another major drawback to videoconferencing is that, with increasing use of technology, there is a possibility that others will not have adequate or compatible technology, or that the technology will fail. However, despite potential problems, videoconferencing provides much richer information than a conference call and is still less expensive in many cases than having all participants travel to one location.

TROUBLESHOOTING MEETINGS

There are a number of problems that can occur in meeting planning and facilitating. However, if you can determine the cause of the problems, avoiding or eliminating them may lead to more effective meetings.

The first problem that you may encounter in meeting management is when participants do not attend meetings consistently. If participants who need to attend meetings are not coming to them, there may be a number of different reasons why, and as a meeting planner, you need to ask the participant his or her reasons for not attending. If participants are forgetting to come to meetings, you may have to provide more reminders of upcoming meetings or schedule them further in advance. In severe cases, you may even have to personally approach participants immediately before a meeting to remind them of their need to attend.

A more serious problem occurs when participants choose not to attend meetings. It could be that participants feel that meetings are a waste of their time, or perhaps they feel that their contributions are not valued, or they may even dislike other participants enough to not attend. Although difficult, resolving interpersonal problems may be necessary to get needed participants to attend meetings.

A second problem associated with meeting management is when meetings become sidetracked by tangential topics or discussions with no resolution. This problem can be addressed either by improving meeting planning or meeting facilitation. In planning a meeting, if the agenda is not specific enough or if participants do not bring proper information to the meeting, it is easy to get bogged down in discussion that does not result in problem solving. Thus, when meetings become sidetracked, try to determine what the problem is either by observing participants comments or by specifically asking participants what could be done to better focus meetings before they occur.

If the problem is not in the meeting planning, then it is in the facilitation. The facilitator must keep meeting participants on track and speak up if discussion meanders. If a facilitator is unwilling to ask participants to save unrelated comments until a later time, or unable to maintain control over the meeting, it will turn into an unproductive session.

Another problem associated with meeting management is when members do not participate appropriately, either by dominating the discussion or not contributing to the discussion. The facilitator may need to remind participants of meeting etiquette or ground rules or specifically ask some participants to voice their opinions. If a meeting participant is particularly disruptive, it may be necessary for the facilitator to speak to the person outside of the meeting and request that they allow others more opportunity to contribute. In the worst case, a meeting participant may need to be replaced, particularly if bad behavior is detracting from organizational effectiveness.

Successful meeting management is an important management competency. Managers must understand situations that require meetings; the types of meetings;

how to plan, run, and close meetings; and how to manage activities after meetings. Furthermore, managers should be able to troubleshoot problems that arise from organizational meetings and know options for technology-enabled meetings.

SEE ALSO: Group Dynamics; Teams and Teamwork

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MENTORING

Mentors are individuals with advanced experience and knowledge who take a personal interest in helping the careers and advancement of their protégés. Mentors may or may not be in their protégés' chain of command, be employed in the same organization as their protégés, or even be in the same field as their protégés. Mentoring relationships may range from focusing exclusively on the protégé's job functions to being a close friendship that becomes one of the most important relationships in the protégé's life.

Most mentoring relationships are informal, and develop on the basis of mutual identification and the fulfillment of career needs. The mentor may see the protégé as a "diamond in the rough" or a younger version of him or herself, while the protégé, may view the mentor as a competent role model with valued knowledge, skills and abilities. Members of mentoring relationships often report a mutual attraction or chemistry that sparks the development of the relationship.

According to Kathy Kram, mentors provide two primary types of behaviors or roles. First, they provide career development roles, which involve coaching, sponsoring advancement, providing challenging assignments, protecting protégés from adverse forces, and fostering positive visibility. Second, mentors provide psychosocial roles, which involve personal support, friendship, counseling, acceptance, and role modeling. A given mentor may engage in some or all of these roles and these roles may not only vary from relationship to relationship, but may also vary over time in a given relationship.

Kram observes that mentoring relationships pass through four phases: initiation, cultivation, separation, and redefinition. The relationship develops during the initiation and cultivation stages. In initiation, the mentor and protégé meet and first begin to know a little about each other. The real learning occurs in the cultivation stage, where the mentor helps the protégé to grow and develop. The separation stage is typically reached after two to five years, and the relationship may terminate because of physical separation, or because the members no longer need one another. Research indicates that the majority of mentoring relationships end because of physical separation. After separation, the members of the relationship may redefine their relationship as a peer relationship, or may terminate their relationship entirely.

POSITIVE OUTCOMES OF MENTORING RELATIONSHIPS

Mentoring relationships are related to a variety of positive organizational and career outcomes. A number of different research studies indicate that mentored individuals have higher levels of mobility on the job, recognition, promotion, and compensation. Also, employees with mentors report higher levels of learning on the job than those without mentors. Additionally, research indicates that employees with positive mentoring experiences typically feel higher levels of pay satisfaction, career satisfaction, and organizational commitment. Finally, research indicates that the lower levels of turnover that occur with mentored individuals are due, in part, to their higher levels of organizational commitment that may be brought about by the mentoring relationship.

A recent meta-analysis (a statistical technique that combines results from numerous studies to give an "average" finding) conducted by Allen, Eby, Poteet, Lentz, and Lima in 2004 supports these findings. In their analysis of 43 individual studies, they found that individuals who had been mentored had better career outcomes from both career-related and psychosocial mentoring; they were more satisfied with their careers, believed strongly that they would advance in their careers, and were committed to their careers. The meta-analysis indicated that mentored individuals also had better compensation and more promotions that those employees without mentors.

Mentoring relationships may also be beneficial for the mentor. Mentors have reported more benefits than costs to being a mentor, research indicates that key benefits to mentors included a sense of satisfaction and fulfillment, recognition from others, career and job renewal, and support from their protégés.

Finally, mentoring relationships may be beneficial for the organization. Mentoring relationships are a

powerful tool for socializing new employees, for increasing organizational commitment, and for reducing unwanted turnover. Mentoring relationships can foster innovation and revitalize mentors who have reached career plateaus. Because members of the relationship may share different insights and perspectives regarding organizational and societal cultures, mentoring relationships may also be useful in mergers and in international organizations.

GENDER, DIVERSITY, AND MENTORING

Although mentoring relationships are important for all organizational members, they are essential for women and employees of color. Mentors can help these individuals overcome barriers to advancement in organizations and break through the "glass ceiling," the invisible barrier to advancement based on gender biases. Research indicates that a full 91 percent of the female executives surveyed in a Catalyst study reported having a mentor, and the majority of respondents identified mentoring as a key strategy used to break through the glass ceiling.

A mentor can buffer women and people of color from both overt and covert forms of discrimination, and help them navigate the obstacle course to the executive suite. By conferring legitimacy on their female and minority protégés, mentors can alter stereotypic perceptions and send the message that the protégé has the mentor's powerful support and backing. Research indicates that mentors provide "reflected power" to their protégés, and use their influence to build their protégé's power in the organization. Mentors can train their female and minority protégés in the "ins and outs" of corporate politics and provide valuable information on job openings and changes in the organization-information that is typically provided in the "old boys' network."

Although most research indicates that women and people of color are as likely as their majority counterparts to have mentors, women reported greater barriers to getting a mentor than men. Research showed that women were more likely than men to report that mentors were unwilling to mentor them, that supervisors and coworkers would disapprove of the relationship, that they had less access to mentors, and that they were hesitant to initiate the relationship for fear that their efforts would be misconstrued as being sexual by either the mentor or others in the organization. In spite of these reported barriers, women were as likely as men actually to have a mentor, suggesting that women overcame these barriers in order to develop these important relationships. Similarly, other mentoring research indicates that African American protégés were more likely than Caucasian protégés to go outside their departments and formal lines of authority to develop mentoring relationships with higher ranking mentors of the same race. These studies indicate that women and minorities recognize the importance of mentors and are willing to overcome barriers to gaining this critical developmental relationship.

Another obstacle faced by female and minority protégés is that they are more likely than their majority counterparts to be in a "diversified mentoring relationship." Diversified mentoring relationships are composed of mentors and protégés who differ on one or more group memberships associated with power. Because of the scarcity of female and minority mentors at higher organizational ranks, female and minority protégés are more likely than their majority counterparts to be in cross-gender or cross-race relationships. These relationships provide limited role modeling functions, functions that are particularly important for women and employees of color. In addition, individuals in cross-gender relationships are less likely to engage in close friendship and social roles that involve after-work networking activities because of the threat or appearance of romantic involvement.

Female and minority protégés face a certain catch 22: even if they find a female or minority mentor who can provide role modeling functions these mentors may be restricted in helping them advance since women and people of color has less power in organizations than their majority counterparts. In sum, majority protégés obtain mentors who can provide more functions than minority or female protégés, and these functions in turn lead to increased power and more promotions, thus perpetuating the cycle.

One area of diversity that has received recent research attention is the role of age in mentoring relationships. Age has become a more important workplace issues as the large group of American baby boomers ages. Experts suggest that mentors be 8-15 years (a half generation) older than their protégés, so that the age difference is not as large as that of parent and child, and not so small that the mentor and protégé act more as peers. However, not all mentoring relationships have this age span. Research indicates that the mentoring experience differs for protégés based on their age, with younger protégés receiving more career-related mentoring than older protégés.

FORMAL MENTORING RELATIONSHIPS

In recognition of the benefits of mentoring relationships, many organizations attempt to replicate informal mentoring relationships by creating formal mentoring programs. One key difference between formal and informal mentoring relationships is that informal relationships develop spontaneously, whereas formal mentoring relationships develop with organizational assistance or intervention-usually in the form of voluntary assignment or matching of mentors and

protégés. A second distinction is that formal relationships are usually of much shorter duration than informal relationships; formal relationships are usually contracted to last less than a year.

Although many organizations assume that formal relationships are as effective as informal relationships, existing research indicates that this is not the case. Georgia Chao and her associates found that protégés with formal mentoring relationships received less compensation than protégés with informal relationships. Other studies suggest that formal protégés not only received less compensation than informal protégés, but they also reported less psychosocial and career development functions and less satisfaction with their mentors than informal protégés. In fact, individuals with formal mentors did not receive more compensation or promotions than individuals who were not mentored. These researchers also found that women received fewer benefits from formal mentors than men did, indicating that female protégés may have the least to gain form entering a formal mentoring relationship. This research indicates that formal mentors are not a substitute for informal mentoring relationships.

In conclusion, organizations can create an environment that fosters mentoring relationships by structuring diverse work teams that span departmental and hierarchical lines and by increasing informal opportunities for networking and interaction. Organizations can increase the pool of diverse mentors by structurally integrating women and minorities into powerful positions across ranks and departments, and by rewarding these relationships in performance appraisals and salary decisions.

NEGATIVE MENTORING EXPERIENCES

Although there are numerous potential benefits for both the mentor and protégé from the mentoring relationship, it is not always a positive experience. Researchers have identified dysfunctional mentoring relationships in which the needs of either the mentor or protégé are not being met, or the relationship is causing some distress to either of the parties. Negative experiences that have been identified:

- Mentor delegates too much work to the protégé
- Mentor abuses his/her power over the protégé
- Mentor inappropriately takes credit for the protégé's work
- Mentor attempts to sabotage the protégé
- Mentor intentionally deceives the protégé
- Mentor intentionally is unavailable to or excludes protégé
- Mentor neglects protégé's career, or does not provide support
- Mentor is too preoccupied with his/her own career progress
- Mentor lacks technical competence and cannot guide protégé
- Mentor lacks interpersonal competence and cannot interact with protégé
- Poor fit in personality between mentor and protégé
- Poor fit in work styles between mentor and protégé
- Mentor has a bad attitude about the organization or job
- Mentor cannot mentor effectively due to problems in his/her personal life
- Mentor sexually harasses protégé

SEE ALSO: Diversity; Knowledge Management; Training Delivery Methods; Women and Minorities in Management

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MERGERS AND ACQUISITIONS

A merger takes place when two companies decide to combine into a single entity. An acquisition involves one company essentially taking over another company. While the motivations may differ, the essential feature of both mergers and acquisitions involves one firm emerging where once there existed two firms. Another term frequently employed within discussions on this topic is *takeover*. Essentially, the difference rests in the attitude of the incumbent management of firms that are targeted. A so-called friendly takeover is often a euphemism for a merger. A hostile takeover refers to unwanted advances by outsiders. Thus, the reaction of management to the overtures from another firm tends to be the main influence on whether the resulting activities are labeled friendly or hostile.

MOTIVATIONS FOR MERGERS AND ACQUISITIONS

There are a number of possible motivations that may result in a merger or acquisition. One of the most oft cited reasons is to achieve economies of scale. Economies of scale may be defined as a lowering of the average cost to produce one unit due to an increase in the total amount of production. The idea is that the larger firm resulting from the merger can produce more cheaply than the previously separate firms. Efficiency is the key to achieving economies of scale, through the sharing of resources and technology and the elimination of needless duplication and waste. Economies of scale sounds good as a rationale for merger, but there are many examples to show that combining separate entities into a single, more efficient operation is not easy to accomplish in practice.

A similar idea is economies of vertical integration. This involves acquiring firms through which the parent firm currently conducts normal business operations, such as suppliers and distributors. By combining different elements involved in the production and delivery of the product to the market, acquiring firms gain control over raw materials and distribution outlets. This may result in centralized decisions and better communications and coordination among the various business units. It may also result in competitive advantages over rival firms that must negotiate with and rely on outside firms for inputs and sales of the product.

A related idea to economies of vertical integration is a merger or acquisition to achieve greater market presence or market share. The combined, larger entity may have competitive advantages such as the ability to buy bulk quantities at discounts, the ability to store and inventory needed production inputs, and the ability to achieve mass distribution through sheer negotiating power. Greater market share also may result in advantageous pricing, since larger firms are able to compete effectively through volume sales with thinner profit margins. This type of merger or acquisition often results in the combining of complementary resources, such as a firm that is very good at distribution and marketing merging with a very efficient producer. The shared talents of the combined firm may mean competitive advantages versus other, smaller competition.

The ideas above refer to reasons for mergers or acquisitions among firms in similar industries. There are several additional motivations for firms that may not necessarily be in similar lines of business. One of the often-cited motivations for acquisitions involves excess cash balances. Suppose a firm is in a mature industry, and has little opportunities for future investment beyond the existing business lines. If profitable, the firm may acquire large cash balances as managers seek to find outlets for new investment opportunities. One obvious outlet to acquire other firms. The ostensible reason for using excess cash to acquire firms in different product markets is diversification of business risk. Management may claim that by acquiring firms in unrelated businesses the total risk associated with the firm's operations declines. However, it is not always clear for whom the primary benefits of such activities accrue. A shareholder in a publicly traded firm who wishes to diversify business risk can always do so by investing in other companies shares. The investor does not have to rely on incumbent management to achieve the diversification goal. On the other hand, a less risky business strategy is likely to result in less uncertainty in future business performance, and stability makes management look good. The agency problem resulting from incongruent incentives on the part of management and shareholders is always an issue in public corporations. But, regardless of the motivation, excess cash is a primary motivation for corporate acquisition activity.

To reverse the perspective, an excess of cash is also one of the main reasons why firms become the targets of takeover attempts. Large cash balances make for attractive potential assets; indeed, it is often implied that a firm which very large amount of cash is not being efficiently managed. Obviously, that conclusion is situation specific, but what is clear is that cash is attractive, and the greater the amount of cash the greater the potential to attract attention. Thus, the presence of excess cash balances in either acquiring or

target firms is often a primary motivating influence in subsequent merger or takeover activity.

Another feature that makes firms attractive as potential merger partners is the presence of unused tax shields. The corporate tax code allows for loss carry-forwards; if a firm loses money in one year, the loss can be carried forward to offset earned income in subsequent years. A firm that continues to lose money, however, has no use for the loss carry-forwards. However, if the firm is acquired by another firm that is profitable, the tax shields from the acquired may be used to shelter income generated by the acquiring firm. Thus the presence of unused tax shields may enhance the attractiveness of a firm as a potential acquisition target.

A similar idea is the notion that the combined firm from a merger will have lower absolute financing costs. Suppose two firms, X and Y, have each issued bonds as a normal part of the financing activities. If the two firms combine, the cash flows from the activities of X can be used to service the debt of Y, and vice versa. Therefore, with less default risk the cost of new debt financing for the combined firm should be lower. It may be argued that there is no net gain to the combined firm; since shareholders have to guarantee debt service on the combined debt, the savings on the cost of debt financing may be offset by the increased return demanded by equity holders. Nevertheless, lower financing costs are often cited as rationale for merger activity.

One rather dubious motivation for merger activity is to artificially boost earnings per share. Consider two firms, A and B. Firm A has earnings of $1,000, 100 shares outstanding, and thus $10 earnings per share. With a price-earnings ratio of 20, its shares are worth $200. Firm B also has earnings of $1,000, 100 shares outstanding, but due to poorer growth opportunities its shares trade at 10 times earnings, or $100. If A acquires B, it will only take one-half share of A for each share of B purchased, so the combined firm will have 150 total shares outstanding. Combined earnings will be $2,000, so the new earnings per share of the combined firm are $13.33 per share. It appears that the merger has enhanced earnings per share, when in fact the result is due to inconsistency in the rate of increase of earnings and shares outstanding. Such manipulations were common in the 1960s, but investors have learned to be more wary of mergers instigated mainly to manipulate per share earnings. It is questionable whether such activity will continue to fool a majority of investors.

Finally, there is the ever-present hubris hypothesis concerning corporate takeover activity. The main idea is that the target firm is being run inefficiently, and the management of acquiring firm should certainly be able to do a better job of utilizing the target's assets and strategic business opportunities. In addition, there is additional prestige in managing a larger firm, which may include additional perquisites such as club memberships or access to amenities such as corporate jets or travel to distant business locales. These factors cannot be ignored in detailing the set of factors motivating merger and acquisition activity.

TYPES OF TAKEOVER DEFENSES

As the previous section suggests, some merger activity is unsolicited and not desired on the part of the target firm. Often, the management of the target firm will be replaced or let go as the acquiring firm's management steps in to make their own mark and implement their plans for the new, combined entity. In reaction to hostile takeover attempts, a number of defense mechanisms have been devised and used to try and thwart unwanted advances.

To any offer for the firm's shares, several actions may be taken which make it difficult or unattractive to subsequently pursue a takeover attempt. One such action is the creation of a staggered board of directors. If an outside firm can gain a controlling interest on the board of directors of the target, it will be able to influence the decisions of the board. Control of the board often results in de facto control of the company. To avoid an outside firm attempting to put forward an entire slate of their own people for election to the target firm's board, some firms have staggered the terms of the directors. The result is that only a portion of the seats is open annually, preventing an immediate takeover attempt. If a rival does get one of its own elected, they will be in a minority and the target firm's management has the time to decide how to proceed and react to the takeover threat.

Another defense mechanism is to have the board pass an amendment requiring a certain number of shares needed to vote to approve any merger proposal. This is referred to as a supermajority, since the requirement is usually set much higher than a simple majority vote total. A supermajority amendment puts in place a high hurdle for potential acquirers to clear if they wish to pursue the acquisition.

A third defensive mechanism is a fair price amendment. Such an amendment restricts the firm from merging with any shareholders holding more than some set percentage of the outstanding shares, unless some formula-determined price per share is paid. The formula price is typically prohibitively high, so that a takeover can take place only in the effect of a huge premium payment for outstanding shares. If the formula price is met, managers with shares and stockholders receive a significant premium over fair market value to compensate them for the acquisition.

Finally, another preemptive strike on the part of existing management is a poison pill provision.

A poison pill gives existing shareholders rights that may be used to purchase outstanding shares of the firms stock in the event of a takeover attempt. The purchase price using the poison pill is a significant discount from fair market value, giving shareholders strong incentives to gobble up outstanding shares, and thus preventing an outside firm from purchasing enough stock on the open market to obtain a controlling interest in the target.

Once a takeover attempt has been identified as underway, incumbent management can initiate measures designed to thwart the acquirer. One such measure is a dual-class recapitalization; whereby a new class of equity securities is issued which contains superior voting rights to previously outstanding shares. The superior voting rights allow the target firm's management to effectively have voting control, even without a majority of actual shares in hand. With voting control, they can effectively decline unsolicited attempts by outsiders to acquire the firm.

Another reaction to undesired advances is an asset restructuring. Here, the target firm initiates the sale or disposal of the assets that are of primary interest to the acquiring firm. By selling desirable assets, the firm becomes less attractive to outside bidders, often resulting in an end to the acquisition activity. On the other side of the balance sheet, the firm can solicit help from a third party, friendly firm. Such a firm is commonly referred to as a "white knight," the implication being that the knight comes to the rescue of the targeted firm. A white knight may be issued a new set of equity securities such as preferred stock with voting rights, or may instead agree to purchase a set number of existing common shares at a premium price. The white knight is, of course, supportive of incumbent management; so by purchasing a controlling interest in the firm unwanted takeovers are effectively avoided.

One of the most prominent takeover activities associated with liability restructuring involves the issuance of junk bonds. "Junk" is used to describe debt with high default risk, and thus junk bonds carry very high coupon yields to compensate investors for the high risk involved. During the 1980s, the investment-banking firm Drexel Burnham Lambert led by Michael Milken pioneered the development of the junk-bond market as a vehicle for financing corporate takeover activity. Acquisition groups, which often included the incumbent management group, issued junk bonds backed by the firm's assets to raise the capital needed to acquire a controlling interest in the firm's equity shares. In effect, the firm's balance sheet was restructured with debt replacing equity financing. In several instances, once the acquisition was successfully completed the acquiring management subsequently sold off portions of the firm's assets or business divisions at large premiums, using the proceeds to retire some or all of the junk bonds. The takeover of RJR Nabisco by the firm Kohlberg Kravis Roberts & Co. in the late 1980s was one of the most celebrated takeovers involving the use of junk-bond financing.

VALUING A POTENTIAL MERGER

There are several alternative methods that may be used to value a firm targeted for merger or acquisition. One method involves discounted cash flow analysis. First, the present value of the equity of the target firm must be established. Next, the present value of the expected synergies from the merger, in the form of cost savings or increased after-tax earnings, should be evaluated. Finally, summing the present value of the existing equity with the present value of the future synergies results in a present valuation of the target firm.

Another method involves valuation as an expected earnings multiple. First, the expected earnings in the first year of operations for the combined or merged firm should be estimated. Next, an appropriate price-earnings multiple must be determined. This figure will likely come from industry standards or from competitors in similar business lines. Now, the PE ratio can be multiplied by the expected combined earnings per share to estimate an expected price per share of the merged firm's common stock. Multiplying the expected share price by the number of shares outstanding gives a valuation of the expected firm value. Actual acquisition price can then be negotiated based on this expected firm valuation.

Another technique that is sometimes employed is valuation in relation to book value, which is the difference between the net assets and the outstanding liabilities of the firm. A related idea is valuation as a function of liquidation, or breakup, value. Breakup value can be defined as the difference between the market value of the firm's assets and the cost to retire all outstanding liabilities. The difference between book value and liquidation value is that the book value of assets, taken from the firm's balance sheet, are carried at historical cost. Liquidation value involves the current, or market, value of the firm's assets

Some valuations, particularly for individual business units or divisions, are based on replacement cost. This is the estimated cost of duplicating or purchasing the assets of the division at current market prices. Obviously, some premium is usually applied to account for the value of having existing and established business in place.

Finally, in the instances where firms that have publicly traded common stock are targeted, the market value of the stock is used as a starting point in acquisition negotiations. Earlier, a number of takeover defense activities were outlined that incumbent management may employ to restrict or reject unsolicited takeover bids. These types of defenses are not always

in the best interests of existing shareholders. If the firm's existing managers take seriously the corporate goal of maximizing shareholder wealth, then a bidding war for the firm's stock often results in huge premiums for existing shareholders. It is not always clear that the shareholders interests are primary, since many of the takeover defenses prevent the use of the market value of the firm's common stock as a starting point for takeover negotiations. It is difficult to imagine the shareholder who is not happy about being offered a premium of 20 percent or more over the current market value of the outstanding shares.

CURRENT TRENDS IN MERGERS AND ACQUISITIONS

Mergers and Acquisitions were at an all-time high from the late 1990s to 2000. They have slowed down since then—a direct result of the economic slowdown. The reason is simple, companies did not have the cash to buy other companies. In 2005, however, we are seeing a robust economy and corporate profits, which means that businesses have cash. This cash is being used to buy companies—mergers and acquisitions. The end of 2004 saw several deals: Sprint is combining with Nextel, K-Mart Holding Corp is buying Sears, Roebuck & Co., Johnson & Johnson is planning to buy Guidant. These big corporation deals are spurring on an environment triggering more acquisitions. The telecom industry, the banking industry, and the software industry are potential areas for big mergers.

SEE ALSO: Financial Ratios

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MICROECONOMICS

SEE: Economics

MILES AND SNOW TYPOLOGY

In their 1978 book *Organization Strategy, Structure, and Process,* Raymond E. Miles and Charles C. Snow argued that different company strategies arise from the way companies decide to address three fundamental problems: entrepreneurial, engineering (or operational), and administrative problems. The entrepreneurial problem is how a company should manage its market share. The engineering problem involves how a company should implement its solution to the entrepreneurial problem. The administrative problem considers how a company should structure itself to manage the implementation of the solutions to the first two problems. Although businesses choose different solutions to these problems, Miles and Snow suggested that many companies develop similar solutions. As a result, they postulated that there are four general strategic types of organizations: prospector, defender, analyzer, and reactor organizations.

Prospector organizations face the entrepreneurial problem of locating and exploiting new product and market opportunities. These organizations thrive in changing business environments that have an element of unpredictability, and succeed by constantly examining the market in a quest for new opportunities. Moreover, prospector organizations have broad product or service lines and often promote creativity over efficiency. Prospector organizations face the operational problem of not being dependent on any one technology. Consequently, prospector companies prioritize new product and service development and innovation to meet new and changing customer needs and demands and to create new demands. The administrative problem of these companies is how to coordinate diverse business activities and promote innovation. Prospector organizations solve this problem by being decentralized, employing generalists (not specialists), having few levels of management, and encouraging collaboration among different departments and units.

Defender organizations face the entrepreneurial problem of how to maintain a stable share of the market, and hence they function best in stable environments. A common solution to this problem is cost leadership, and so these organizations achieve success by specializing in particular areas and using established and standardized technical processes to maintain low costs. In addition, defender organizations tend to be vertically integrated in order to achieve cost efficiency. Defender organizations face the administrative problem of having to ensure efficiency, and thus they require centralization, formal procedures, and discrete functions. Because their environments change slowly, defender organizations can rely on long-term planning.

Analyzer organizations share characteristics with prospector and defender organizations; thus, they face the entrepreneurial problem of how to maintain their shares in existing markets and how to find and exploit new markets and product opportunities. These organizations have the operational problem of maintaining the efficiency of established products or services, while remaining flexible enough to pursue new business activities. Consequently, they seek technical efficiency to maintain low costs, but they also emphasize new product and service development to remain competitive when the market changes. The administrative problem is how to manage both of these aspects. Like prospector organizations, analyzer organizations cultivate collaboration among different departments and units. Analyzer organizations are characterized by balance—a balance between defender and prospector organizations.

Reactor organizations, as the name suggests, do not have a systematic strategy, design, or structure. They are not prepared for changes they face in their business environments. If a reactor organization has a defined strategy and structure, it is no longer appropriate for the organization's environment. Their new product or service development fluctuates in response to the way their managers perceive their environment. Reactor organizations do not make long-term plans, because they see the environment as changing too quickly for them to be of any use, and they possess unclear chains of command.

Miles and Snow argued that companies develop their adaptive strategies based on their perception of their environments. Hence, as seen above, the different organization types view their environments in different ways, causing them to adopt different strategies. These adaptive strategies allow some organizations to be more adaptive or more sensitive to their environments than others, and the different organization types represent a range of adaptive companies. Because of their adaptive strategies, prospector organizations are the most adaptive type of company. In contrast, reactor organizations are the least adaptive type. The other two types fall in between these extremes: analyzers are the second most adaptive organizations, followed by defenders.

Since business environments vary from organization to organization, having a less adaptive strategy may be beneficial in some environments, such as highly regulated industries. For example, a study of the airline industry in the 1960s and 1970s indicated that the defender airlines were more successful than the prospector airlines in that the business environment changed slowly during this period because of the heavy regulation. Hence, the emphasis on efficiency by the defender airlines worked to their advantage.

On the other hand, prospector organizations clearly have an advantage over the other types of organizations in business environments with a fair amount of flux. Companies operating in mature markets in particular benefit from introducing new products or services and innovations to continue expanding. As Miles and Snow note, no single strategic orientation is the best. Each one—with the exception of the reactor organization—can position a company so that it can respond and adapt to its environment. What Miles and Snow argue determines the success of a company ultimately is not a particular strategic orientation, but simply establishing and maintaining a systematic strategy that takes into account a company's environment, technology, and structure.

FURTHER STUDIES

Scholars have attempted to verify the reliability and validity of the Miles and Snow typology. Such a study by Shortell and Zajac indicated that this typology of strategic orientations and its predictions generally were accurate. They found that prospectors are likely to be the first organizations to adopt new products and services, analyzers are likely to be the first organizations to adopt new managerial procedures and systems, and defenders are usually the first organizations to adopt new production-related technology. Moore carried Miles and Snow's framework to the retail environment, and concluded that the typology is generally applicable to retail contexts.

Other researchers further broadened the scope and applicability of Miles and Snow's typology, relating the strategic approaches strategic decision processes, international strategies, and functional areas within organizations. Subramanian, Fernandes, and Harper found that strategic types differed in terms of how managers perform environmental scanning. Prospectors tended to be more proactive in their scanning, followed by analyzers; defenders tended to be less proactive or "ad hoc."

As an example of the effects of functional expertise in an international context, Naranjo-Gil explored the impact of sophisticated accounting information systems on strategic performance among hospitals in Spain. Findings indicated that performance was enhanced primarily through sophisticated accounting information systems' role in implementing the prospector strategy.

Clearly, the Miles and Snow typology has contributed to our understanding of organizational behavior in a variety of settings. As demonstration for its further applicability, Peng, Tan, and Tong studied firms in the emerging Chinese economy. These authors concluded that the type of firm ownership can help predict strategic group membership. Specifically, state-owned enterprises tended to adopt defender strategies, and privately-owned enterprises tended to adopt prospector strategies. The analyzer orientation

was also represented, most commonly under collective and foreign ownership. Future research efforts aimed at the extension of Miles and Snow's typology to international settings appears warranted.

SEE ALSO: First-Mover Advantage; Generic Competitive Strategies; Innovation; Technology Management

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MISSION AND VISION STATEMENTS

An organizational mission is an organization's reason for existence. It often reflects the values and beliefs of top managers in an organization. A mission statement is the broad definition of the organizational mission. It is sometimes referred to as a creed, purpose, or statement of corporate philosophy and values. A good mission statement inspires employees and provides a focus and direction for setting lower level objectives. It should guide employees in making decisions and establish what the organization does. Mission statements are crucial for organizations to prosper and grow. While studies suggest that they have a positive impact on profitability and can increase shareholder equity, they also support that almost 40 percent of employees do not know or understand their company's mission.

Not only large corporations benefit from creating mission statements but small businesses as well. Entrepreneurial businesses are driven by vision and high aspirations. Developing a mission statement will help the small business realize their vision. Its primary purpose is to guide the entrepreneur and assist in refining the planning process. By developing a strategic plan that incorporates the mission statement, entrepreneurs are more likely to be successful and stay focused on what is important. The mission statement encourages managers and small business owners alike to consider the nature and scope of the business. *Business Week* attributes 30 percent higher return on several key financial measure for companies with well-crafted mission statements.

COMMON ELEMENTS

While mission statements vary from organization to organization and represent the distinctness of each one, they all share similar components. Most statements include descriptions of the organization's target market, the geographic domain, their concern for survival, growth and profitability, the company philosophy, and the organization's desired public image. For example:

> Our mission is to become the favorite family dining restaurant in every neighborhood in which we operate. This will be accomplished by serving a variety of delicious tasting and generously portioned foods at moderate prices. Our restaurants will be clean, fun, and casual. Our guests will be served by friendly, knowledgeable people that are dedicated to providing excellent customer service.

This mission statement describes the target market, which are families and the geographic domain of neighborhoods. It clearly states how it expects to be profitable by offering excellent customer service by friendly, knowledgeable people. When defining the mission statement it is important to take into account external influences such as the competition, labor conditions, economic conditions, and possible government regulation. It is important to remember however, that mission statements that try to be everything to everybody end up being nothing to anybody.

Companies should have mission statements that clearly define expected shareholder returns and they should regularly measure performance in terms of those expected returns. If the major reason for a business's existence is to make a profit then it stands to reason that expectations of profit should be included in the organization's mission. This means that management should reach a consensus about which aspects of the company's profit performance should be measured. These might include margin growth, product quality, market share changes, competitive cost position, and capital structure efficiency.

A mission statement sets the boundaries for how resources should be allocated and what strategic and operational goals should be set. The mission statement should acknowledge the company's strengths and then inform employees where to direct their efforts in order to take advantage of those strengths. Before writing a mission statement organizations should take a look at how they are different from the competition, whether it is in technology, image and name brand, or employees. It can often be thought of as a recipe for success because it not only defines the organization's accomplishments but it also provides employees with directions to help them develop plans and look for opportunities for improvement.

The organization defines what is acceptable behavior through the mission statement. Values and beliefs are the core of a strong mission statement. For example:

> Quality and values will secure our success. We will live by our values, have fun, and take pride in what we do. Our values are to maintain a work environment where people enjoy coming to work, to serve our guests and exceed their expectations, and to be profitable and result oriented.

This mission statement is simple and straightforward. It does not, however, specify the products or target market. The mission statement also provides meaning to the organization by stating not only what goals the company wants to achieve but also why it wants to achieve these goals. It is not effective unless it is challenging and forces workers to establish goals and means to measure the achievement of those goals. A mission statement should inspire employees and get them involved in the organization. It has been called the glue that holds the organization together through shared values and standards of behavior. A mission statement should be relevant to the history, culture, and values of the company.

Many statements refer to the social responsibility of the organization. For example, a company can show their concern for the community in the following:

> To be involved as good corporate citizens wherever we are around the world. We will treat customers and distributors with honesty, courtesy, and respect. We will respect and preserve the environment. Through all of this we will prove to be the worldwide leader in industry trade.

One important issue in organizations today is the concern with diversity. While it is not a traditional point included in mission statements, more and more companies are including it because of the globalization of the economy and the increased diversity of the workforce.

Before writing a mission statement, leaders in the organization must have an idea of what is in store for the future. This vision is the foundation for the mission statement. The vision provides a strategic direction, which is the springboard for the mission and its related goals. A vision statement differs from a mission statement. Vision statements are a view of what an organization is striving to become. For example:

> To bring back to neighborhoods all over America the importance of family unity. We will view ourselves as a family so these attributes will be carried over into our service.

They guide an organization into the future while mission statements are a reflection of the present. Because vision statements are a glimpse into the future, they are often not realized for several years. Organizations go through many changes and can face times of confusion and uncertainty. Changes are not always expected or easy, so a well thought out vision statement will help everyone stay focused and meet the organization's goals.

Some examples of well-known companies' mission statements:

- Wal-Mart: "To give ordinary folk the chance to buy the same thing as rich people."
- 3M: "To solve unsolved problems innovatively."
- Walt Disney: "To make people happy."

Historically, these may have seemed arrogant. But consider the outcome of the following mission statements from each company's early days:

- Ford Motor Company: "Ford will democratize the automobile."
- Sony: "Become the company most know for changing the world-wide poor-quality image of Japanese products."
- Wal-Mart: "Become a $125 billion company by the year 2000."

WRITING A MISSION STATEMENT

When creating a mission statement there are a few simple guidelines that can be followed. It is important to remember the basics so the mission state-

ment stays simple and straight to the point. Some researchers agree that it should be kept to between 30 and 60 words, while others believe it does not necessarily have to be that brief. Some organizations have mission statements that are only one sentence, while others are a paragraph. An example of a mission statement that is limited to one sentence is “Our business is selling houses and our mission is total customer satisfaction.” At a minimum, each mission statement should answer the following three questions: (1) What are the opportunities or needs the organization addresses? (2) What does the organization do to address those needs? and (3) What principles and values guide the organization? In other words, defining the organization’s purpose, business and values.

Avoiding jargon and buzzwords will keep the mission statement clear and easy to understand. It should be universal and simple to comprehend for all employees in the organization. It should be unique and identify the organization. A mission statement is often what sets one company apart from the competition. It should outline the organization’s competitive advantages and differentiate it from everyone else. Specific products/services offered as well as markets or customers should be included. Also a general business definition, behavioral standards, and desired competitive position can be added to a strong mission statement.

EMPLOYEE INVOLVEMENT

It is often helpful to allow company-wide input when creating a mission statement. This “bottom up” approach results in greater commitment to the organization and a better understanding of the organization. Employees from throughout the organization can help identify the core values of the company. In order to encourage employee participation, many companies have created competitions inviting employees to submit suggestions. Cash prizes are sometimes provided as an incentive for creative and inspirational statements. Some companies find it useful to invite customers to assist in writing a mission statement because they can provide an honest perspective. Another option is to review mission statements from other companies. This can help provide ideas as the writing process begins.

It is important to keep in mind that there will be a draft process involved in creating the mission statement. Employees can often provide invaluable insight on how to improve on each draft. In the end, the mission statement should reflect the personality of the organization. Thus, each company should be creative and unique in developing its own statement. Creating a mission committee that consists of members of management, frontline employees, and customers is another way to begin writing a mission statement. The major benefit of this strategy is the inclusion of all areas of the organization to ensure that everyone is represented. Another benefit is that employees will be more willing to work toward accomplishing the mission if they know they had a voice in its creation.

A “top down” approach can be effective in smaller organizations or even sole proprietorships. There is less time involved in creating a mission statement when it comes from the top. Also, many times frontline employees and lower level managers lack the insight necessary to see the big picture. They may not be able to conceptualize the entire organization and therefore miss important aspects of the business. Participation may not always be a good option for small businesses. In small businesses that are started by entrepreneurs the mission statement is generally a vision of an individual and therefore may not be negotiable. When the mission statement comes from upper management, employees are more assured of the organization’s commitment to the statement.

A word of caution should be noted when deciding whether to adopt a “top down” approach or a “bottom up” approach. If the mission statement is to be created with a wide variety of input from both employees and customers then it will take longer than a “top down” approach. There must be a sharing of views and ideas with compromises made. A consensus should be developed without the problems associated with groupthink. There is always the possibility that too much compromise will distort the mission statement and the end result is something different from the original intent. The “top down” approach is not always effective because it rarely consults employees when making important decisions. Therefore, although it is the fastest route to take it isn’t always the most effective. While the mission statement should be able to change with the times it is also understood to have a certain degree of permanence. As new businesses begin to grow and hire more employees the mission statement should provide a strong sense of stability and a clear definition of the culture.

A mission statement is worthless unless it has the support of the employees in the organization. It will only be successful if each employee commits to its success and internalizes it. Once the statement is completed it is extremely important that the organization not put it on the shelf to collect dust. It should be shared with the entire company. The introduction of the mission statement should come directly from top management in order to set the example. Organizations should be creative in making employees aware of the mission statement. Placing it strategically in locations where employees gather will increase awareness and remind them of the goals of the organization. Videos outlining the details of the new mission statement are often useful; however, it is critical that employees have the opportunity to discuss the statement with members of management. Setting up meetings with

members of management and frontline employees can often help uncover areas where the company does not meet the standards set by the mission statement. Communicating the mission statement to customers will make them feel valued and important. It can be sent to customers in a mass mailing or posted on signs in areas those customers frequent. It sets forth the goals of the organization so customers know what to expect when doing business with the company.

SWOT ANALYSIS

SWOT is an acronym for strengths, weaknesses, opportunities, and threats. SWOT analysis is a strategic planning tool that helps an organization match its internal strengths and weaknesses with external opportunities and threats. SWOT analysis is important and useful in creating and executing the organization's mission statement. Often the best strategies for accomplishing the organization's mission are revealed through the SWOT analysis. The best strategies are those that take advantage of strengths and opportunities, offset threats, and improve weaknesses.

Organizations should first begin by reviewing internal strengths and weaknesses. When analyzing an organization's strengths it is important to identify distinctive competencies or strengths possessed by only a few competing firms. These distinctive competencies often become the competitive advantages that are included in the mission statement. Distinctive competencies can be found in financial resources, quality products and services, proprietary technology, or cost advantages. Organizational weaknesses are skills and capabilities that prevent an organization from implementing strategies that achieve its mission. They can be problems with facilities, lack of a clear strategic direction, internal operating problems, too narrow a product line, weak market image, or the inability to finance changes.

The next step is to identify external opportunities and threats. Organizational opportunities are circumstances in an organization's environment that if capitalized on will result in above normal increases in economic performance. Examples of opportunities are related to the possibility of adding a new product line, increasing market growth, or diversifying into related products. Threats are viewed as circumstances that give rise to normal or below normal economic performance. They can be found in the ease of entry of competitors, increased sales of substituted products, demographic changes, slowed market growth, or increased competition.

EVALUATION

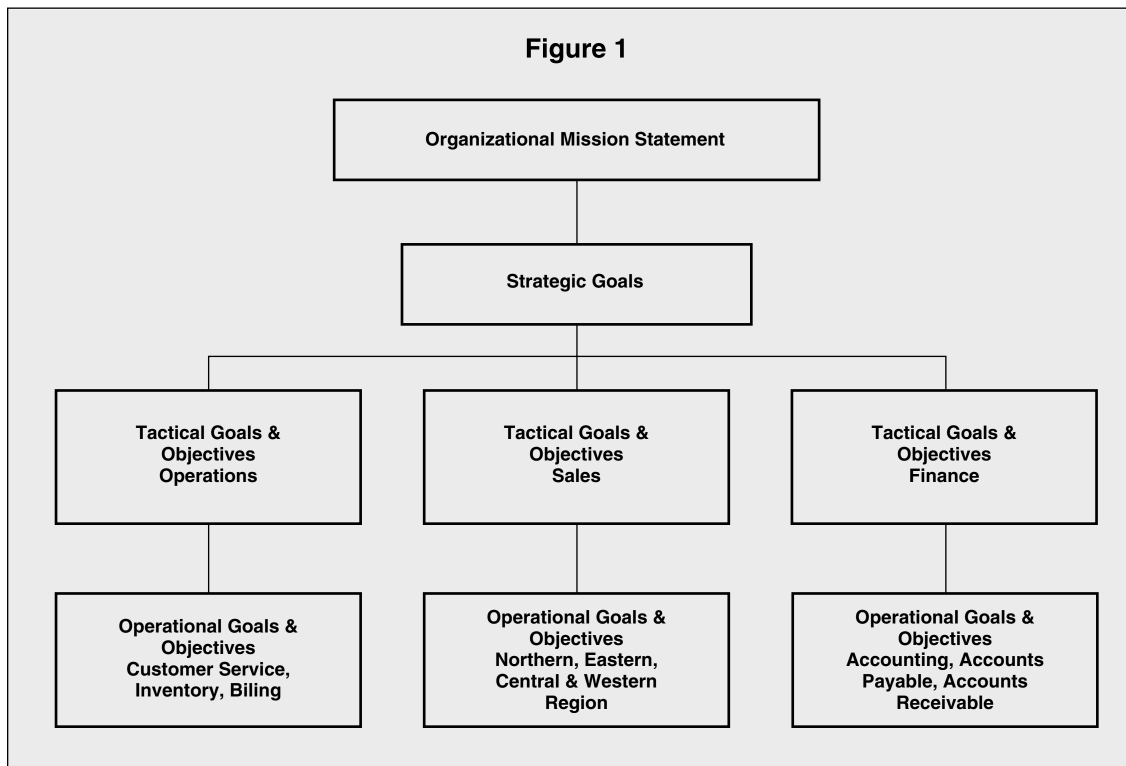
Evaluation of the mission statement is necessary to ensure the organization is meeting its goals. If needed, new goals may have to be created in order to accommodate changes in the organization. It may be time to reevaluate what the organization is doing or where it is headed. This is a good time to think about entering into new areas or to begin doing things differently by rewriting part or all of the mission and vision statements.

In evaluating an organization's performance, management must look at several different aspects of the organization. First, managers need to determine if the organization's plans are clearly linked to its mission statement and related goals. Plans should be developed for both the short run and long run. Secondly, assigning jobs that are directly related to the achievement of organizational goals will help ensure they are attained. The goals should be communicated clearly so employees understand what tasks need to be carried out and what the rewards will be. Finally, when evaluating individual performance, the information gathered should be recent and compared to established standards.

Mission statements are often difficult to evaluate because they are written in a somewhat abstract form. They are, many times, not directly measurable and vaguely worded. Figure 1 presents an example of how mission statements can be measured from the top of the organization to the bottom. Strategic goals are directly tied to the organization's mission statement and apply to the organization as a whole. Tactical goals are departmental goals that support the strategic goals. Finally, operational goals are written at the individual level. Each one of these makes it possible to measure the organization's mission statements. An organization's likelihood of accomplishing its mission is increased as it creates strong and measurable goals at each level.

It is not necessary that the mission statement be measured in quantifiable terms. It may also be measured qualitatively. For example, "We will answer all of our customers' questions and if we don't know the answer, we will find out." While this is not a quantitative statement it can be measured by monitoring customer service calls and setting operational goals for employees that revolve around follow up and thoroughness.

Mission and vision statements give organizations a focus and a strategy for the future. According to Bart and Tabone, they have become the cornerstones of organizations. They contribute to organizations' success and can lead to increases in productivity and performance. They do not have to be reserved for the entire organization—each department or division can benefit from developing a mission statement, as long as they are not in contradiction to the company's overall mission. Preferably, an individual department's mission links it to the fulfillment of the overall company mission. Mission statements for functional



departments provide the same benefits as they do for the entire organization.

In conclusion, mission statements provide a sense of direction and purpose. In times of change and growth they can be an anchor and a guide in decision making. The benefits far outweigh the disadvantages and challenges when looking at the potential for increases in profitability and returns. Defining an organization by what it produces and who it satisfies are major steps towards creating a sound and stable mission statement. Setting a company apart from the competition is probably one of the biggest advantages.

SEE ALSO: Strategic Planning Failure; Strategic Planning Tools; Strategy Formulation; Strategy Implementation; SWOT Analysis

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MODELS AND MODELING

A model is an abstraction of reality or a representation of a real object or situation. In other words, a model presents a simplified version of something. It may be as simple as a drawing of house plans, or as complicated as a miniature but functional representation of a complex piece of machinery. A model airplane may be assembled and glued together from a kit by a child, or it actually may contain an engine and a rotating propeller that allows it to fly like a real airplane.

Figure 1
Types of Models

PHYSICAL					
Iconic			Analog		

SCHEMATIC	
Graphs & Charts	Diagrams & Drawings

VERBAL

MATHEMATICAL					
Use		Degree of Randomness		Degree of Specificity	
description	optimization	deterministic	probabilistic	specific	general

A more useable concept of a model is that of an abstraction, from the real problem, of key variables and relationships. These are abstracted in order to simplify the problem itself. Modeling allows the user to better understand the problem and presents a means for manipulating the situation in order to analyze the results of various inputs ("what if" analysis) by subjecting it to a changing set of assumptions.

MODEL CLASSIFICATIONS

Some models are replicas of the physical properties (relative shape, form, and weight) of the object they represent. Others are physical models but do not have the same physical appearance as the object of their representation. A third type of model deals with symbols and numerical relationships and expressions. Each of these fits within an overall classification of four main categories: physical models, schematic models, verbal models, and mathematical models.

PHYSICAL MODELS. Physical models are the ones that look like the finished object they represent. Iconic models are exact or extremely similar replicas of the object being modeled. Model airplanes, cars, ships, and even models of comic book super-heroes look exactly like their counterpart but in a much smaller scale. Scale models of municipal buildings, shopping centers, and property developments such as subdivisions, homes, and office complexes all hopefully look exactly as the "real thing" will look when it is built. The advantage here is the models' correspondence with the reality of appearance. In other words, the model user can tell exactly what the proposed object will look like, in three dimensions, before making a major investment.

In addition to looking like the object they represent, some models perform as their counterparts would. This allows experiments to be conducted on the model to see how it might perform under actual operating conditions. Scale models of airplanes can be tested in wind tunnels to determine aerodynamic properties and the effects of air turbulence on their outer surfaces. Model automobiles can be exposed to similar tests to evaluate how wind resistance affects such variables as handling and gas mileage. Models of bridges and dams can be subjected to multiple levels of stress from wind, heat, cold, and other sources in order to test such variables as endurance and safety. A scale model that behaves in a manner that is similar to the "real thing" is far less expensive to create and test than its actual counterpart. These types of models often are referred to as prototypes.

Additionally, some physical models may not look exactly like their object of representation but are close enough to provide some utility. Many modern art statues represent some object of reality, but are so different that many people cannot clearly distinguish the object they represent. These are known as analog models. An example is the use of cardboard cutouts to represent the machinery being utilized within a manufacturing facility. This allows planners to move the

shapes around enough to determine an optimal plant layout.

SCHEMATIC MODELS. Schematic models are more abstract than physical models. While they do have some visual correspondence with reality, they look much less like the physical reality they represent. Graphs and charts are schematic models that provide pictorial representations of mathematical relationships. Plotting a line on a graph indicates a mathematical linear relationship between two variables. Two such lines can meet at one exact location on a graph to indicate the break-even point, for instance. Pie charts, bar charts, and histograms can all model some real situation, but really bear no physical resemblance to anything.

Diagrams, drawings, and blueprints also are versions of schematic models. These are pictorial representations of conceptual relationships. This means that the model depicts a concept such as chronology or sequence. A flow chart describing a computer program is a good example. The precedence diagrams used in project management or in assembly-line balancing show the sequence of activities that must be maintained in order to achieve a desired result.

VERBAL MODELS. Verbal models use words to represent some object or situation that exists, or could exist, in reality. Verbal models may range from a simple word presentation of scenery described in a book to a complex business decision problem (described in words and numbers). A firm's mission statement is a model of its beliefs about what business it is in and sets the stage for the firm's determination of goals and objectives.

Verbal models frequently provide the scenario necessary to indicate that a problem is present and provide all the relevant and necessary information to solve the problem, make recommendations, or at least determine feasible alternatives. Even the cases presented in management textbooks are really verbal models that represent the workings of a business without having to take the student to the firm's actual premises. Oftentimes, these verbal models provide enough information to later depict this problem in mathematical form. In other words, verbal models frequently are converted into mathematical models so that an optimal, or at least functional, solution may be found utilizing some mathematical technique. A look in any mathematics book, operations management book, or management science text generally provides some problems that appear in word form. The job of the student is to convert the word problem into a mathematical problem and seek a solution.

MATHEMATICAL MODELS. Mathematical models are perhaps the most abstract of the four classifications. These models do not look like their real-life counterparts at all. Mathematical models are built using numbers and symbols that can be transformed into functions, equations, and formulas. They also can be used to build much more complex models such as matrices or linear programming models. The user can then solve the mathematical model (seek an optimal solution) by utilizing simple techniques such as multiplication and addition or more complex techniques such as matrix algebra or Gaussian elimination. Since mathematical models frequently are easy to manipulate, they are appropriate for use with calculators and computer programs. Mathematical models can be classified according to use (description or optimization), degree of randomness (deterministic and stochastic), and degree of specificity (specific or general). Following is a more detailed discussion of mathematical model types.

TYPES OF MATHEMATICAL MODELS

DESCRIPTIVE MODELS. Descriptive models are used to merely describe something mathematically. Common statistical models in this category include the mean, median, mode, range, and standard deviation. Consequently, these phrases are called "descriptive statistics." Balance sheets, income statements, and financial ratios also are descriptive in nature.

OPTIMIZATION MODELS. Optimization models are used to find an optimal solution. The linear programming models are mathematical representations of constrained optimization problems. These models share certain common characteristics. Knowledge of these characteristics enables us to recognize problems that can be solved using linear programming.

For example, suppose that a firm that assembles computers and computer equipment is about to start production of two new types of computers. Each type will require assembly time, inspection time, and storage space. The amounts of each of these resources that can be devoted to the production of the computers is limited. The manager of the firm would like to determine the quantity of each computer to produce in order to maximize the profit generated by their sale. In order to develop a suitable model, the manager has obtained the information in Table 1.

Table 1

	Type 1	Type 2
Profit per unit	$60	$50
Assembly time per unit	4 hours	10 hours
Inspection time per unit	2 hours	1 hour
Storage space per unit	3 cm^3	3 cm^3

Resource	Amount available
Assembly time	100 hours
Inspection time	22 hours
Storage space	39 cm^3

In this problem, the total impact of each type of computer on the profit and each constraint is a linear function of the quantity of that variable. By completing the model with the relevant constraints, the user has a suitable model for determining the quantity of each computer to produce in order to maximize (the optimum) the firm's profit. Optimization also can mean minimization when referring to financial losses, scrap, rework, time, or distance. Again, optimization models may be used in this sense.

DETERMINISTIC MODELS. Deterministic models are those for which the value of their variables is known with certainty. In a previous example, the manager knew profit margins and constraint values with certainty. This makes the linear programming model a deterministic optimization model.

Models that have values that are not known with certainty are said to be *stochastic or probabilistic models.* For example, a manufacturer that is having trouble deciding whether to build a large or small facility knows that the solution to this capacity problem depends upon the volume of demand that materializes. High demand would require a large facility while low demand would require a small facility. While the manufacturer has no way of knowing with certainty what demand will be, it can at least determine the probability of the occurrence of each. For example, if the manufacturer estimates that the probability of the occurrence of high demand is 70 percent and the occurrence of low demand is 30 percent, it can use this information along with the monetary value (expected payoff) of each situation to construct mathematical models such as payoff matrices or decision trees to find an optimal decision (see Table 2).

Table 2

	High demand (70%)	Low demand (30%)
Large facility	$5,000.00	(-$2,000.00)
Small facility	$3,000.00	$3,000.00

This type of model can be said to be a stochastic optimization model. Some models can even be very similar with the degree of randomness being the key differentiator. For example, in project management techniques, program evaluation and review technique (PERT) and the critical path method (CPM) are very similar except that CPM is used whenever the required time to complete the activities is known and PERT is used whenever the required activity times are not known but can be estimated. CPM is considered to be deterministic while PERT generally is said to be probabilistic. Once the activity times are established, the two techniques are virtually the same throughout the remainder of the problem's completion.

SPECIFIC MODELS. Specific models apply to only one situation or model one unique reality. The previous examples of profit function (descriptive), objective function (optimization), and payoff matrix (probabilistic) are all specific models. In other words, the values established in the model are relevant for that one unique situation. Linear programming models can be said to be deterministic specific, while decision trees can be called probabilistic specific models.

GENERAL MODELS. General models can be utilized in more than one situation. For example, the question of how much to order is determined by using an economic order quantity (EOQ) model. EOQ models identify the optimal order quantity by minimizing the sum of certain annual costs that vary with order size. On the other hand, the question of how much should be ordered for the next (fixed) interval is determined by the fixed order interval (FOI) model, which is used when orders must be placed at fixed time intervals (weekly, twice, etc.).

USING THE CLASSIFICATIONS

Knowing the type of model that is required provides the user with some advantage when converting a verbal model to a mathematical model. For example, if the decision maker reads the verbal model and determines that the situation is probabilistic and uses situation-specific variables, he or she might seek to convert the verbal model to a payoff matrix or a decision tree (both examples of stochastic/probabilistic specific models).

BENEFITS OF MODEL USE

The goal of modeling use is to adequately portray realistic phenomenon. Once developed properly, a great deal can be learned about the real-life counterpart by manipulating a model's variables and observing the results.

Real-world decisions involve an overwhelming amount of detail, much of which may be irrelevant for a particular problem or decision. Models allow the user to eliminate the unimportant details so that the user can concentrate on the relevant decision variables that are present in a situation. This increases the opportunity to fully understand the problem and its solution.

In his book, *Operations Management,* William J. Stevenson lists nine benefits of models:

1. Models generally are easy to use and less expensive than dealing with the actual situation.
2. Models require users to organize and sometimes quantify information and, in the process, often indicate areas where additional information is needed.

3. Models provide a systematic approach to problem solving.
4. Models increase understanding of the problem.
5. Models enable managers to analyze "what if" questions.
6. Models require users to be very specific about objectives.
7. Models serve as a consistent tool for evaluation.
8. Models enable users to bring the power of mathematics to bear on a problem.
9. Models provide a standardized format for analyzing a problem.

MODEL CONSTRUCTION

The accuracy of the results of the model analysis is dependent upon how well the model represents reality. The closer the model is to its actual counterpart, the more accurate the conclusions drawn and the predictions made about the object of attention. Hence, the model user must strive for the most accurate representation possible. Model users also must be careful to identify the decision variable values that provide the best output for the model. This is referred to as the model's optimal solution. However, the model user also must be careful not to include irrelevant variables that may cloud the picture and cause inaccurate conclusions or force the model user to spend an unnecessary amount of time in analysis.

In their book *Operations Management: Concepts, Methods, and Strategies,* Mark Vonderembse and Gregory White present a step-by-step process for successfully building a useful model:

1. Define the problem, decision, situation, or scenario and the factors that influence it.
2. Select criteria to guide the decision, and establish objectives. A perfect example of this is the use of heuristics in assembly-line balancing to guide the decision and the criteria of maximizing efficiency/minimizing idle time as an objective.
3. Formulate a model that helps management to understand the relationships between the influential factors and the objectives the firm is trying to achieve.
4. Collect relevant data while trying to avoid the incorporation of superfluous information into the model.
5. Identify and evaluate alternatives. Once again, the example of assembly-line balancing is appropriate. The user can manipulate the model by changing the heuristics and comparing the final results, ultimately finding an optimal solution through trial-and-error. However, the production of alternatives may not be necessary if the model in use initially finds an optimal solution.
6. Select the best alternative
7. Implement the alternative or reevaluate

If the user is not familiar with models and their use, he or she would be wise to study the variety of models that are available for use and seek to understand their purpose and how each is used to generate results. Additionally, the user would be well served to learn how the individual model's results are interpreted and used, and what assumptions and limitations apply to each.

ADVANTAGES AND DISADVANTAGES

Models provide the most effective means developed for predicting performance. It is hard to conceive a prediction system that is not finally a model. To construct a model of a real process or system, careful consideration of the system elements that must be abstracted is required. This in itself usually is a profitable activity, for it develops insights into the problem. When building a model, we are immediately struck with the magnitude of our ignorance. What do we really know? Where are the gaps in available data? It is often impractical or impossible to manipulate the real world system in order to determine the effect of certain variables. Business systems are typical, for in order to use the business system itself as a laboratory could be disastrous and very costly. The dangers in using predictive models lie in the possibility of oversimplifying problems to keep models in workable form. The decision maker may place too much faith in a seemingly rigorous and complete analysis.

It is important for the model user to realize that model development and model solution are not completely separable. While the most accurate representation possible may seem desirable, the user still must be able to find a solution to the modeled problem. Model users need to remember that they are attempting to simplify complex problems so that they may be analyzed easily, quickly, and inexpensively without actually having to perform the task. Also desirable is a model that allows the user to manipulate the variables so that "what if" questions can be answered.

Models come in many varieties and forms, ranging from the simple and crude to the elegant and exotic. Whatever category they are in, all models share the distinction of being simplifications of more complex realities that should, with proper use, result in a useful decision-making aid.

Models are important and widely used in management. Marketing managers utilize the product life cycle model to facilitate understanding of the phases of product life. Accounting managers use ratios, such as the current ratio and the quick ratio, to quickly grasp the ability of an organization to pay its bills in the short term. Information systems managers have flow diagrams to depict the logic needed to develop a computerized order-entry system. Financial managers use net present value and internal rate of return in analyzing investment alternatives. Operations managers have precedence diagrams, decision trees, lot sizing models, material requirements planning, assembly-line balancing, and a host of other models they can use to make better decisions. Organizational performance is a result of the decisions that management makes. Models make these decisions easier to understand and often can lead to an optimal choice.

SEE ALSO: Decision Making; Decision Rules and Decision Analysis; Decision Support Systems

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MORALE

From a managerial perspective, morale embodies the collective spirit and motivation of a group of employees. Other terms used to designate this concept include *espirit* and *espirit de corps.* In fact, espirit de corps was one of the first management principles identified by Henri Fayol in the early 1900s. Employee morale is how employees actually feel about themselves as workers, their work, their managers, their work environment, and their overall work life. It incorporates all the mental and emotional feelings, beliefs, and attitudes that individuals and groups hold regarding their job.

Consideration of employee morale and job satisfaction was a major emphasis of the behavioral school of management that started with the famous Hawthorne Experiments in the late 1930s. The behavioral school held that employee morale influences employee productivity. Theorists, such as Hertzberg, conducted research in the 1950s and 1960s indicating that employees' satisfaction and motivation were influenced more by how employees felt about their work than the specific attributes of their job, including pay and workplace surroundings.

Some organizations try to measure morale on a formal basis by conducting morale audits or attitude surveys that indicate the level of employee job satisfaction. Such measures, however, are fraught with ambiguities; it is difficult, if not impossible, to determine the level of truthfulness of employees' answers or the complexity of the variables. For instance, employees may have a very different level of job satisfaction regarding their company, their pay, their benefits, their profession, and their specific department's policies. Getting a true overall measure of what employees are feeling about their work is therefore difficult to obtain and to interpret. Since there are many variables at play, morale is not always directly linked to productivity, absenteeism, turnover, sales, etc. Nonetheless, morale is widely accepted as important to motivation and team building. The challenge for managers, then, is to negotiate these disparate factors in the manner that most contributes to the overall spirit of the employees.

The major determinant of morale is, in fact, the manager. Employees form their attitudes about work based primarily on their interactions with the supervisors and managers they work with every day. Since no two employees or companies are the same, it isn't easy to construct a stable model of managerial techniques that will consistently contribute to high morale across the board. Nevertheless, most employees respond positively to certain managerial practices. Some suggested morale-boosters include:

- practicing of fairness and consistency
- bestowing praise in public while leveling criticism in private
- encouraging humor and fun in the workplace
- communication, communication, communication
- listening and remaining receptive to new ideas
- getting to know something about employees' personal lives and treating them as individuals
- creating opportunities for employees to learn and grow
- sharing decision making and offering employees choices
- promoting from within
- leading by example

Organizations have tried scores of techniques to increase morale. The National Alliance for Youth Sports believes creating an atmosphere of fun and camaraderie goes a long way toward maintaining a high level of morale. Every Friday morning the first 30 minutes of the workday is spent with the 35-member staff broken into five teams to compete in different types of games, including miniature golf and Frisbee football. After the games, the workday begins with smiles all around. Symbiosis Corporation, a fast-growing Miami-based producer of medical products, uses mentors to build morale of nonexempt hourly employees by supporting personal growth and promoting a sense of belonging. After the pilot project recorded improvements in attitudes, productivity, and morale, Symbiosis expanded the program. Illinois Trade, located in Glenview, Illinois, surveyed its employees and found that many of its workers were interested in alternative remedies not covered by conventional medical insurance. To respect its workers' interests, Illinois Trade agreed to pay for herbal therapy and other forms of alternative medical care, and allows employees to receive a free massage on company time once a month.

In order to allow employees a sense of balance in their lives, some companies provide benefits that help employees run a household and put in a productive day at the office. Employees at Wilton Connor Packaging in Charlotte, North Carolina, can take their laundry to work and have it washed, dried, and folded for the cost of the soap; while at PepsiCo's headquarters employees are provided an on-site dry cleaning drop-off. Some companies offer concierge services that run errands and send someone to be at an employee's home for a delivery. Many companies also provide on-site child care, elder care, and fitness centers for their employees and their families.

To retain employees in an increasingly competitive marketplace, organizations must reinforce managerial techniques that foster a high degree of employee morale. Managers can make a difference by following common morale-boosting strategies, trying to provide their employees with supportive working environments, and incorporating creative techniques that make employees feel fulfilled personally and as part of a larger entity in which he or she feels integrated. The best managers take care of their employees so their employees can take care of business.

SEE ALSO: Human Resource Management; Quality of Work Life

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MOTIVATION AND MOTIVATION THEORY

The term *motivation* is derived from the Latin word *movere,* meaning "to move." Motivation can be broadly defined as the forces acting on or within a person that cause the arousal, direction, and persistence of goal-directed, voluntary effort. Motivation theory is thus concerned with the processes that explain why and how human behavior is activated.

The broad rubric of motivation and motivation theory is one of the most frequently studied and written-about topics in the organizational sciences, and is considered one of the most important areas of study in the field of organizational behavior. Despite the magnitude of the effort that has been devoted to the study of motivation, there is no single theory of motivation that is universally accepted. The lack of a unified theory of motivation reflects both the complexity of the construct and the diverse backgrounds and aims of those who study it. To delineate these crucial points, it is illuminating to consider the development of motivation and motivation theory as the objects of scientific inquiry.

HISTORICAL DEVELOPMENT

Early explanations of motivation focused on instincts. Psychologists writing in the late 19th and early twentieth centuries suggested that human beings were basically programmed to behave in certain ways, depending upon the behavioral cues to which they were exposed. Sigmund Freud, for example, argued that the most powerful determinants of individual behavior were those of which the individual was not consciously aware.

According to *Motivation and Leadership at Work* (Steers, Porter, and Bigley, 1996), in the early twentieth century researchers began to examine other possible explanations for differences in individual motivation. Some researchers focused on internal drives as an explanation for motivated behavior. Others studied the

effect of learning and how individuals base current behavior on the consequences of past behavior. Still others examined the influence of individuals' cognitive processes, such as the beliefs they have about future events. Over time, these major theoretical streams of research in motivation were classified into two major schools: the content theories of motivation and the process theories of motivation.

MAJOR CONTENT THEORIES

Content (or need) theories of motivation focus on factors internal to the individual that energize and direct behavior. In general, such theories regard motivation as the product of internal drives that compel an individual to act or move (hence, "motivate") toward the satisfaction of individual needs. The content theories of motivation are based in large part on early theories of motivation that traced the paths of action backward to their perceived origin in internal drives. Major content theories of motivation are Maslow's hierarchy of needs, Alderfer's ERG theory, Herzberg's motivator-hygiene theory, and McClelland's learned needs or three-needs theory.

MASLOW'S HIERARCHY OF NEEDS. Abraham Maslow developed the hierarchy of needs, which suggests that individual needs exist in a hierarchy consisting of physiological needs, security needs, belongingness needs, esteem needs, and self-actualization needs. Physiological needs are the most basic needs for food, water, and other factors necessary for survival. Security needs include needs for safety in one's physical environment, stability, and freedom from emotional distress. Belongingness needs relate to desires for friendship, love, and acceptance within a given community of individuals. Esteem needs are those associated with obtaining the respect of one's self and others. Finally, self-actualization needs are those corresponding to the achievement one's own potential, the exercising and testing of one's creative capacities, and, in general, to becoming the best person one can possibly be. Unsatisfied needs motivate behavior; thus, lower-level needs such as the physiological and security needs must be met before upper-level needs such as belongingness, esteem, and self-actualization can be motivational.

Applications of the hierarchy of needs to management and the workplace are obvious. According to the implications of the hierarchy, individuals must have their lower level needs met by, for example, safe working conditions, adequate pay to take care of one's self and one's family, and job security before they will be motivated by increased job responsibilities, status, and challenging work assignments. Despite the ease of application of this theory to a work setting, this theory has received little research support and therefore is not very useful in practice.

ALDERFER'S ERG THEORY. The ERG theory is an extension of Maslow's hierarchy of needs. Alderfer suggested that needs could be classified into three categories, rather than five. These three types of needs are existence, relatedness, and growth. Existence needs are similar to Maslow's physiological and safety need categories. Relatedness needs involve interpersonal relationships and are comparable to aspects of Maslow's belongingness and esteem needs. Growth needs are those related to the attainment of one's potential and are associated with Maslow's esteem and self-actualization needs.

The ERG theory differs from the hierarchy of needs in that it does not suggest that lower-level needs must be completely satisfied before upper-level needs become motivational. ERG theory also suggests that if an individual is continually unable to meet upper-level needs that the person will regress and lower-level needs become the major determinants of their motivation. ERG theory's implications for managers are similar to those for the needs hierarchy: managers should focus on meeting employees' existence, relatedness, and growth needs, though without necessarily applying the proviso that, say, job-safety concerns necessarily take precedence over challenging and fulfilling job requirements.

MOTIVATOR-HYGIENE THEORY. Frederick Herzberg developed the motivator-hygiene theory. This theory is closely related to Maslow's hierarchy of needs but relates more specifically to how individuals are motivated in the workplace. Based on his research, Herzberg argued that meeting the lower-level needs (hygiene factors) of individuals would not motivate them to exert effort, but would only prevent them from being dissatisfied. Only if higher-level needs (motivators) were met would individuals be motivated.

The implication for managers of the motivator-hygiene theory is that meeting employees lower-level needs by improving pay, benefits, safety, and other job-contextual factors will prevent employees from becoming actively dissatisfied but will not motivate them to exert additional effort toward better performance. To motivate workers, according to the theory, managers must focus on changing the intrinsic nature and content of jobs themselves by "enriching" them to increase employees' autonomy and their opportunities to take on additional responsibility, gain recognition, and develop their skills and careers.

MCCLELLAND'S LEARNED NEEDS THEORY. McClelland's theory suggests that individuals learn needs from their culture. Three of the primary needs in this theory are the need for affiliation (n Aff), the need for power (n Pow), and the need for achievement (n Ach). The need for affiliation is a desire to establish social relationships with others. The need for power reflects a desire to control one's environment and influence others. The need for achievement is a desire

to take responsibility, set challenging goals, and obtain performance feedback. The main point of the learned needs theory is that when one of these needs is strong in a person, it has the potential to motivate behavior that leads to its satisfaction. Thus, managers should attempt to develop an understanding of whether and to what degree their employees have one or more of these needs, and the extent to which their jobs can be structured to satisfy them.

MAJOR PROCESS THEORIES

Process (or cognitive) theories of motivation focus on conscious human decision processes as an explanation of motivation. The process theories are concerned with determining how individual behavior is energized, directed, and maintained in the specifically willed and self-directed human cognitive processes. Process theories of motivation are based on early cognitive theories, which posit that behavior is the result of conscious decision-making processes. The major process theories of motivation are expectancy theory, equity theory, goal-setting theory, and reinforcement theory.

EXPECTANCY THEORY. In the early 1960s, Victor Vroom applied concepts of behavioral research conducted in the 1930s by Kurt Lewin and Edward Tolman directly to work motivation. Basically, Vroom suggested that individuals choose work behaviors that they believe lead to outcomes they value. In deciding how much effort to put into a work behavior, individuals are likely to consider:

- Their expectancy, meaning the degree to which they believe that putting forth effort will lead to a given level of performance.
- Their instrumentality, or the degree to which they believe that a given level of performance will result in certain outcomes or rewards.
- Their valence, which is the extent to which the expected outcomes are attractive or unattractive.

All three of these factors are expected to influence motivation in a multiplicative fashion, so that for an individual to be highly motivated, all three of the components of the expectancy model must be high. And, if even one of these is zero (e.g., instrumentality and valence are high, but expectancy is completely absent), the person will have not motivation for the task. Thus, managers should attempt, to the extent possible, to ensure that their employees believe that increased effort will improve performance and that performance will lead to valued rewards.

In the late 1960s, Porter and Lawler published an extension of the Vroom expectancy model, which is known as the Porter-Lawler expectancy model or simply the Porter-Lawler model. Although the basic premise of the Porter-Lawler model is the same as for Vroom's model, the Porter-Lawler model is more complex in a number of ways. It suggests that increased effort does not automatically lead to improved performance because individuals may not possess the necessary abilities needed to achieve high levels of performance, or because they may have an inadequate or vague perception of how to perform necessary tasks. Without an understanding of how to direct effort effectively, individuals may exert considerable effort without a corresponding increase in performance.

EQUITY THEORY. Equity theory suggests that individuals engage in social comparison by comparing their efforts and rewards with those of relevant others. The perception of individuals about the fairness of their rewards relative to others influences their level of motivation. Equity exists when individuals perceive that the ratio of efforts to rewards is the same for them as it is for others to whom they compare themselves. Inequity exists when individuals perceive that the ratio of efforts to rewards is different (usually negatively so) for them than it is for others to whom they compare themselves. There are two types of inequity—under-reward and over-reward. Under-reward occurs when a person believes that she is either puts in more efforts than another, yet receives the same reward, or puts in the same effort as another for a lesser reward. For instance, if an employee works longer hours than her coworker, yet they receive the same salary, the employee would perceive inequity in the form of under-reward. Conversely, with over-reward, a person will feel that his efforts to rewards ratio is higher than another person's, such that he is getting more for putting in the same effort, or getting the same reward even with less effort. While research suggests that under-reward motivates individuals to resolve the inequity, research also indicates that the same is not true for over-reward. Individuals who are over-rewarded often engage in cognitive dissonance, convincing themselves that their efforts and rewards are equal to another's.

According to the equity theory, individuals are motivated to reduce perceived inequity. Individuals may attempt to reduce inequity in various ways. A person may change his or her level of effort; an employee who feels under-rewarded is likely to work less hard. A person may also try to change his or her rewards, such as by asking for a raise. Another option is to change the behavior of the reference person, perhaps by encouraging that person to put forth more effort. Finally, a person experiencing inequity may change the reference person and compare him or herself to a different person to assess equity. For man-

agers, equity theory emphasizes the importance of a reward system that is perceived as fair by employees.

GOAL-SETTING THEORY. The goal-setting theory posits that goals are the most important factors affecting the motivation and behavior of employees. This motivation theory was developed primarily by Edwin Locke and Gary Latham. Goal-setting theory emphasizes the importance of specific and challenging goals in achieving motivated behavior. Specific goals often involve quantitative targets for improvement in a behavior of interest. Research indicates that specific performance goals are much more effective than those in which a person is told to "do your best." Challenging goals are difficult but not impossible to attain. Empirical research supports the proposition that goals that are both specific and challenging are more motivational than vague goals or goals that are relatively easy to achieve.

Several factors may moderate the relationship between specific and challenging goals and high levels of motivation. The first of these factors is goal commitment, which simply means that the more dedicated the individual is to achieving the goal, the more they will be motivated to exert effort toward goal accomplishment. Some research suggests that having employees participate in goal setting will increase their level of goal commitment. A second factor relevant to goal-setting theory is self-efficacy, which is the individual's belief that he or she can successfully complete a particular task. If individuals have a high degree of self-efficacy, they are likely to respond more positively to specific and challenging goals than if they have a low degree of self-efficacy.

REINFORCEMENT THEORY. This theory can be traced to the work of the pioneering behaviorist B.F. Skinner. It is considered a motivation theory as well as a learning theory. Reinforcement theory posits that motivated behavior occurs as a result of reinforcers, which are outcomes resulting from the behavior that makes it more likely the behavior will occur again. This theory suggests that it is not necessary to study needs or cognitive processes to understand motivation, but that it is only necessary to examine the consequences of behavior. Behavior that is reinforced is likely to continue, but behavior that is not rewarded or behavior that is punished is not likely to be repeated. Reinforcement theory suggests to managers that they can improve employees' performance by a process of behavior modification in which they reinforce desired behaviors and punish undesired behaviors.

SEE ALSO: Goals and Goal Setting; Operant Conditioning; Organizational Behavior; Reinforcement Theory; Theory X and Theory Y; Theory Z

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MULTIMEDIA

Multimedia is the term used to describe two or more types of media combined into a single package—usually denoting a combination of some or all of the following: video, sound, animation, text, and pictures. Multimedia gives the user the opportunity to influence the presentation of material. The selection and manipulation of various aspects of the presentation material is the interactive aspect of a multimedia presentation. Interactive features could range from a question-and-answer function to choosing from a menu of particular subjects or aspects of a presentation. One application of multimedia, for example, involves presenting the user with a "what if" scenario, in which the choices the user makes affect the outcome of the presentation. This affords the user a degree of control, not unlike directing

a motion picture and having the opportunity to make changes to the plot at various junctures.

The advent and ascension of the personal computer as well as the development and proliferation of CD-ROMs have played significant roles in affording business the ability to affordably create multimedia computer presentations. Potential uses of multimedia that were previously confined within the province of computer science experts are now within the reach of a large segment of the business and public communities. Today a relative neophyte can potentially create a polished multimedia presentation with a computer and a commercially available presentation program. As computer-processing power increases and the capacity of data-storage media like the CD-ROM or DVD-ROM formats continues to grow, the ability of the average user to create multimedia presentations will grow as well.

THE MECHANICS OF MULTIMEDIA

The CD-ROM and its successor, the DVD-ROM, store data in the form of a binary code. The binary code is placed onto the discs by a stamping process that impresses lands (flat areas that represent the zero in binary code) and hollows (pits that represent the one in binary code) onto the surface of the disc. When the discs are placed into a player or computer drive, the playing mechanism spins the disc and flashes a laser beam over the surface of the disc. The reflected light patterns caused by the embossed data contained on the surface of the disc are then decoded by the reader/player and translated back into audio and video. The storage capacity of a CD-ROM disc is 635 megabytes, while the storage capacity of a DVD-ROM disc can be as great as 5.2 gigabytes. Since sound, graphics, and other visuals take up considerably more data space than text alone, the increased storage capacities of the CD-ROM and DVD-ROM discs have played an integral part in making the use of multimedia more commonplace. The durability, portability, and relatively low manufacturing cost of the discs also play a critical role in their proliferation. While the Read Only Memory (ROM) format is still the most common for both CDs and DVDs, today recordable disc drives are widely available to enable users to "burn" data (write, erase, and/or rewrite data) to a disc on their own.

USES OF MULTIMEDIA

Multimedia devices have an almost innumerable variety of applications. They are used in home-entertainment systems and can be extremely powerful educational tools. Educators, for example, have been exceptionally creative in combining some of the exciting elements of video-game applications with select features of educational material. By doing this, the concept of "edutainment" was created. The goal of using the multimedia edutainment approach is to entertain the user so effectively that the user remains unaware that he or she is actually learning in the process.

Multimedia can also offer critical services in the business world. While information can certainly be conveyed adequately by the singular use of still pictures, video, film, audio, or text, multimedia potentially multiplies the degree of effectiveness, in no small part due to the added entertainment value and the extent to which the viewers feel a part of the action. Such benefits can't easily be matched by the application of a singular medium. The effectiveness of teaching, selling, informing, entertaining, promoting, and presenting are all dependent upon one factor: the ability of the presented material to hold the attention of the desired audience. A dynamic multimedia presentation can usually be more effective than earlier methods at accomplishing this task with an audience that was raised on television and motion pictures. The computerized multimedia presentation offers the added benefit of cost-effective flexibility, allowing easy editing of the basic materials in order to tailor them to specific target audiences.

Training, informational and promotional materials, sales presentations, and point-of-sale displays that allow for customer interaction and communication both within and outside the organization are all common applications of multimedia in the business world. Multimedia presentations for many such applications can be highly portable, particularly in the cases of the CD-ROM, DVD-ROM, and videotape. The equipment required to produce these presentations is relatively commonplace or otherwise easy to access.

Perhaps the vanguard application of multimedia is virtual reality, a combination of video, stereo, and computer graphics that attempts to create an interactive three-dimensional environment that immerses the user within the simulation. Virtual reality has been employed in a wide range of practical applications: to train military troops, to streamline manufacturing and architectural design processes, to create simulated test environments for industry, and as a form of public entertainment.

One should still keep in mind, however, that even if rendered in a highly advanced multimedia format, an ineffectual presentation is still an ineffectual presentation. One should remain focused on the message being conveyed while shaping the choice and use of materials in accordance with that message.

SEE ALSO: Technology Management; Training Delivery Methods

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MULTINATIONAL CORPORATIONS

Multinational corporations have existed since the beginning of overseas trade. They have remained a part of the business scene throughout history, entering their modern form in the 17th and 18th centuries with the creation of large, European-based monopolistic concerns such as the British East India Company during the age of colonization. Multinational concerns were viewed at that time as agents of civilization and played a pivotal role in the commercial and industrial development of Asia, South America, and Africa. By the end of the 19th century, advances in communications had more closely linked world markets, and multinational corporations retained their favorable image as instruments of improved global relations through commercial ties. The existence of close international trading relations did not prevent the outbreak of two world wars in the first half of the twentieth century, but an even more closely bound world economy emerged in the aftermath of the period of conflict.

In more recent times, multinational corporations have grown in power and visibility, but have come to be viewed more ambivalently by both governments and consumers worldwide. Indeed, multinationals today are viewed with increased suspicion given their perceived lack of concern for the economic well-being of particular geographic regions and the public impression that multinationals are gaining power in relation to national government agencies, international trade federations and organizations, and local, national, and international labor organizations.

Despite such concerns, multinational corporations appear poised to expand their power and influence as barriers to international trade continue to be removed. Furthermore, the actual nature and methods of multinationals are in large measure misunderstood by the public, and their long-term influence is likely to be less sinister than imagined. Multinational corporations share many common traits, including the methods they use to penetrate new markets, the manner in which their overseas subsidiaries are tied to their headquarters operations, and their interaction with national governmental agencies and national and international labor organizations.

WHAT IS A MULTINATIONAL CORPORATION?

As the name implies, a multinational corporation is a business concern with operations in more than one country. These operations outside the company's home country may be linked to the parent by merger, operated as subsidiaries, or have considerable autonomy. Multinational corporations are sometimes perceived as large, utilitarian enterprises with little or no regard for the social and economic well-being of the countries in which they operate, but the reality of their situation is more complicated.

There are over 40,000 multinational corporations currently operating in the global economy, in addition to approximately 250,000 overseas affiliates running cross-continental businesses. In 1995, the top 200 multinational corporations had combined sales of $7.1 trillion, which is equivalent to 28.3 percent of the world's gross domestic product. The top multinational corporations are headquartered in the United States, Western Europe, and Japan; they have the capacity to shape global trade, production, and financial transactions. Multinational corporations are viewed by many as favoring their home operations when making difficult economic decisions, but this tendency is declining as companies are forced to respond to increasing global competition.

The World Trade Organization (WTO), the International Monetary Fund (IMF), and the World Bank are the three institutions that underwrite the basic rules and regulations of economic, monetary, and trade relations between countries. Many developing nations have loosened trade rules under pressure from the IMF and the World Bank. The domestic financial markets in these countries have not been developed and do not have appropriate laws in place to enable domestic financial institutions to stand up to foreign competition. The administrative setup, judicial systems, and law-enforcing agencies generally cannot guarantee the social discipline and political stability that are necessary in order to support a growth-friendly atmosphere. As a result, most multinational corporations are investing in certain geographic locations only. In the 1990s, most foreign investment was in high-income countries and a few geographic locations in the South like East Asia and Latin America. According to the World Bank's 2002 World Development Indicators, there are 63 countries considered to be low-income countries. The share of these low-income countries in which foreign countries are making direct investments is very small; it rose from 0.5 percent 1990 to only 1.6 percent in 2000.

Although foreign direct investment in developing countries rose considerably in the 1990s, not all developing countries benefited from these investments.

Most of the foreign direct investment went to a very small number of lower and upper middle income developing countries in East Asia and Latin America. In these countries, the rate of economic growth is increasing and the number of people living at poverty level is falling. However, there are still nearly 140 developing countries that are showing very slow growth rates while the 24 richest, developed countries (plus another 10 to 12 newly industrialized countries) are benefiting from most of the economic growth and prosperity. Therefore, many people in the developing countries are still living in poverty.

Similarly, multinational corporations are viewed as being exploitative of both their workers and the local environment, given their relative lack of association with any given locality. This criticism of multinationals is valid to a point, but it must be remembered that no corporation can successfully operate without regard to local social, labor, and environmental standards, and that multinationals in large measure do conform to local standards in these regards.

Multinational corporations are also seen as acquiring too much political and economic power in the modern business environment. Indeed, corporations are able to influence public policy to some degree by threatening to move jobs overseas, but companies are often prevented from employing this tactic given the need for highly trained workers to produce many products. Such workers can seldom be found in low-wage countries. Furthermore, once they enter a market, multinationals are bound by the same constraints as domestically owned concerns, and find it difficult to abandon the infrastructure they produced to enter the market in the first place.

The modern multinational corporation is not necessarily headquartered in a wealthy nation. Many countries that were recently classified as part of the developing world, including Brazil, Taiwan, Kuwait, and Venezuela, are now home to large multinational concerns. The days of corporate colonization seem to be nearing an end.

ENTRY OF MULTINATIONAL CORPORATIONS INTO NEW MARKETS

Multinational corporations follow three general procedures when seeking to access new markets: merger with or direct acquisition of existing concerns; sequential market entry; and joint ventures.

Merger or direct acquisition of existing companies in a new market is the most straightforward method of new market penetration employed by multinational corporations. Such an entry, known as foreign direct investment, allows multinationals, especially the larger ones, to take full advantage of their size and the economies of scale that this provides. The rash of mergers within the global automotive industries during the late 1990s are illustrative of this method of gaining access to new markets and, significantly, were made in response to increased global competition.

Multinational corporations also make use of a procedure known as sequential market entry when seeking to penetrate a new market. Sequential market entry often also includes foreign direct investment, and involves the establishment or acquisition of concerns operating in niche markets related to the parent company's product lines in the new country of operation. Japan's Sony Corporation made use of sequential market entry in the United States, beginning with the establishment of a small television assembly plant in San Diego, California, in 1972. For the next two years, Sony's U.S. operations remained confined to the manufacture of televisions, the parent company's leading product line. Sony branched out in 1974 with the creation of a magnetic tape plant in Dothan, Alabama, and expanded further by opening an audio equipment plant in Delano, Pennsylvania, in 1977.

After a period of consolidation brought on by an unfavorable exchange rate between the yen and dollar, Sony continued to expand and diversify its U.S. operations, adding facilities for the production of computer displays and data storage systems during the 1980s. In the 1990s, Sony further diversified it U.S. facilities and now also produces semiconductors and personal telecommunications products in the United States. Sony's example is a classic case of a multinational using its core product line to defeat indigenous competition and lay the foundation for the sequential expansion of corporate activities into related areas.

Finally, multinational corporations often access new markets by creating joint ventures with firms already operating in these markets. This has particularly been the case in countries formerly or presently under communist rule, including those of the former Soviet Union, eastern Europe, and the People's Republic of China. In such joint ventures, the venture partner in the market to be entered retains considerable or even complete autonomy, while realizing the advantages of technology transfer and management and production expertise from the parent concern. The establishment of joint ventures has often proved awkward in the long run for multinational corporations, which are likely to find their venture partners are formidable competitors when a more direct penetration of the new market is attempted.

Multinational corporations are thus able to penetrate new markets in a variety of ways, which allow existing concerns in the market to be accessed a varying degree of autonomy and control over operations.

CONCERNS ABOUT MULTINATIONAL CORPORATIONS

While no one doubts the economic success and pervasiveness of multinational corporations, their motives and actions have been called into question by social welfare, environmental protection, and labor organizations and government agencies worldwide.

National and international labor unions have expressed concern that multinational corporations in economically developed countries can avoid labor negotiations by simply moving their jobs to developing countries where labor costs are markedly less. Labor organizations in developing countries face the converse of the same problem, as they are usually obliged to negotiate with the national subsidiary of the multinational corporation in their country, which is usually willing to negotiate contract terms only on the basis of domestic wage standards, which may be well below those in the parent company's country.

Offshore outsourcing, or offshoring, is a term used to describe the practice of using cheap foreign labor to manufacture goods or provide services only to sell them back into the domestic marketplace. Today, many Americans are concerned about the issue of whether American multinational companies will continue to export jobs to cheap overseas labor markets. In the fall of 2003, the University of California-Berkeley showed that as many as 14 million American jobs were potentially at risk over the next decade. In 2004, the United States faced a half-trillion-dollar trade deficit, with a surplus in services. Opponents of offshoring claim that it takes jobs away from Americans, while also increasing the imbalance of trade.

When foreign companies set up operations in America, they usually sell the products manufactured in the U.S. to American consumers. However, when U.S. companies outsource jobs to cheap overseas labor markets, they usually sell the goods they produce to Americans, rather than to the consumers in the country in which they are made. In 2004, the states of Illinois and Tennessee passed legislation aimed at limiting offshoring; in 2005, another 16 states considered bills that would limit state aid and tax breaks to firms that outsource abroad.

Insourcing, on the other hand, is a term used to describe the practice of foreign companies employing U.S. workers. Foreign automakers are among the largest insourcers. Many non-U.S. auto manufacturers have built plants in the United States, thus ensuring access to American consumers. Auto manufacturers such as Toyota now make approximately one third of its profits from U.S. car sales.

Social welfare organizations are similarly concerned about the actions of multinationals, which are presumably less interested in social matters in countries in which they maintain subsidiary operations. Environmental protection agencies are equally concerned about the activities of multinationals, which often maintain environmentally hazardous operations in countries with minimal environmental protection statutes.

Finally, government agencies fear the growing power of multinationals, which once again can use the threat of removing their operations from a country to secure favorable regulation and legislation.

All of these concerns are valid, and abuses have undoubtedly occurred, but many forces are also at work to keep multinational corporations from wielding unlimited power over even their own operations. Increased consumer awareness of environmental and social issues and the impact of commercial activity on social welfare and environmental quality have greatly influenced the actions of all corporations in recent years, and this trend shows every sign of continuing. Multinational corporations are constrained from moving their operations into areas with excessively low labor costs given the relative lack of skilled laborers available for work in such areas. Furthermore, the sensitivity of the modern consumer to the plight of individuals in countries with repressive governments mitigates the removal of multinational business operations to areas where legal protection of workers is minimal. Examples of consumer reaction to unpopular action by multinationals are plentiful, and include the outcry against the use of sweatshop labor by Nike and activism against operations by the Shell Oil Company in Nigeria and PepsiCo in Myanmar (formerly Burma) due to the repressive nature of the governments in those countries.

Multinational corporations are also constrained by consumer attitudes in environmental matters. Environmental disasters such as those which occurred in Bhopal, India (the explosion of an unsafe chemical plant operated by Union Carbide, resulting in great loss of life in surrounding areas) and Prince William Sound, Alaska (the rupture of a single-hulled tanker, the Exxon Valdez, causing an environmental catastrophe) led to ceaseless bad publicity for the corporations involved and continue to serve as a reminder of the long-term cost in consumer approval of ignoring environmental, labor, and safety concerns.

Similarly, consumer awareness of global issues lessens the power of multinational corporations in their dealings with government agencies. International conventions of governments are also able to regulate the activities of multinational corporations without fear of economic reprisal, with examples including the 1987 Montreal Protocol limiting global production and use of chlorofluorocarbons and the 1989 Basel Convention regulating the treatment of and trade in chemical wastes.

In fact, despite worries over the impact of multinational corporations in environmentally sensitive and economically developing areas, the corporate social performance of multinationals has been surprisingly favorable to date. The activities of multinational corporations encourage technology transfer from the developed to the developing world, and the wages paid to multinational employees in developing countries are generally above the national average. When the actions of multinationals do cause a loss of jobs in a given country, it is often the case that another multinational will move into the resulting vacuum, with little net loss of jobs in the long run. Subsidiaries of multinationals are also likely to adhere to the corporate standard of environmental protection even if this is more stringent than the regulations in place in their country of operation, and so in most cases create less pollution than similar indigenous industries.

THE FUTURE FOR MULTINATIONAL CORPORATIONS

Current trends in the international marketplace favor the continued development of multinational corporations. Countries worldwide are privatizing government-run industries, and the development of regional trading partnerships such as the North American Free Trade Agreement (a 1993 agreement between Canada, Mexico, and United States) and the European Union have the overall effect of removing barriers to international trade. Privatization efforts result in the availability of existing infrastructure for use by multinationals seeking to enter a new market, while removal of international trade barriers is obviously a boon to multinational operations.

Perhaps the greatest potential threat posed by multinational corporations would be their continued success in a still underdeveloped world market. As the productive capacity of multinationals increases, the buying power of people in much of the world remains relatively unchanged, which could lead to the production of a worldwide glut of goods and services. Such a glut, which has occurred periodically throughout the history of industrialized economies, can in turn lead to wage and price deflation, contraction of corporate activities, and a rapid slowdown in all phases of economic life. Such a possibility is purely hypothetical, however, and for the foreseeable future the operations of multinational corporations worldwide are likely to continue to expand.

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

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MULTIPLE-CRITERIA DECISION MAKING

Real-world decision-making problems are usually too complex and ill-structured to be considered through the examination of a single criterion, attribute, or point of view that will lead to the optimum

decision. In fact, such a unidimensional approach is merely an oversimplification of the actual nature of the problem at hand, and it can lead to unrealistic decisions. A more appealing approach would be the simultaneous consideration of all pertinent factors that are related to the problem. However, through this approach some very essential issues/questions emerge: how can several and often conflicting factors be aggregated into a single evaluation model? Is this evaluation model a unique and optimal one? Researchers from a variety of disciplines have tried to address the former question using statistical approaches, artificial intelligence techniques, and operations research methodologies. The success and usefulness of these attempts should be examined with regard to the second question. Obviously, a decision problem is not addressed in the same way by all decision makers. Each decision maker has his or her own preferences, experiences, and decision-making policy; thus one person's judgment is expected to differ from another's. This is a significant issue that should be considered during the development of decision-making models.

Addressing such issues constitutes the focal point of interest in multiple-criteria decision making (MCDM). MCDM constitutes an advanced field of operations research that is devoted to the development and implementation of decision support tools and methodologies to confront complex decision problems involving multiple criteria, goals, or objectives of conflicting nature. The tools and methodologies provided by MCDM are not just some mathematical models aggregating criteria, points of view, or attributes, but furthermore they are decision-support oriented. Actually, support is a key concept in MCDM, implying that the models are not developed through a straightforward sequential process where the decision maker's role is passive. Instead, an iterative process is employed to analyze the preferences of the decision maker and represent them as consistently as possible in an appropriate decision model. This iterative and interactive preference modeling procedure constitutes the underlying basis of the decision-support orientation of MCDM, and it is one of the basic distinguishing features of the MCDM as opposed to statistical and optimization decision-making approaches.

HISTORICAL OVERVIEW

From the very beginning of mankind, decision making always involved multiple criteria that have been treated either implicitly or explicitly, although no specific mathematical framework existed for this purpose. Pareto was the first to study, in an axiomatic way, the aggregation of conflicting criteria into a single evaluation index. He was also the first to introduce the concept of efficiency, one of the key aspects of the modern MCDM theory. Several decades later, Koopmans extended Pareto's work introducing the notion of efficient vector, i.e., the non-dominated set of alternatives. During the same period (1940s to 1950s) von Neumann and Morgenstern introduced the expected utility theory, thus setting the foundations of another MCDM approach. In the 1960s the concepts and procedures described in these early works were extended by Charnes and Cooper and Fishburn. By the end of the 1960s significant research started to be undertaken in this field by the European operational research community. Roy, the founder of the European stream of MCDM, developed a new theoretical approach based on the concept of outranking relations. From the 1970s to the 1990s, MCDM evolved rapidly, scientific MCDM associations were formed, and numerous advances were published in the international literature, both on the theoretical aspects of MCDM as well as on its practical implementation. The field has benefited significantly from the widespread use of personal computers, which enabled the development of software packages employing MCDM methods. These software packages, known as multicriteria decision support systems, provide the means to implement the theoretical advances in MCDM in user-friendly systems that enable real-time decision making through interactive and iterative procedures that enhance the decision maker's perception of the problem and his or her judgment and decision-making policy.

THEORETICAL APPROACHES TO MCDM

Among the MCDM methods and tools, several approaches and theoretical disciplines can be defined, although their distinctions and boundaries are often difficult to determine. This discussion adopts the classification of MCDM approaches proposed by Pardalos et al. It distinguishes four categories: (1) multi-objective mathematical programming, (2) multi-attribute utility theory, (3) outranking relations approach, and (4) preference disaggregation approach.

The multi-objective mathematical programming (MMP) is an extension of the well-known single-objective mathematical programming framework. It involves the optimization of a set of objectives that are expressed in the form of linear or nonlinear functions of some decision variables. The optimization of these objectives is performed subject to constraints imposed either by the decision environment or by the decision maker. The conflicting nature of the objectives in real-world decision problems makes impossible their simultaneous optimization. Thus, the decision maker cannot obtain an optimum solution, but has to consider finding a satisfying one. The determination of this satisfying solution depends on the decision maker's preferences, judgment, and decision policy. The MMP techniques that have been developed aim to

determine initially the set of efficient solutions (solutions that are not dominated by any other solution with respect to the specified objectives) and then to identify a specific solution that meets the decision maker's preferences, through an interactive and iterative procedure. More details on this category of methods can be found in the books of Zeleny and Steuer.

The multi-attribute utility theory (MAUT) is an extension of the classical utility theory. Its aim is to represent/model the decision maker's preferences through a utility function $u(g)$ aggregating all the evaluation criteria: $u(g) = u(g_1, g_2, \ldots, g_n)$, where g is the vector of the evaluation criteria $g_1, g_2, \ldots, g_n$. In general, it is possible to decompose a multicriteria utility function in real functions $u_1, u_2, \ldots, u_n$ concerning the independence of criteria. Thus, different utility function models are obtained. The most studied form of utility function, from a theoretical point of view, is the additive form: $u(g_1, g_2, \ldots, g_n) = u_1(g_1) + u_2(g_2) + \cdots + u_n(g_n)$, where $u_1, u_2, \ldots, u_n$ are the marginal utilities defined on the scales of criteria. On the basis of the utilities of the alternatives that are determined through the developed utility function, the decision maker can rank them from the best alternatives (alternatives with the higher utility) to the worst ones (alternatives with the lower utility), classify them into appropriate classes through the definition of appropriate utility thresholds, or select the alternative with the higher utility as the best one. The books of Zeleny and Keeney and Raiffa provide a comprehensive discussion of MAUT, its axiomatic foundations, and the forms of utility functions that are commonly employed in decision-making problems, both under certainty and uncertainty.

The outranking relations approach was developed in Europe with the presentation of the ELECTRE methods (ELimination Et Choix Traduisant la REalité) by Roy. An outranking relation allows one to conclude that an alternative *a* outranks an alternative *b* if there are enough arguments to confirm that *a* is at least as good as *b,* while there is no essential reason to refuse this statement. To develop the outranking relation, the decision maker, in collaboration with the decision analyst, must specify the weights of the evaluation criteria, as well as some technical parameters (preference, indifference, and veto thresholds). The definition of these parameters enables the examination of whether there is a sufficient majority of criteria for which *a* is better than *b* (concordance) and if the unfavorable deviations for the rest of the criteria (discordance) are not too high. In this case it is possible to conclude that alternative *a* outranks alternative *b.* Furthermore, through this modeling procedure it is possible to identify the cases where the performances of two alternatives on the evaluation criteria differ significantly, thus making impossible their comparison (incomparability). A detailed presentation of all outranking methods can be found in the works of Vincke and Roy and Bouyssou.

The preference disaggregation approach refers to the analysis (disaggregation) of the global preferences (judgment policy) of the decision maker in order to identify the criteria aggregation model that underlies the preference result (ranking or classification/sorting). Similar to MAUT, preference disaggregation analysis uses common utility decomposition forms to model the decision maker's preferences. Nevertheless, instead of employing a direct procedure for estimating the global utility model (MAUT), preference disaggregation analysis uses regression-based techniques (indirect estimation procedure). More specifically, in preference disaggregation analysis the parameters of the utility decomposition model are estimated through the analysis of the decision maker's overall preference on some reference alternatives, which may involve either examples of past decisions or a small subset of the alternatives under consideration. The decision-maker is asked to provide a ranking or a classification of the reference alternatives according to his or her decision policy (global preferences). Then, using regression-based techniques the global preference model is estimated so that the ranking or classification specified by the decision maker can be reproduced as consistently as possible through the developed decision model. A rather exhaustive bibliography of the methods of the disaggregation of preferences can be found in the works of Jacquet-Lagrèze and Siskos and Pardalos, Siskos and Zopounidis.

Except for the functional and methodological differences among the four aforementioned MCDM approaches, their differences with regard to the types of decision problems that they address should also be pointed out. Real-world decision problems can be categorized into two groups:

1. Problems where the decision maker must evaluate a finite set of alternatives in order to select the most appropriate one, to rank them from the best to the worst, to classify them into predefined homogeneous classes, or to describe them. Typical examples involve the selection among different investment projects, personnel evaluation (ranking problem), and financial distress prediction (classification problem; i.e., discrimination between healthy and financially distressed firms). These type of problems are referred to as discrete MCDM problems.
2. Problems where there is an infinite set of alternatives. Thus the decision maker must construct the most appropriate one according to his or her goals or objectives. Recourse allocation problems are typical example of this kind. For instance, a portfo-

lio manager faces the problem of constructing a portfolio of securities according to his specific investment policy and objectives. Different combinations of securities can result to numerous portfolios. Thus, it is impossible to define an exhaustive set of portfolios for evaluation and selection of the most appropriate one. Instead, the portfolio manager must construct the most appropriate portfolio through the determination of the amount of capital that should be invested in each security. These type of problems are referred to as continuous MCDM problems.

Discrete MCDM problems are addressed through the multiattribute utility theory (MAUT), the outranking relations approach, and preference disaggregation, while continuous MCDM problems are addressed through MMP.

MCDM APPLICATIONS

In the international literature on management science and operations research there is an increasing number of real-world applications of MCDM. Of course, in the limited space here it would be impossible to provide an extensive bibliography regarding these applications. However, it is possible to outline some of the most significant areas to which MCDM has contributed. The following list reports some of these areas:

1. Finance and economics
    - Business failure prediction
    - Credit risk assessment
    - Portfolio selection and management
    - Company mergers and acquisitions
    - Financial planning
    - Country risk evaluation
    - Regional economic policy specification
2. Environmental Management and Energy planning
    - Forest management
    - Waste management
    - Power plant siting
    - Water resources planning
    - Nuclear power management
    - Energy intensity evaluation
3. Marketing
    - Customer satisfaction
    - Design of market penetration strategies
    - Retail evaluation
4. Transportation
    - Highway planning
    - Subway design
5. Human resources management
    - Job evaluation
    - Personnel selection
6. Education
7. Agriculture

Extensive information on these applications can be found in the books of Vincke, Pardalos et al., and Roy.

The complexity of real-world decisions and the plethora of factors and criteria that are often involved necessitate the implementation of a sound theoretical framework to structure and model the decision-making process. MCDM provides such a framework, as well as a wide variety of sophisticated methodological tools that are oriented towards the support of the decision makers in facing real-world decision problems. This decision-support orientation of MCDM, in combination with the focus given by researchers in this field to develop advanced and realistic preference modeling techniques, is its main distinguishing feature as opposed to statistical analysis and optimization theory. The advances in the field continue rapidly. According to Fishburn and Lavalle, they involve foundation aspects of MCDM such as the interface between behavioral decision theory and prescriptive practice and the underlying assumptions of MCDM methods, methodological aspects involving the development of more effective methods, and implementation aspects through the development of multicriteria decision-support systems. Along with these advances, researchers are also exploring the application of MCDM to other fields, including artificial intelligence (neural networks, expert systems, genetic algorithms) and fuzzy sets. The integration of the diverse nature of these fields within the MCDM framework increases the potentials regarding the development of advanced decision-support tools to confront the complexity of real-world decisions

SEE ALSO: Decision Making; Decision Rules and Decision Analysis; Decision Support Systems

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N

NAICS

SEE: North American Industry Classification System

NEGOTIATION

SEE: Conflict Management and Negotiation

NEPOTISM

Nepotism describes a variety of practices related to favoritism; it can mean simply hiring one's own family members, or it can mean hiring and advancing unqualified or under qualified family members based simply on the familial relationship. The word nepotism stems from the Latin word for nephew, especially the "nephews" of the prelates in medieval times. While attitudes toward nepotism vary according to cultural background, nepotism is a sensitive issue in American business. Many companies and individuals consider the practice to be unethical, largely due to its conflict with traditional American values of self-reliance and fairness.

In Western societies nepotism raises legal concerns. Although U.S. laws do not specifically prohibit hiring one's relatives, studies show that between 10 and 40 percent of U.S. companies maintain formal policies prohibiting such a practice. Many of these anti-nepotism rules were instituted in the 1950s with the aim of preventing the hiring of incompetent male relatives of male employees. In the 1960s and 1970s the same rules applied but failed to reflect the change in the workforce as more women entered the job market; females were often the victims of these rules, however, and many were forced to quit.

Nepotism is also tied to discrimination issues and pragmatic concerns. There is substantial debate over whether employers with any form of biased preferences for hiring, including nepotism, can even survive in the business market, ethical issues notwithstanding. On the other hand, approximately 40 percent of Fortune 500 firms are family-owned, and the success of these businesses can be viewed as an implicit endorsement of nepotism.

Larry Singell and James Thornton identify four levels of anti-nepotism rules. They note that companies may institute policies that prohibit the employment of a current employee's relatives

- anywhere in the organization,
- at the same facility,
- in the same department or work group, or
- in positions where one may immediately influence the compensation, promotion, or work situation of the other.

Even if a company has a clearly stated policy, complications may follow in its enforcement. For example, the increase in dual-career marriages increased legal challenges to nepotism issues. Employees occasionally

meet at work, socialize, fall in love, and eventually marry. In some cases, couples have had to decide which spouse has to quit, as company policy would not allow them to work for the same organization. Do practices such as hiring, or even not firing, family actually constitute discrimination?

Further, even if there is no complication between the two individuals as a result of marriage, there is sometimes pressure from in-laws and even close friends of in-laws for favoritism in hiring. There appear to be differences in nepotism practices between family-owned businesses and publicly owned businesses. Most family-owned businesses simply expect family to be involved in the future, as do the in-laws who join the family. However, there are usually more formal rules for publicly held companies; these companies must therefore be cautious, since they are open to outside scrutiny over their hiring and promotion practices.

ADVANTAGES

If practiced fairly (itself a contentious term in this regard), nepotism can be a true asset, Sharon Nelton suggests, citing the example of Thomas Publishing Company. In 1998 there were seven third- and fourth-generation family members working for the company. The third-generation president, Tom Knudson, encouraged nepotism among their independent sales contractors because he believed it resulted in high performance, stability, and long-term commitment.

Chad Kaydo also writes that nepotism may be viable. For example, a top salesperson's relative may have many of the same qualities that make the representative successful. Recruiting family members can therefore boost both performance as well as retention. For instance, one senior contractor began working for Thomas in 1940. By 1998 his wife and three of his adult children (two daughters and a son) all worked for the company. The son encountered a challenge when calling on a client at odds with the senior contractor. He easily and politely diffused the situation using the diplomacy techniques he had gleaned from his father, the very senior contractor the client disliked, and gained a larger-than-usual sale.

In the 2000s the tide in business seemed to be turning toward policies that encouraged hiring qualified relatives and spouses, with idea that good people tend to associate with good people. Jacquelyn Lynn noted that such policies can promote employee satisfaction by aiding individual efforts to balance professional and personal lives. Hiring family members can also provide benefits to companies, for example by reducing their health insurance costs.

DISADVANTAGES

There are, to be sure, nepotism disasters. Lines Brothers in Britain, once a highly successful maker of Triang toys, was rendered worthless in a just a few years by its second generation of leadership. Yale Express, a U.S. delivery company, was bankrupt within five years of the second generation assuming the presidency. The Great Atlantic and Pacific Tea Company (A&P) was once the largest supermarket chain in the United States, but went bankrupt under its heir.

Linda Wong and Brian Kleiner suggest that trouble arises most often when family and business needs conflict. A family's purpose is to care for and nurture family members; a business must produce quality goods and/or services as efficiently and as profitably as possible. If a company hires or promotes an incompetent family member, other employees may see this is a gross injustice and many complications may result. More directly, the unqualified heir may simply instill policies that drive the company into the ground.

Nepotism can also publicize family disagreements and prejudices to those within the company. It may even cause a company to lose valued executives and make it very difficult to attract and retain high-quality newcomers.

INTERNATIONAL ASPECTS

Abdalla Hayajenh, Ahmen Maghrabi, and Taher Al-Dabbagh note that nepotism has maintained a particularly strong footing in the Arab world. They indicate that the major factors behind nepotism in Arab countries include:

- socio-cultural structure (tribal and kinship relations);
- economic structure (a tight labor market making it difficult to find a job in other ways);
- educational structure (poor preparation of workers for economic development); and
- political structure (governments' assignation of educated tribal chiefs and their sons to key positions in return for loyalty).

In Asia the majority of entrepreneurs look to the family, rather than the broader populace, for the succession of the business. Studying Asian nepotism practices, Leon Richardson holds that nepotism works as well as any other management choice as long as one never tolerates incompetence. He notes that the Japanese successfully use nepotism, with senior men and women enjoying power and not hesitating to fire an incompetent "nephew."

In addition, many Latin American counties accept nepotism as the norm and are baffled by the

oftennegative U.S. attitude toward the practice. As one South American executive commented, "If I cannot hire and trust my own family, just who can I trust?"

GUIDELINES

Craig Aronoff and John Ward argue that the key to the successful use of nepotism is clear communication of the rules before they are needed and fair application of the rules as needed. They believe in holding relatives to at least three standards in hiring:

1. appropriate education for the job;
2. three to five years of outside work experience; and
3. entry into an already existing and vital position with determined pay and performance expectations.

Many experts believe that outside experience is vital to the potential family-member hire. They feel the family member should establish their own competence and professional sense of worth before assuming work responsibilities within the family's firm. Testing and honing their skills and abilities allows them to bring expertise to the enterprise.

In the first sixteen years of business, CAM Specialty Products practiced a strict policy of not hiring family members. However, in 1997 an opportunity to invest in Deckare appeared and co-owner Gordon Hammett hired his son as work crew chief to handle on-site fieldwork. Hammett interviewed his son like all other candidates and honestly felt his son was a perfect fit for the job; he was familiar with his son's work ethic and knew his son enjoyed the type of work. As a result, the decision met with great success. The key was to have clear criteria for the job and to apply them consistently for all candidates, neither favoring nor discriminating against family members.

Nepotism is not a new phenomenon in business, but it is of particular interest as the world of business shrinks due to rapid travel and convenient and fast technological communication. As business becomes increasingly globalized, it is crucial to understand how cultural attitudes toward nepotism vary between the different countries in which a business operates. Furthermore, as more families rely on multiple incomes for their standard of living, the ethical and pragmatic considerations regarding nepotism must be carefully negotiated to ensure the most effective overall business strategy. While certain guidelines have been known to effect a smooth incorporation of nepotism into a successful business, there are no definitive strategies. Clearly, however, nepotism can lead to success if applied appropriately, or to disaster if applied without careful consideration of the all variables involved.

SEE ALSO: Employee Recruitment Planning; Entrepreneurship; Human Resource Management; Succession Planning; Work-Life Balance

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NEW PRODUCT DEVELOPMENT

The dynamics of markets, technology, and competition have brought changes to virtually every market sector and have made new product development one of the most powerful business activities. The monumental changes that constantly impact commerce have forced companies to innovate with increasing speed, efficiency, and quality. In turn, this has made new product development one of the most complex and difficult business functions. However, firms must innovate in order to survive. The power of innovation is revealed in numerous studies, which show that companies leading their industries attribute about half of

their revenues to products developed in the most recent five years. By comparison, companies at the bottom of their industries achieve approximately one-tenth of their sales from new products.

A firm's new product development efforts are shaped by its size, as well as the nature of the industry in which it operates. New products may be defined as any product, service, or idea not currently made or marketed by a company, or which the consumer may perceive as new. Many types of new products exist, from never-seen-before products like Apple's personal communicator, to repositioned standards like Sears' shift to Sears Brand Central. Various studies suggest that between 50 and 80 percent of new products fail—the greater the rate of new product development, the higher the failure rate. *New Product News* predicts that more than 36,000 new products will be brought to market in 2005. Although there are numerous reasons why new products fail, faulty management and planning are at the core of most failures. Therefore, managing the new product development process is a key to a healthy organization.

HISTORY

The history of product innovation can be divided into three stages, beginning with the product-oriented or technology-pushed stage. In the post-World War II era Americans were coming off wartime shortages and were in the mood to buy the many goods that manufacturers produced. Engineers, who were more product-oriented than consumer oriented, designed new products that might or might not find places in consumers' hearts and minds. This was a product-oriented process in which the market was considered the receptacle for products that emerged from the firm's research and development efforts.

However, competition escalated and consumers became more skeptical and selective about the types of products they purchased. Marketers found it increasingly difficult to rely on persuasive sales techniques to move products. Retailers grew restless when these products did not move off shelves as quickly as planned. Companies had to know more about their target markets. What were the wants and needs of the people who were buying their products? How could their firm satisfy these wants and needs?

The second stage was marked by the emergence of the market as the driver of innovation. Instead of being technology-driven, new product development evolved into a market-led process in which new products emerged from well-researched customer needs. The new product development process was placed in the hands of marketers who knew consumers' wants and needs. Customer demand "pulled" the product through the development process.

Modern new product development is a blending of these two orientations into a "dual-drive" approach to innovation. Companies recognize that innovation is a complex process that requires sound investment in research and development, as well as significant marketing expertise that focuses on satisfying consumers' wants and needs.

The rapid pace of change that engulfed businesses toward the end of the twentieth century put an even greater burden on companies to build adaptive capabilities into their organizations. Global competition means there are more competitors capable of world-class performance. This has made competition more intense, rigorous, and aggressive than ever before. Fragmenting and more sophisticated markets mean that consumers demand more from products in terms of quality, differentiation, and "meaningfulness."

New technologies have had two important outcomes in regards to innovation. First, new technologies are responsible for this new market sophistication in which consumers have more choices and are thus more demanding. Secondly, new technology has increased manufacturers' capabilities for rapid response to shifting market needs.

Finally, product life cycles have become more compressed as the skills required for developing new products increase in complexity. For example, consider the development of a new type of computer software. The expertise needed to develop the software from conception to commercialization might take years. The product's life cycle in such a competitive and turbulent environment might last only a few months. Therefore, companies have embraced the view that new products are transient, whereas the skills and expertise needed to develop these products are a much more persistent requirement for success. Instead of the mono-approach, in which technology or markets drive innovation, new product development now requires a convergence of technology, marketing, product design, engineering, and manufacturing capabilities. Speed, efficiency, and quality in product development are the challenges that new product development faces in today's intense competitive environment.

TYPES AND SOURCES OF NEW PRODUCTS

There are five categories of new products. New-to-the-world products or services are new inventions like in-line skates and health maintenance organizations. New category entries, such as sport utility vehicles, are products or services that are new to a firm. Additions to product lines add products or services to a firm's current markets. For example, when a powder laundry detergent offers a liquid version it is considered a line extension. Product improvements are another type of new product and are common to every

product category. Repositionings target products to new markets or for new uses.

Firms can obtain new products internally or externally. External sourcing means the company acquires the product or service, or obtains the rights to market the product or service, from another organization. Internal development means the firm develops the new product itself. This is riskier than external development because the company bears all of the costs associated with new product development and implementation. Collaborations, which include strategic partnerships, strategic alliances, joint ventures, and licensing agreements, occur when two or more firms work together on developing new products.

NEW PRODUCT DEVELOPMENT PROCESS

Historically, the new product development process has been conceived in discreet terms with a beginning and an end. Different companies and different industries may alter this seven-step process for different products, or the steps themselves may become blurred as companies become engaged in several stages at the same time.

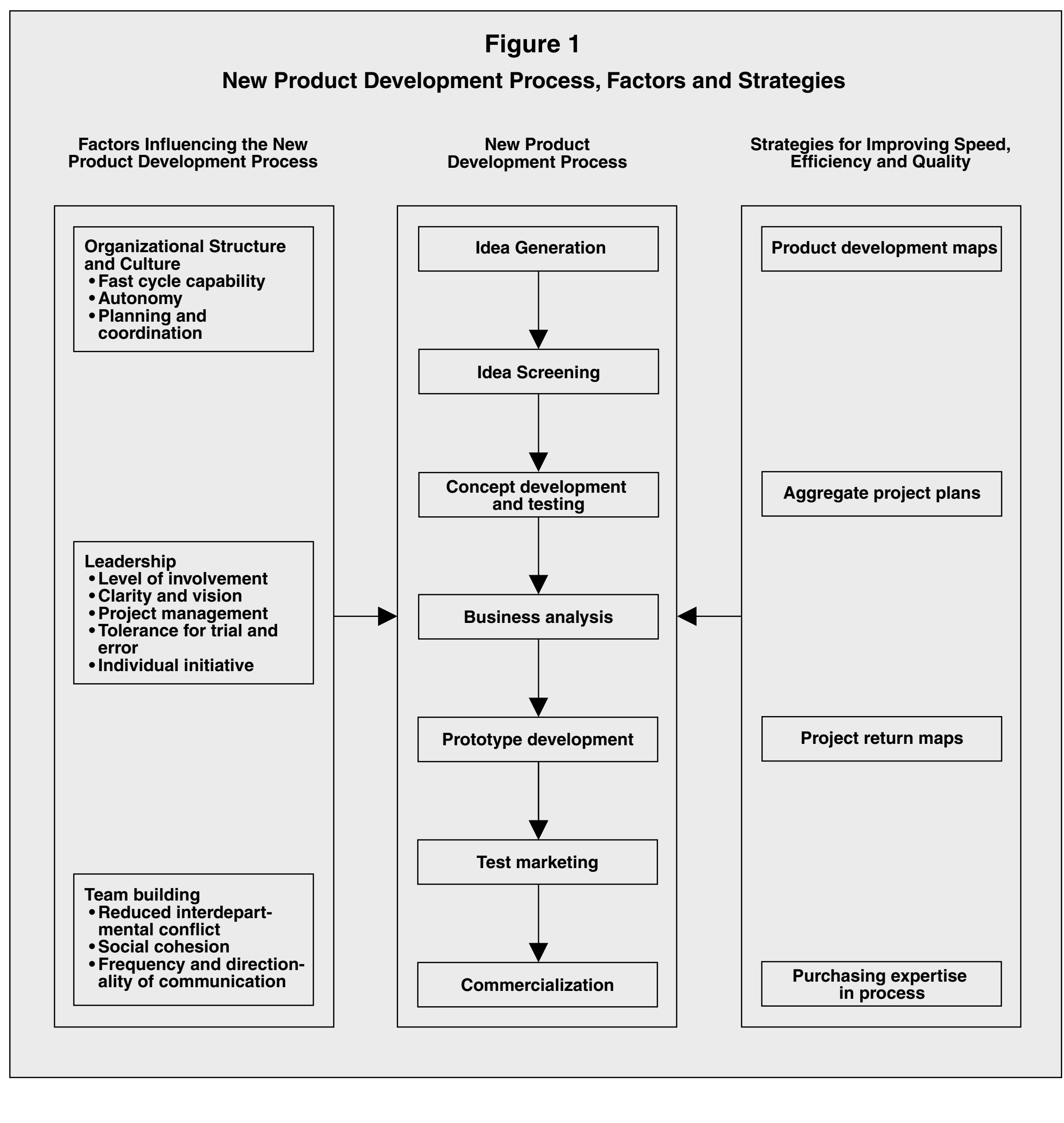
The process begins with idea generation. For every successful new product, many new product ideas are conceived and discarded. Therefore, companies usually generate a large number of ideas from which successful new products emerge.

Idea screening, the second step, considers all new product ideas in the idea pool and eliminates ones that are perceived to be the least likely to succeed. Not only should the firm's manufacturing, technology, and marketing capabilities be evaluated at this stage, but also how the new idea fits with the company's vision and strategic objectives.

The third stage, concept development and testing, requires formal evaluations of the product concept by

Figure 1

New Product Development Process, Factors and Strategies



consumers, usually through some form of marketing research. New product ideas with low concept test scores are discarded or revised. While the Internet is making it easier to gather consumer data, there are limitations. As people get deluged with an increasing number of surveys and solicitations, it is possible that they will grow tired of helping marketers.

The business analysis stage is next. At this point the new product idea is analyzed for its marketability and costs. After passing the first three stages an idea may be discarded once marketing and manufacturing costs are analyzed, due to limited potential for profitability or commercial success. Throughout these four stages, the new idea has remained on paper with a relatively small investment required.

The fifth stage, prototype development, is the first stage where new product costs begin to escalate. Because of this, many companies have placed greater emphasis on the first four stages and reduced the proportion of new products that reach the prototype stage from about 50 percent to around 20 percent. At this stage the concept is converted into an actual product. A customer value perspective during this phase means the product is designed to satisfy the needs expressed by consumers. Firms may use quality function deployment (QFD) as they develop the prototype. QFD links specific consumer requirements such as versatility, durability, and low maintenance with specific product characteristics (for example, adjustable shelves, a door-mounted ice and water dispenser, and touch controls for a refrigerator). The customer value perspective requires the new product to satisfy customer needs and meet desired quality levels at specified production costs.

Test marketing tests the prototype and marketing strategy in simulated or actual market situations. Because of the expense and risks associated with actual test markets, marketers use them with caution. Products that test poorly are pulled back and reconceptualized or discarded.

Commercialization, the final stage, is when the product is introduced full scale. The level of investment and risk are highest at this stage. Consumer adoption rates, timing decisions for introduction, and coordinating efforts with production, distribution, and marketing should be considered.

FACTORS INFLUENCING NEW PRODUCT DEVELOPMENT

The seven-step process assumes a definite beginning and end. However, studies suggest that what goes on before and after new products are introduced is as important as the process itself. Organizational structure, leadership, and team building influence the speed and efficiency with which new products are introduced. Structure influences efficiency, autonomy, and coordination. New product innovation requires structure that optimizes direction and guidance. Structure that facilitates internal information exchange, decision making, and materials flow is essential. A "fast-cycle" structure allows more time for planning and implementing activities to gain competitive advantage. This type of structure also cuts costs because production materials and information collect less overhead and do not accumulate as work-in-process inventory. Autonomy refers to the amount of decision making allowed at lower levels of management. The coordination of the engineering, product design, manufacturing, and marketing functions in the new product development process is vital.

Leadership influences strategy, culture, and the firm's overall ability to undertake new product development. Top management can demonstrate involvement in the development process by providing career advancement for entrepreneurial skills and encouraging broad employee participation. Clarity and vision are crucial to ensuring that new product ideas are good strategic fits for the company. The degree to which leadership allows trial and error and promotes individual initiative positively influences the development of new products. This acceptance of risk and support for an entrepreneurial spirit within the organization are crucial in order for innovation to flourish. New products emerge in a variety of ways and their development does not always proceed in rational and consistent manners. It is necessary for leadership to view the process as iterative and dynamic, and to foster adaptation and flexibility. Management flexibility and responsiveness to change also are needed. This type of leadership is particularly important to the project manager who must coordinate and integrate the various parts of the new product development process so that a coherent system emerges that produces a product with compelling value. Initiative encourages creativity and problem-solving skills.

Teams provide mechanisms for breaking down functional biases created by a strict adherence to structure. The amount of interdepartmental conflict in the organization, the social cohesion among team members, and the frequency and directionality of interdepartmental communication influence team building. Through shared understanding of the objectives and purposes of the project, as well as the tasks required in the development process, teams can shape the project and influence how work gets done in the organization.

IMPROVING SPEED, EFFICIENCY, AND QUALITY

New products often fail because of unanticipated market shifts that result in missed opportunities and misused channels of distribution. Failures also occur

because companies miscalculate their own technological strengths or the product's technological challenges. These potential problems often crop up in the latter stages and result in delays, redesigns, or poor quality products.

Companies are constantly seeking ways to avoid these pitfalls. One solution is new product development maps that chart the evolution of a company's product lines. This historical perspective helps the firm to identify and analyze functional capabilities in a systematic, repetitive fashion that allows for the development of linkages and the identification of resources for new endeavors. These maps can direct the firm to new market opportunities and point out technological challenges.

Aggregate plans for projects offer another solution. Rather than viewing each new product development project individually, they consider all of the new product development projects under consideration by the firm. This is particularly important in firms with hundreds of new product development projects going on at the same time. Projects are categorized according to resources required and contribution to the firm's bottom line. Aggregate project plans enable management to improve the management of new product development by providing greater control over resource allocation and utilization. These plans help to point out where capabilities need to be improved, how sequencing projects may help, and how projects fit with the firm's development strategies.

Return maps graphically represent the contributions of all team members to product success in terms of time and money. Their focus is on the point at which product sales generate sufficient profit so that the firm's initial investment in development is returned. Return maps show team members the time and money needed to complete their tasks in the development process so that they may estimate and re-estimate their investment in the process. In doing this return maps illustrate the impact of their actions on the project's overall success.

Another way to improve the speed and efficiency with which new products are introduced is to involve purchasing in the development process. When purchasing expertise is introduced into the development project team, quality may increase, time to market entry may decrease, investment in inventory may diminish, and costs may significantly decrease.

Technology continues to change and create new opportunities and threats. Customer requirements and expectations continue to shift and create new demands. Old channels of distribution are becoming obsolete and new channels are opening new opportunities. Some competitors are falling by the wayside while others are surging to the forefront by making new and unexpected moves to gain advantage. The very structure of industry is changing. A key to success in this tumultuous environment will continue to be the ability to sustain a competitive advantage through innovation. However, speed, efficiency, and quality in product development will be paramount. Building capabilities in all aspects of product creation and implementation, overcoming uncertainty and facilitating decision-making, ensuring these innovations are strategically linked to the firm's vision, and doing this on a continuous basis is the challenge of new product development in the next century.

SEE ALSO: Innovation; Product Design; Product Life Cycle and Industry Life Cycle

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NON-COMPETE AGREEMENTS

A non-compete agreement, or covenant not to compete, generally is a contract in which one party agrees not to compete with another party in exchange for payment of some consideration. Non-compete agreements are most commonly found in employment contracts, particularly with management or sales

employees; in agreements among shareholders or partners of a business; in contracts for the sale of a business; and in agreements for the funding of a business. Non-compete agreements are difficult to enforce, and must be carefully drafted to conform to the regulations of the state in which the agreement is to be performed.

NON-COMPETE AGREEMENTS IN EMPLOYMENT CONTRACTS

In an employment setting, a non-compete agreement is a contract between an employer and an employee, which prevents the employee from working for a competing company and from divulging to third parties, including new employers, the confidential business and proprietary information, trade secrets, customer lists, and technical and manufacturing processes of the contracting employer. A non-compete agreement must seek to protect a company's legitimate business interests and property. Without such an agreement, employees can leave a company, and subject to state protection against misappropriating a company's trade secrets and federal intellectual property statutes, freely compete with their former employers.

With some exceptions, most states recognize non-compete agreements or restrictive covenants in employment contracts, either through specific provision in a state statute or through the state courts' application of a common law "rule of reason" analysis. The "rule of reason" analysis weighs the company's interest in protecting its proprietary and confidential information in a geographic area for a period of time against the employee's need to have a way in which to earn a living. However, the specific provisions and types of non-compete agreements that the state will recognize varies among the states, and quite often, a non-compete agreement which is found valid in one state is determined by the courts in another state to be unenforceable because, for example, it is too broad in scope or time. Courts are generally not eager to enforce broadly such agreements because they may restrict an individual's ability to earn a living. Courts will also not enforce agreements that are merely broad-based attempts to prevent all competition. As a result, non-compete agreements must be drafted with care to conform with each state's requirements for a valid non-compete agreement. Non-compete agreements in and of themselves do not change the nature of the employment relationship. If it is an at-will relationship, either party can terminate it at any time, and the drafter of a non-compete agreement must be careful, in the attempt to restrict competition, that there is not instead a promise made that the employee will have a job with the employer for life.

One question regarding the at-will employment relationship when a non-compete agreement is in place is whether an employer can discharge an employee for refusing to sign a non-compete agreement, even if that agreement is deemed to be unreasonable. There is concern that such a discharge violates the public policy exception to employment at will; the non-compete agreement may have negative societal effects on the freedom of employees to seek or change jobs and limits to technological advancements. Whether a court will deem a discharge as a violation of public policy depends on the nature of that state's public policy exception and the nature of the state's laws regarding non-compete agreements. California and North Dakota prohibit non-compete agreements in employment relationships, and Oklahoma, Louisiana, Texas, Colorado, and Florida, have all placed limits on the use of non-compete agreements. Thus, the legality and enforceability of the non-compete agreement varies by state.

There are some common provisions in non-compete agreements that are required in all the states that have enforced such agreements. All contractual provisions that seek to restrict competition must be in writing. An oral contract between an employer and an employee, under which the employee promised to not work for a competing company, is not enforceable. As with any contract, there must be "valuable consideration" for the non-compete agreement. The definition of what is sufficient to constitute "valuable consideration" differs by locale, but generally if the non-compete provisions are part of the employment contract at the time of hire, being hired itself has been held to be sufficient consideration for a contract preventing competition if the employment relationship ends. If a non-compete agreement is presented to an employee after employment has commenced, there must be some payment, or at least the promise of a raise or promotion, to the employee in order for the agreement to be found to be based on sufficient consideration. While an employer could claim that continued employment itself was sufficient consideration, and that the employee would have been fired if he or she had signed the contract, such arguments are not favored by courts.

Most importantly, the provisions of the non-compete agreement regarding the geographic territory which the agreement covers, the areas of competition which the agreement protects, and the length of the time of the period of non-competition must be restricted. No court will enforce a contract that attempts to prevent an employee from ever working again. Accordingly, a non-compete agreement should include in very specific terms the interests which the employer wishes to protect from competition, such as technology, research and development efforts, customer lists, pricing information, suppliers, prospective customers and projects, the company's strategic planning efforts, and other confidential and proprietary

business information. Companies commonly refer to these interests as "trade secrets."

Courts are most willing to set aside non-compete agreements, or at least modify them, on the issues of the length of the period of non-competition, and the geographic area which it covers. The basis for the time and geographic restrictions is that they must be "reasonable." This determination differs from state to state, and within a state, from industry to industry. However, anyone attempting to enforce a non-compete agreement must be aware that the agreement will not be looked upon with favor if the amount of time it extends or the geographic area it covers is too broad, based on the type of business, the location of the customer base, and the job duties of the employee restrained by the non-compete agreement. Recent court rulings indicate that the following time periods are likely to be upheld: up to five years for agreements regarding trade secrets, up to three years for agreements regarding sale of a business, and up to six months for other types of agreements (e.g., use of client lists).

NON-COMPETE PROVISIONS IN SHAREHOLDER/PARTNER, FUNDING, OR SALE OF A BUSINESS AGREEMENTS

Agreements among shareholders of or partners in privately held companies often contain non-compete provisions. These protect each of the parties to the agreement from competitive activities of another that would damage the business, since each of the shareholders or partners has access to the company's trade secrets and confidential and proprietary information. Similarly, in agreements to provide funds to a business, particularly where the funding is provided by a venture capital source, there regularly appear non-compete provisions. The funding source includes these provisions because it wants to ensure the likelihood of the business's success by preventing competition by the owners or key managers of the business. In a sale of a business, the former owners are often restrained from setting up a new business, within some geographic area, which will compete with the business they just sold, for a specified period of time, again so that the business which was sold can have a chance to survive without competition from those who have information about the company's strengths and weaknesses. There is usually a separately negotiated payment for the non-compete provisions in a sale of a business agreement, and often the sold business will retain the former owners as consultants during the pendency of the non-compete period. Courts are more willing to enforce these types of non-compete agreements, as opposed to those in employment contracts, since the parties have received something of value-an ownership interest, proceeds of a sale, or funding-that is more than just continued employment.

NON-SOLICITATION AGREEMENTS

A non-solicitation contract, which is similar to an agreement not to compete, prevents one party to the contract from seeking business from clients of the other party to the contract. These kinds of contracts can also restrict one party from recruiting for hire people who work for the other party.

SEE ALSO: Employment Law and Compliance; Entrepreneurship

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Revised by Marcia Simmering

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NONPROFIT ORGANIZATIONS

In the United States, nonprofit organizations (NPOs) are organizations that qualify for tax-exempt status under the U.S. Internal Revenue Code. About half are public charities, to which donors can deduct contributions from their taxes. Private foundations also are charitable organizations, but they are not public charities. They exist primarily to fund charities or individuals. Other types of tax exempt organizations include social welfare, labor or agricultural organizations, business leagues, and fraternal beneficiary societies. Nonprofit organizations are not prohibited from earning a profit or paying salaries and wages, but they must devote any surplus to the organization.

Nonprofit organizations also are known as not-for-profit organizations, or as the "independent sector," as opposed to business or government. Nonprofits constitute about 10 percent of U.S. employees. These organizations play a unique role in society, falling between the concepts of public and private entities. Public agencies provide goods and services that are considered to be universally desirable (such as national security or infrastructure). Private enterprises serve individual tastes and preferences and depend on market-based competition to prosper. By contrast, nonprofit organizations supply services that are considered good for the community as a whole or for specific community members, but which do not elicit widespread

taxpayer support for direct provision. The distinction may be characterized as the difference between “it is right” that these services should exist, and the idea all members of society “have a right” to such services.

While the nonprofit organization exists in many countries, the focus here is on the American NPO. The primary factors unique to this American sector are volunteers, contributions, and tax-exempt status.

THE ROLE OF NONPROFITS IN THE AMERICAN ECONOMY

Nonprofit organizations play a large role in the American economy. It is difficult to get an accurate count of nonprofits, because only organizations with more than $5,000 in annual gross receipts must register with the IRS and only those with receipts in excess of $25,000 must file with the IRS. According to the National Center for Charitable Statistics (NCCS), in 2001 there were 1.33 million tax exempt organizations in the United States. This figure includes those registered and filing with the IRS. Of these, 783,436 were registered charitable nonprofits, including 264,674 that filed with the IRS and 56,582 that were foundations. Human services organizations make up more than 30 percent of the charitable nonprofits; education is the second largest field with 17 percent, and healthcare/mental health is the third with 13 percent. The remaining nonprofit organizations (486,295) fall under the areas of social welfare, labor/agriculture, business leagues, and other. While hospitals represented less than 2 percent of the reporting charitable nonprofits, they had 41 percent of the total expenditures.

It is estimated that there are twice as many organizations not required to file with the IRS because they did not take in $5,000 annually. This would include such familiar organizations as PTAs and Little Leagues. No statistics are available regarding these organizations.

The NCCS collects and disseminates statistics on the U.S. nonprofit sector. This data is gathered from the IRS and other government agencies, private sector service organizations, and the scholarly community. The NCCS builds compatible national, state, and regional databases and develops uniform standards for reporting on the activities of charitable organizations. Excellent charts representing these data are presented in *The United States Nonprofit Sector 2001,* which is available from The National Council of Nonprofit Associations.

In 2004 nonprofit organizations contributed about 5 percent of the gross domestic product. In 2001 more than 12.5 million people were actively involved in NPO activity, representing approximately 9.5 percent of total U.S. employment. Employment in the nonprofit sector is growing more rapidly than in the business sector; 2.5 percent versus 1.8 percent. The number of Americans employed in the nonprofit sector has doubled in the last 25 years. According to the Council of Foundations, the average annual turnover rate for associations is 24 percent, but there appears to be wide variation among nonprofit subsectors. For example, employee turnover in child welfare agencies shows rates between 100 percent and 300 percent.

The nonprofit sector relies heavily on volunteers, which can be a problem for nonprofit managers. Volunteers are motivated to support a particular cause, and not by pay and benefits. Thus, managers must provide creative incentives in “psychic income,” such as recognition. In addition, attendance may be sporadic, leading to variable levels of capacity at any given time. Some organizations in this sector exist primarily to supply employment to those who have traditionally been considered unemployable, with the goal of boosting both morale and self-sufficiency.

FINANCIAL INFORMATION

To generate revenue, NPOs rely on direct appeal to those individuals, corporations, and other entities that value the underlying cause represented by the organization. Fundraising events, including door-to-door appeals and mass mailings, are highly visible means of garnering funds. Charitable nonprofits had about $822 billion in expenditures in 2001, representing approximately 8 percent of the Gross Domestic Product. This revenue came primarily from fees, government grants and contracts, and investments. About 14 percent came from contributions. Competition for funds is more complex than in the corporate world, as there is no financial reward for the contributor. Each year, the American Association of Fundraising Counsel (AAFRC) publishes national giving estimates in its *Giving USA* report. For 2000, *Giving USA* reported the following national totals:

- Individuals: $152.07 billion (75.0%)
- Foundations: $24.50 billion (12.0%)
- Bequests: $16.02 billion (7.8%)
- Corporations: $10.86 billion (5.3%)

Some organizations rely heavily on competitive grants from governmental or philanthropic institutions. Nationally generated funds may be redistributed to local communities on the basis of need, as is done by the United Way and the Red Cross. Increasingly, nonprofits have relied on participant dues, fees, or charges. Such charges can range from the minimal “suggested contribution” for a senior center lunch to the bill for costly medical procedures at a major hospital.

Of the reporting charitable nonprofit institutions in 2001, hospitals had the greatest percentage of total sector assets (about 30 percent), followed by higher education with approximately 20 percent. Human services, healthcare (excluding hospitals), and lower education, each had about 10 percent. Interestingly, only 6.5 percent of the reporting charitable nonprofits had annual expenditures greater than $5 million.

However, these organizations accounted for more than 82 percent of total assets and more than 87 percent of total expenditures.

The accuracy of financial information about this sector of the economy is limited. First, the ongoing initiative to collect and computerize data in standardized form began in the late 1980s to early 1990s. While the Bureau of Labor Statistics tabulates employment figures, the financial information lags due to attempts to standardize and code the data. Second, while all tax-exempt organizations must apply for such status, only those with total annual revenues of at least $25,000 are required to file a Form 990 with the Internal Revenue Service. These non-filers represent about two-thirds of all registered nonprofit organizations. Third, churches are not required to file a Form 990, leaving this data estimation to private sources. Fourth, pass-through contributions (for example, revenues to both the United Way and the local charities it supports) may be double-counted. Therefore, financial figures are at best an estimate.

There is no single agency with oversight for nonprofit organizations. The IRS serves as one control, but some states have instituted more rigorous guidelines than those at the federal level. The Financial Accounting Standards Board, a private self-regulatory body for the accounting profession, developed Financial Accounting Standards 116 and 117 covering nonprofits, but these prescriptions allow a different form of generally accepted accounting practices (GAAP) from private organizations with similar functions. The BBB Wise Giving Alliance collects and distributes information on national nonprofit organizations. It routinely asks such organizations for information about their programs, governance, fund-raising practices, and finances. Although The BBB Wise Giving Alliance does not recommend charities, it does select charities for evaluation based on the volume of donor inquiries about individual organizations. The BBB Wise Giving Alliance was formed in 2001 with the merger of the National Charities Information Bureau and the Council of Better Business Bureaus Foundation and its Philanthropic Advisory Service. The BBB Wise Giving Alliance is a nonprofit charitable organization, affiliated with the Council of Better Business Bureaus.

TAX-EXEMPT STATUS

In exchange for the supply of quasi-public goods and services, nonprofit organizations are exempt from federal taxation on the excess of revenues over costs within the fiscal year. This practice was established in 1913 with the passage of the first federal income tax law. In addition, they also may be forgiven state and local property taxes, and may receive discount postal privileges. Thus, these organizations are publicly subsidized while not directly supported by all taxpayers.

To qualify for tax-exempt status, the nonprofit organization must satisfy a variety of prerequisites. Among these is the declaration of a primary purpose or cause that qualifies under the Internal Revenue Service code. There is no ownership of assets or income other than that of the organization itself. Externally, this implies that there is no income distribution in the form of dividends or other such payments. Internally, there is the further requirement that the organization does not exist for the benefit of individual employees or board members; payment to such individuals in the form of salary, rent, or contractual arrangement is scrutinized by the IRS. However, the only available penalty is the withdrawal of tax-exempt status, and the IRS has historically delivered this blow only rarely.

Examples of nonprofit organizations include such well-known giants as the United Way, the Red Cross, and the Boy Scouts and Girl Scouts. At the other end of the spectrum are local volunteer fire departments, churches, crisis intervention centers, and civic centers. Many hospitals and universities function as nonprofit institutions.

Figure 1 lists the full range of categories of American NPOs as defined by the National Taxonomy

Figure 1

National Taxonomy of Exempt Entities Summary

A - Arts, Culture & Humanities
B - Education
C - Environment
D - Animal-Related
E - Health Care
F - Mental Health & Crisis Intervention
G - Diseases, Disorders & Medical Disciplines
H - Medical Research
I - Crime & Legal-Related
J - Employment
K - Food, Agriculture & Nutrition
L - Housing & Shelter
M - Public Safety, Disaster Preparedness & Relief
N - Recreation & Sports
O - Youth Development
P - Human Services
Q - International, Foreign Affairs & National Security
R - Civil Rights, Social Action & Advocacy
S - Community Improvement & Capacity Building
T - Philanthropy, Voluntarism & Grantmaking Foundations
U - Science & Technology
V - Social Science
W - Public & Societal Benefit
X - Religion-Related
Y - Mutual & Membership Benefit
Z - Unknown

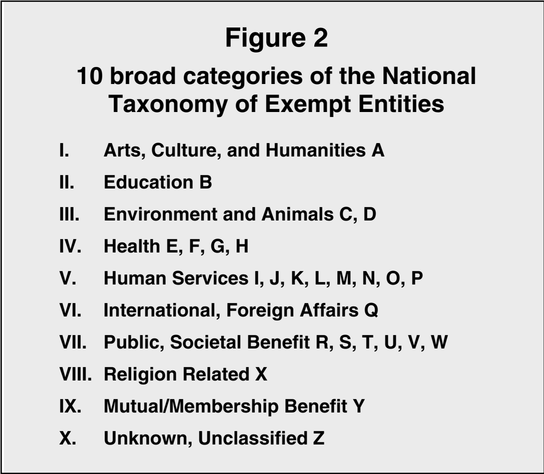

Figure 2

10 broad categories of the National Taxonomy of Exempt Entities

I. Arts, Culture, and Humanities A
II. Education B
III. Environment and Animals C, D
IV. Health E, F, G, H
V. Human Services I, J, K, L, M, N, O, P
VI. International, Foreign Affairs Q
VII. Public, Societal Benefit R, S, T, U, V, W
VIII. Religion Related X
IX. Mutual/Membership Benefit Y
X. Unknown, Unclassified Z

of Exempt Entities. This classification system offers a definitive classification system for nonprofit organizations recognized as tax exempt under the Internal Revenue Code. Figure 2 lists the major categories by which summaries relating to this sector are frequently reported.

From 1940 to the early 1990s, human services and health accounted for approximately half of the NPOs in the United States. In some NPOs, benefits are limited to a select group, such as senior citizens (local agencies on aging) or those suffering from a specific disease (the American Cancer Society). Other groups have relatively open membership for those willing to pay the fee; an example is the YMCA, which provides recreational facilities.

CHALLENGES FOR NONPROFIT MANAGEMENT

Management must contend with the unique aspects of nonprofit organizations: volunteer labor, solicited contributions, and maintaining tax-exempt status. In addition, Herzlinger suggests that NPOs are highly antithetical to business in other important ways: they lack ownership, competition, and the profit motive. Without these incentives, it may be difficult to maintain effectiveness and efficiency. Even measurement of customer satisfaction may prove elusive, as customers may have no alternatives against which to compare the services received. Some controversy exists over several aspects of nonprofit organizations:

1. For example, some question the rationale of the tax-exempt status of open-membership

Table 1
Websites

Alliance for Nonprofit Management	Association of providers of support services to nonprofits	http://www.allianceonline.org
ARNOVA	International membership organization fostering research. Aimed at the academics, provides publications and organizes an annual meeting	http://www.arnova.org
BoardSource (formerly the National Center for Nonprofit Boards)	Practical information for board members	http://www.boardsource.org
Foundation Center	Information for grant makers, criteria for awarding grants and lists of grants.	http://www. fdcenter.org
GuideStar.org	Provides access to IRS filings by nonprofits	http://www.guidestar.org
Internet Nonprofit Center	Disseminates information, advice and statistics	http://www.nonprofits.org
National Center for Charitable Statistics	Collects and disseminates data on nonprofits. Publishes New Nonprofit Almanac & Desk Reference	http://nccs.urban.org
National Council of Nonprofit Organization	An association of state and regional associations of non profits that has the goal of making resources available	http://www.ncna.org
Society for Nonprofit Organizations	National association of nonprofit member organizations providing education and training. Publishes Nonprofit World, a bi-monthly magazine.	http://danenet.wicip.org/snpo/newpage2.htm

facilities, such as the YMCA. For-profit providers of similar services submit that the subsidy of NPOs diminishes the for-profit organization's ability to compete. This situation has led to as yet unsuccessful legislative attempts to level the playing field.

2. Some people question how much nonprofits spend on programs. The BBB Wise Giving Alliance (a nonprofit organization itself) recommends that nonprofits spend at least 50 percent on program activity. Other organizations set this level as high as 80 percent. The remainder is to be spent on non-program expenses, such as administrative and fundraising costs. The amount spent on fundraising can vary widely based upon whether the nonprofit is new or established with many donors. However, no regulation exists to ensure that the majority of revenues are spent on the cause for which the funds were collected.
3. Others question how nonprofits are regulated, and who regulates them. State agencies are increasingly requiring reports from active NPOs to monitor fundraising activity; the agency in turn responds to individual inquiries about the NPO's self-reported record. As in the corporate and governmental groups, administrative salaries occasionally make the news, encouraging contributors to reconsider how their contributions are being used.

Nonprofit organizations are a valuable part of the economy in America and many other countries, providing a broad range of services that might not otherwise be affordable or available without the subsidy of tax exemption. As NPOs grow in number and scope, there is increasing pressure to report on financial activity and performance fulfillment in this sector. The future of nonprofits may rely on disclosure and accountability.

SEE ALSO: Balance Sheets; Financial Issues for Managers; Income Statements

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NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM

The North American Industry Classification System or NAICS (pronounced "nakes") is a system for organizing data on industries and companies for standardized reporting. Implemented in 1997 for the United States and Canada and in 1998 for Mexico, the classification system replaces the U.S. Standard Industrial Classification (SIC) system, as well as the respective classification systems of the other two nations.

The system provides common industry definitions for Canada, Mexico, and the United States. It replaces the three countries' separate classification systems with essentially one uniform system, while allowing for nation-specific customization at the finest level of detail. This means at the broadest levels of the NAICS hierarchy the three countries share common industry codes, but at the most detailed level (represented by six-digit codes) each country may choose to recognize additional sub-industries that are of particular importance to their national economies while remaining

within the broader framework of the cross-national system.

The NAICS and previous SIC systems are administered by the U.S. Office of Management and Budget, but are used by numerous government agencies along with private firms and nonprofit organizations. The systems describe a company or organization, often termed an establishment, using a numerical code based on its type of economic activity—i.e., the kinds of products or services a company provides. Groups of firms in similar lines of business are thus grouped together under the same classification number. Companies are assigned a four-digit to six-digit code, with each additional code number adding more specific data to identify the exact activities of the organization. The first two digits indicate the broad business sector, the third digit designates the sub sector, the fourth digit identifies the industry group, the fifth digit indicates the industry, and the sixth digit designates national industries. For example, the broad category of "information" is winnowed down to groups such as "publishers" and "broadcasters," which are further narrowed to highly specific industry designations like "software publishers" and "radio stations." In light of such specific categories, many large and diversified firms fall into multiple NAICS categories; hence, the category that accounts for the largest share of sales is sometimes known as the company's "primary" industry classification.

Major libraries or the U.S. Government Printing Office in Washington, D.C., maintain detailed information to help researchers determine a particular firm's classification codes. Private publishers also produce listings and rankings of companies by their SIC and NAICS codes. The official NAICS codes assigned to specific companies by government agencies, such as the Census Bureau in its economic censuses, are usually considered confidential, although for the typical company the correct codes can be readily surmised based on public information.

Problems with the SIC system, including the underreporting of services, led to the adoption of the NAICS system. When the SIC system was created in the 1930s, the U.S. economy was heavily dependent on manufacturing. By 2000, however, services had grown to represent 80 percent of the U.S. Gross Domestic Product (GDP). As a result, the SIC codes were replaced in part to provide better information on service firms. However, the service-oriented data is not as detailed as it is for manufacturers and does not have the detailed historical data that is available for manufacturers. The NAICS system was also created to recognize developments in high technology—particularly Internet-related businesses—and increases in international trade following the North American Free Trade Agreement (NAFTA). The revised version known as NAICS 2002 included such new industries as Internet Service Providers, Data Processing Services, and Web Search Portals.

The expanded and standardized coding system aids business reporting as well as assists researchers gathering and studying data across industries. The system provides a consistent framework for industrial statistics and can benefit anyone who uses industry-based data. According to the NAICS Web page sponsored by the Georgetown University Library, the system will most benefit economists, regulators, marketers, and publishers. Because the three governments designed the system jointly, it is expected to provide better standardization and comparability for nearly all North American industry data. However, the Georgetown library cautions that the new NAICS classifications do not always correlate directly with the previous SIC codes. In fact, 358 additional industry codes are included in the newer NAICS system that was not represented in the old system.

There are many uses of NAICS data. A firm can compare its own sales data in a particular NAICS classification to the total sales of all companies in the classification in order to estimate its market share and growth potential, or to gauge its general performance. If competitors have a larger market share, the firm may need to make adjustments in its strategy or target other subgroups within an industry that offer more sales or growth potential. Many organizations use these classifications; for example, Dun & Bradstreet publishes a plant list based on these codes that might be used by marketers or industry analysts to target particular types of firms.

Typical government census data arranged by NAICS classification include the number of establishments in a given category, the number of employees, payroll data, hours worked, value added by manufacturing, the quantity and value of products shipped, materials consumed, and even capital expenditures. Marketers can use the data to determine if categories are growing or not, and thus discover new opportunities. Data will also aid in determining where particular industries are clustered.

The NAICS Association, a private company that markets NAICS-related information, lists four key questions that can be answered using their data:

- Who are potential customers?
- What industries should be targeted?
- How are lists of potential customers obtained?
- What are the NAICS or SIC codes of customers?

Manuals of NAICS information released by the U.S. government are available and include alphabetized

lists of NAICS and SIC codes. Data is also available on CD-ROM format for ease of database referencing.

SEE ALSO: Free Trade Agreements and Trading Blocs

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