Chapter 15

Leadership

CHAPTER OBJECTIVES

After studying this chapter, you should be able to:

1. Define leadership and its ingredients.
2. Describe the trait approaches and charismatic leadership approach and their limitations.
3. Discuss various leadership styles based on the use of authority.
4. Identify the two dimensions of the managerial grid and the resulting extreme leadership styles.
5. Recognize that leadership can be seen as a continuum.
6. Explain the contingency approach to leadership.
7. Describe the path–goal approach to leadership effectiveness.
8. Distinguish between transactional and transformational leaders.

Although some people treat the terms *managership* and *leadership* as synonyms, the two should be distinguished. As a matter of fact, there can be leaders of completely unorganized groups, but there can be managers, as conceived here, only where organized structures create roles. Separating leadership from managership has important analytical advantages. It permits leadership to be singled out for study without the encumbrance of qualifications relating to the more general issue of managership.

Leadership is an important aspect of managing. As this chapter will show, the ability to lead effectively is one of the keys to being an effective manager; also, undertaking the other essentials of managing—doing the entire managerial job—has an important bearing on ensuring that a manager will be an effective leader. Managers must exercise all the functions of their role in order to combine human and material resources to achieve objectives. The key to doing this is the existence of a clear role and a degree of discretion or authority to support managers' actions.

The essence of leadership is followership. In other words, it is the willingness of people to follow that makes a person a leader. Moreover, people tend to follow those whom they see as providing a means of achieving their own desires, wants, and needs.

Leadership and motivation are closely interconnected.

Leadership and motivation are closely interconnected. By understanding motivation, one can appreciate better what people want and why they act as they do. Leaders may not only respond to subordinates' motivations but also arouse or dampen them by means of the organizational climate they develop. Both these factors are as important to leadership as they are to managership.

Defining Leadership

Leadership The art or process of influencing people so that they will strive willingly and enthusiastically toward the achievement of group goals.

Leadership has different meanings to different authors.[1] Harry Truman, former American President, said that leadership is the ability to get men (women) to do what they don't like to do and like it. In this book, **leadership** is defined as influence, that is, the art or process of influencing people so that they will strive willingly and enthusiastically toward the achievement of group goals.[2] Ideally, people should be encouraged to

develop not only willingness to work but also willingness to work with zeal and confidence. Zeal is ardor, earnestness, and intensity in the execution of work; confidence reflects experience and technical ability. Leaders act to help a group attain objectives through the maximum application of its capabilities. They do not stand behind a group to push and prod; they place themselves before the group as they facilitate progress and inspire the group to accomplish organizational goals. A good example is an orchestra leader, whose function is to produce coordinated sound and correct tempo through the integrated effort of the musicians. The performance of the orchestra will depend on the quality of the director's leadership.



Leadership at Southwest Airlines[3]

www.southwest.com

Let us consider the leadership style of Herbert Kelleher, the chairman of Southwest Airlines. He creates a family feeling among his employees by remembering their names and personally sending out birthday cards. In an attempt to stay competitive in the deregulated airline industry, he asked for, and received, considerable concessions from employees and their union. His hands-on leadership style won him the respect and followership of his employees. The austerity measures apply equally to management and employees. His office, for example, is in a barracks-style building. Leading by example those who follow him, he seems concerned about both the tasks to be done and the people who work for him. His leadership style is also congruent with the airline's policy of providing friendly service and keeping costs low.

After the September 11, 2001, attack of the World Trade Center and other facilities in the United States, most American airlines suffered great losses because of the downturn in air travel. Not so Southwest. Herb Kelleher and his successor, Jim Parker, handled the crisis without layoffs by adhering to Southwest's policy of the first priority to employees, second to customers, and third to shareholders (who, by the way, did very well). Southwest's approach to managing, which focuses on keeping things simple, having essentially only one type of aircraft (which simplifies aircraft maintenance and inventory management of spare parts), maintaining a short turnaround to maximize the time the airplanes are in the air (which is the only time they make money), and keeping employees happy, resulted in excellent performance with no losses in the past 26 years. No wonder Herb Kelleher was named Morningstar CEO (chief executive officer) of the Year 2001.[4]

Ingredients of Leadership[5]

www.chrysler.com
www.ge.com
www.microsoft.com

Leaders envision the future; they inspire organization members and chart the course of the organization. Former CEOs Lee Iacocca at Chrysler and Jack Welch at General Electric as well as Bill Gates at Microsoft have provided a vision for their companies. Leaders must instill values—whether they are concern for quality, honesty, and calculated risk taking or concern for employees and customers.

Ingredients of leadership: power; a fundamental understanding of people; the ability to inspire followers to apply their full capabilities; the leader's style and the development of a conducive organizational climate.

Every group of people that performs near its total capacity has some person as its head who is skilled in the art of leadership. This skill seems to be a compound of at least four major ingredients: (1) the ability to use power effectively and in a responsible manner, (2) the ability to comprehend that human beings have different motivating forces at different times and in different situations, (3) the ability to inspire, and (4) the ability to act in a manner that will develop a climate conducive to responding to and arousing motivations.

The first ingredient of leadership is power. The nature of power and the difference between power and authority were discussed in Chapter 9. The second ingredient of leadership is a fundamental understanding of people. As in all other practices, it is one thing to know motivation theory, kinds of motivating forces, and the nature of a system of motivation but another thing to be able to apply this knowledge to people and situations. A manager or any other leader who at least knows the present state of motivation theory and who understands the elements of motivation is more aware of the nature and strength of human needs and is better able to define and design ways of satisfying them and to administer so as to get the desired responses.

The third ingredient of leadership is the rare ability to inspire followers to apply their full capabilities to a project. While the use of motivators seems to center on subordinates and their needs, inspiration comes from group heads, who may have qualities of charm and appeal that give rise to loyalty, devotion, and a strong desire on the part of followers to promote what leaders want. This is not a matter of needs satisfaction; it is, rather, a matter of people giving unselfish support to a chosen champion. The best examples of inspirational leadership come from hopeless and frightening situations: an unprepared nation on the eve of battle, a prison camp with exceptional morale, or a defeated leader undeserted by faithful followers. Some may argue that such devotion is not entirely unselfish, that it is in the interests of those who face catastrophe to follow a person they trust. But few would deny the value of personal appeal in either case.

The fourth ingredient of leadership has to do with the style of the leader and the organizational climate he or she develops. As the previous chapter has shown, the strength of motivation greatly depends on expectancies, perceived rewards, the amount of effort believed to be required, the task to be done, and other factors that are part of an environment, as well as on organizational climate. Awareness of these factors has led to considerable research on leadership behavior and to the development of various pertinent theories. The views of those who have long approached leadership as a psychological study of interpersonal relationships have tended to converge with the personal viewpoint expressed in this book—that the primary tasks of managers are the design and maintenance of an environment for performance.

John Gabarro and John Kotter added another ingredient: effective managers must develop a healthy relationship with their boss.[6] It means that this relationship is based on mutual dependence. Thus, the manager must understand the boss's goals and pressures and give attention to his or her concerns.

Principle of leadership Since people tend to follow those who offer them a means of satisfying their personal goals, the more managers understand what motivates their subordinates and the more they reflect this understanding in their actions, the more effective they are likely to be as leaders.

Almost every role in an organized enterprise is made more satisfying for participants and more productive for the enterprise by those who can help others fulfill their desire for such things as money, status, power, and pride of accomplishment. The fundamental **principle of leadership** is this: since people tend to follow those who, in their view, offer them a means of satisfying their personal goals, the more managers understand what motivates their subordinates and how these motivators operate, and the more they reflect this understanding in carrying out their managerial actions, the more effective they are likely to be as leaders.

Because of the importance of leadership in all kinds of group action, there is a considerable volume of theory and research concerning it. It is difficult to summarize such a large body of research in a form relevant to day-to-day management. However, examined below are several major types of leadership theory and research, together with outlines of some basic kinds of leadership styles.

International Perspective

Canon's Fumio Mitarai: Not the Typical Japanese CEO

By Japanese standards, Fumio Mitarai is a contrarian. He is not so much a consensus builder, but rather he takes decisive actions by himself, such as discontinuing Canon's personal computer division. Moreover, rather than focusing on enlarging market share (as has been typical of Japanese companies

www.canon.com

in the United States), Mitarai focuses on profits. This profit orientation may have been influenced by his experience in America. He has been stated as saying, "I had different business standards and found Japan too irrational."[7] At any rate, he increased his global digital market share from 9 percent in 2000 to 14 percent in 2001. Will other Japanese managers follow his example?

Trait Approaches to Leadership

Prior to 1949, studies of leadership were based largely on an attempt to identify the traits that leaders possess. Starting with the "great man" theory that leaders are born and not made, a belief dating back to the ancient Greeks and Romans, researchers have tried to identify the physical, mental, and personality traits of various leaders. That theory lost much of its acceptability with the rise of the behaviorist school of psychology.

Many studies of traits have been made. Ralph M. Stogdill found that various researchers had identified specific traits related to leadership ability: 5 physical traits (such as energy, appearance, and height), 4 intelligence and ability traits, 16 personality traits (such as adaptability, aggressiveness, enthusiasm, and self-confidence), 6 task-related characteristics (such as achievement drive, persistence, and initiative), and 9 social characteristics (such as cooperativeness, interpersonal skills, and administrative ability).[8]

The discussion of the importance of traits to leadership goes on. More recently, the following key leadership traits have been identified: drive (including achievement, motivation, energy, ambition, initiative, and tenacity), leadership motivation (the aspiration to lead but not to seek power as such), honesty and integrity, self-confidence (including emotional stability), cognitive ability, and an understanding of the business. Less clear is the impact of creativity, flexibility, and charisma on leadership effectiveness.

In general, the study of leaders' traits has not been a very fruitful approach to explaining leadership. Not all leaders possess all the traits, and many nonleaders may possess most or all of them. Also, the trait approach gives no guidance as to *how much* of any trait a person should have. Furthermore, the dozens of studies that have been made do not agree as to which traits are leadership traits or what their relationships are to actual instances of leadership. Most of these so-called traits are really patterns of behavior.

Charismatic Leadership Approach

Charismatic leadership is closely related to the above discussion. One of the early studies of charismatic characteristics was done by Robert J. House.[9] He and other authors indicate that charismatic leaders may have certain characteristics, such as being self-confident, having strong convictions, articulating a vision, being able to initiate change, communicating high expectations, having a need to influence followers and supporting them, demonstrating enthusiasm and excitement, and being in touch with reality.[10] While these may be admirable characteristics, as we will note later in this chapter, other factors such as the characteristics of the followers and the situation may impact on effective leadership.

Leadership Behavior and Styles

There are several theories on leadership behavior and styles. This section focuses on (1) leadership based on the use of authority, (2) the managerial grid, and (3) leadership involving a variety of styles, ranging from a maximum to a minimum use of power and influence.

Styles Based on Use of Authority

The **autocratic leader** commands and expects compliance, is dogmatic and positive, and leads by the ability to withhold or give rewards and punishment.

The **democratic, or participative, leader** consults with subordinates and encourages their participation.

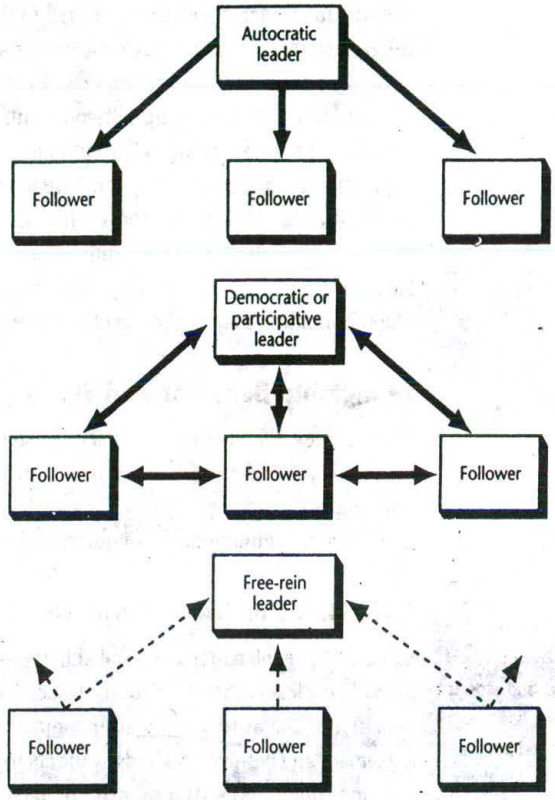
The **free-rein leader** uses power very little, if at all, giving subordinates a high degree of independence.

Some earlier explanations of leadership styles classified the styles on the basis of how leaders use their authority. Leaders are seen as applying three basic styles. The **autocratic leader** commands and expects compliance, is dogmatic and positive, and leads by the ability to withhold or give rewards and punishment. The **democratic, or participative, leader** consults with subordinates on proposed actions and decisions and encourages participation from them. This type of leader ranges from the person who does not take action without subordinates' concurrence to the one who makes decisions but consults with subordinates before doing so.

The **free-rein leader** uses his or her power very little, if at all, giving subordinates a high degree of independence in their operations. Such leaders depend largely on subordinates to set their own goals and the means of achieving them, and they see their role as one of aiding the operations of followers by furnishing them with information and acting primarily as a contact with the group's external environment. Figure 15-1 illustrates the flow of influence in the three leadership situations.

There are variations within this simple classification of leadership styles. Some autocratic leaders are seen as "benevolent autocrats." Although they listen considerately to their followers' opinions before making a decision,

FIGURE 15-1 The flow of influence with three leadership styles



the decision is their own. They may be willing to hear and consider subordinates' ideas and concerns; but when a decision is to be made, they may be more autocratic than benevolent.

A variation of the participative leader is the person who is supportive. Leaders in this category may look upon their task as not only consulting with followers and carefully considering their opinions but also doing all they can to support subordinates in accomplishing their duties.

The use of any style will depend on the situation. A manager may be highly autocratic in an emergency; one can hardly imagine a fire chief holding a long meeting with the crew to consider the best way of fighting a fire. Managers may also be autocratic when they alone have the answers to certain questions.

A leader may gain considerable knowledge and a better commitment from the people involved by consulting with them. As already noted, this

is true in developing verifiable objectives under systems of managing by objectives. Furthermore, a manager dealing with a group of research scientists may give them free rein in developing their inquiries and experiments. But the same manager might be quite autocratic in enforcing a rule stipulating that employees wear a protective covering when they are handling potentially dangerous chemicals.

Do Women Lead Differently?

Women as managers may use a different leadership style than men. One study found that women see leadership as changing the self-interest of followers into concern for the total enterprise by using interpersonal skills and personal traits to motivate subordinates.[11] This *interactive leadership* style involves sharing information and power, inspiring participation, and letting people know that they are important. Men, in contrast, are more likely to see leadership as a sequence of transactions with their subordinates. Moreover, they more often use control of resources and the authority of their position to motivate their people. This does not mean that all successful women and men use the respective leadership styles. Certainly, some men use interactive leadership in guiding their subordinates, and some women use the traditional command structure in directing their followers.

International Perspective

The Body Shop International[12]

www.bodyshop.com

The Body Shop International is an environmentally conscious and socially responsive cosmetic company with more than 1,600 shops located around the world. It was founded in England in 1976 by Anita Roddick. Originally, she developed the products herself in her kitchen. Her unique philosophy and business practices were unconventional in the cosmetic industry, emphasizing the use of natural ingredients and packaging products in reusable containers. The company avoided animal testing of their products and also identified the ingredients used. Employees were selected on the basis of their idealistic motivations and their social and environmental consciousness. The Body Shop's methods of marketing and sales were in sharp contrast to the large cosmetic companies' using fashion models and glitzy advertising.

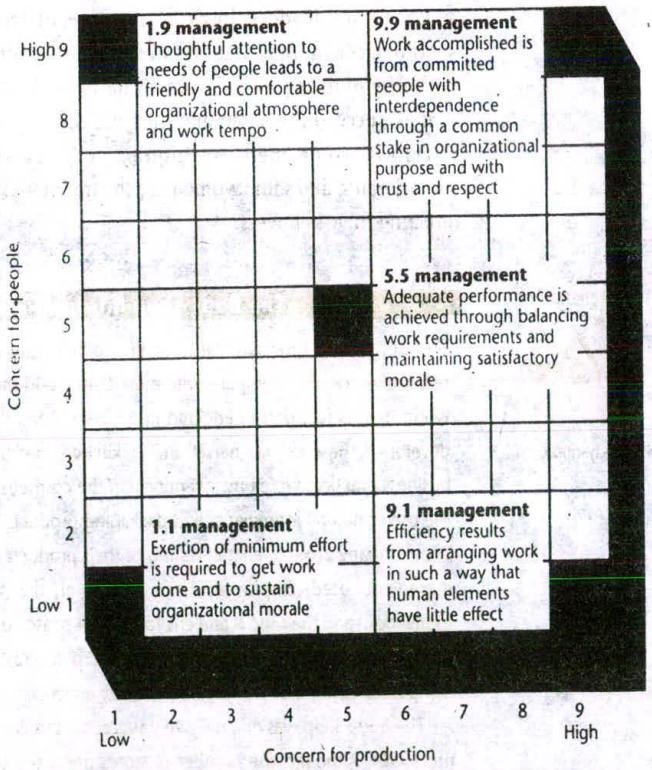
The Body Shop was originally very successful but encountered difficulties in the 1990s. Although the number of stores grew, the turnovers in the stores were flat. In 1998, Anita Roddick resigned as CEO. Some observers were wondering whether customers equally shared her social consciousness. They

were also curious why people would be attracted to a company that used very little advertising, if any at all. Moreover, would the company be able to maintain Ms. Roddick's philosophy and business practices after she vacated her CEO position?

The Managerial Grid

A well-known approach to defining leadership styles is the managerial grid, developed decades ago by Robert Blake and Jane Mouton. Building on previous research that showed the importance of a manager's having concern both for production and for people, Blake and Mouton developed a clever device to dramatize this concern. This grid, shown in Figure 15-2,

FIGURE 15-2 The managerial grid



Adapted from R. R. Blake and J. S. Mouton, *The Managerial Grid* (Houston, TX: Gulf Publishing Company, 1964), p. 10.

has been used throughout the world as a means of training managers and of identifying various combinations of leadership styles.

The grid dimensions

The managerial grid has two dimensions: concern for people and concern for production.

The grid has two dimensions: concern for people and concern for production. As Blake and Mouton emphasize, their use of the phrase *concern for* is meant to convey *how* managers are concerned about production or *how* they are concerned about people, and not such things as *how much* production they are concerned about getting out of a group.

Concern for production includes the attitude of a supervisor toward a wide variety of things, such as the quality of policy decisions, procedures and processes, creativeness of research, quality of service, work efficiency, and volume of output. Concern for people is likewise interpreted in a broad way. It includes such elements as the degree of personal commitment toward goal achievement, maintenance of the self-esteem of workers, placement of responsibility on the basis of trust rather than obedience, provision of good working conditions, and maintenance of satisfying interpersonal relations.

The four extreme styles

Blake and Mouton recognize four extremes of style. Under the 1,1 style (referred to as impoverished management), managers concern themselves very little with either people or production and have minimum involvement in their jobs; to all intents and purposes, they have abandoned their jobs and only mark time or act as messengers communicating information from superiors to subordinates. At the other extreme are the 9,9 managers, who display in their actions the highest possible dedication both to people and to production. They are the real "team managers," who are able to mesh the production needs of the enterprise with the needs of individuals.

Another style is 1,9 management (called country club management by some), in which managers have little or no concern for production but are concerned only for people. They promote an environment in which everyone is relaxed, friendly, and happy and no one is concerned about putting forth coordinated effort to accomplish enterprise goals. At another extreme are the 9,1 managers (sometimes referred to as autocratic task managers), who are concerned only with developing an efficient operation, who have little or no concern for people, and who are quite autocratic in their style of leadership.

By using these four extremes as points of reference, every managerial technique, approach, or style can be placed somewhere on the grid. Clearly, 5,5 managers have medium concern for production and for people. They obtain adequate, but not outstanding, morale and production. They do not set goals too high and are likely to have a rather benevolently autocratic attitude toward people.

The managerial grid is a useful device for identifying and classifying managerial styles, but it does not tell us *why* a manager falls into one part or another of the grid. To determine the reason, one has to look at underlying causes, such as the personality characteristics of the leader or the followers, the ability and training of managers, the enterprise environment, and other situational factors that influence how leaders and followers act.

Leadership as a Continuum

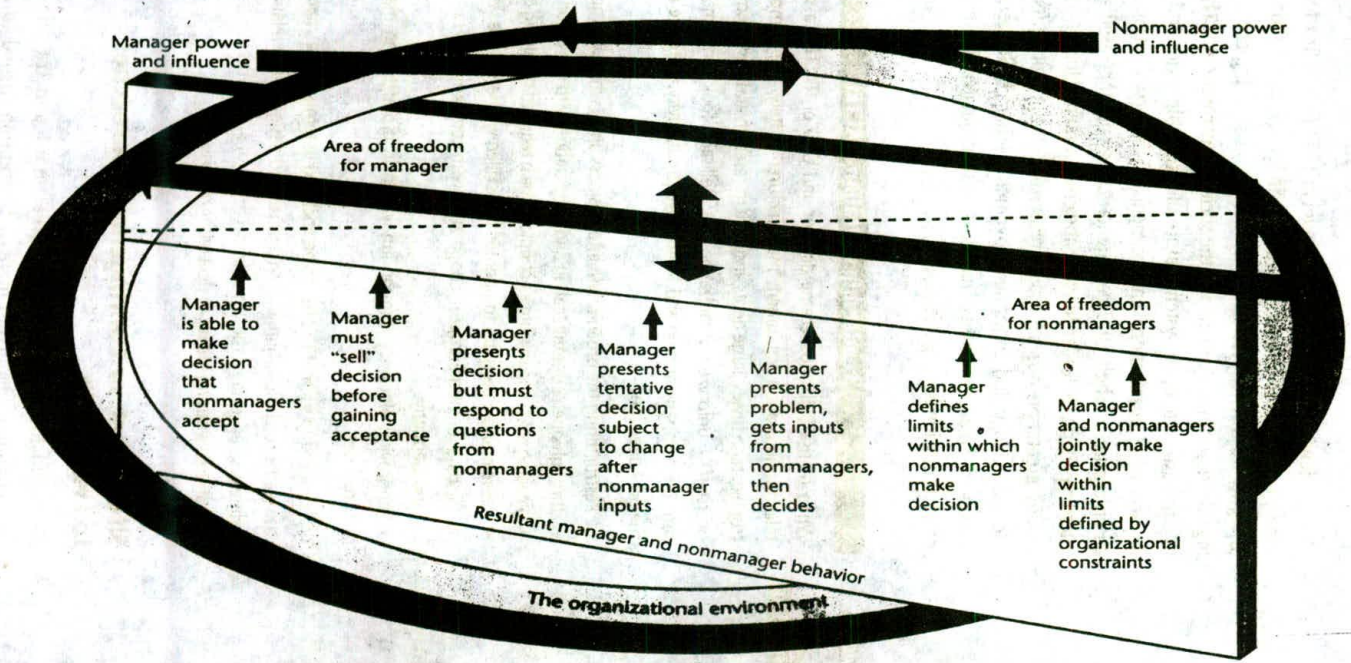
Leadership continuum concept Leadership involves a variety of styles, ranging from one that is highly boss-centered to one that is highly subordinate-centered.

The adaptation of leadership styles to different contingencies has been well characterized by Robert Tannenbaum and Warren H. Schmidt, developers of the **leadership continuum concept**. As Figure 15-3 shows, they see leadership as involving a variety of styles, ranging from one that is highly boss-centered to one that is highly subordinate-centered. The styles vary with the degree of freedom a leader or manager grants to subordinates. Thus, instead of suggesting a choice between the two styles of leadership—authoritarian or democratic—this approach offers a range of styles, with no suggestion that one is always right and another is always wrong.

The appropriate leadership style depends on the leader, the followers, and the situation.

The continuum theory recognizes that the appropriate style of leadership depends on the *leader*, the *followers*, and the *situation*. To Tannenbaum and Schmidt, the most important elements that may influence a manager's style can be seen along a continuum as (1) the forces operating in the manager's personality, including his or her value system, confidence in subordinates, inclination toward leadership styles, and feelings of security in uncertain situations; (2) the forces in subordinates (such as their willingness to assume responsibility, their knowledge and experience, and their tolerance for ambiguity) that will affect the manager's behavior; and (3) the forces in the situation, such as organizational values and traditions, the effectiveness of subordinates working as a unit, the nature of a problem and the feasibility of safely delegating the authority to handle it, and the pressure of time.

FIGURE 15-3 Continuum of manager–nonmanager behavior



Used with permission from R. Tannenbaum and W. H. Schmidt, "Retrospective Commentary on How to Choose a Leadership Pattern," *Harvard Business Review*, vol. 51, no. 3 (May–June 1973), p. 167.

In reviewing their continuum model in 1973 (it was first formulated in 1958), Tannenbaum and Schmidt placed circles around the model, as shown in Figure 15-3, to represent the influences on style imposed by both the organizational environment and the societal environment.[13] This was done to emphasize the open-system nature of leadership styles and the various impacts of the organizational environment and the social environment outside an enterprise. In their 1973 commentary, they put increased stress on the interdependency of leadership style and environmental forces—such as labor unions, greater pressures for social responsibility, the civil rights movement, and the ecology and consumer movements—that challenge the rights of managers to make decisions or handle their subordinates without considering interests outside the organization.

International Perspective

Leadership at Italian ITALTEL[14]

www.italtel.it

When Marisa Bellisario became director and CEO of ITALTEL, a state-owned telecommunication equipment manufacturer in Italy, the company was in trouble: high losses, large debts, insufficient research and development, and an overstaffed, unionized organization. Ms. Bellisario took some major steps to turn the company around and to improve productivity. Here are examples of the new direction:

- Restructuring the organization into business units, which was accomplished through open communication and cooperation with the union
- Leading the company into electronics, which required retraining of employees
- Developing a program to upgrade low-skilled women in the work force
- Pushing for intra-European cooperation with companies in France, England, and Germany
- Improving efficiency through innovation in products and manufacturing processes

Leadership such as this has to be analyzed in terms of the characteristics of the leader (technical, human, conceptual, and design skills); relations with the followers, especially the unionized work force; and the situation, which demanded a strong leader to deal with the crisis.

Situational, or Contingency, Approaches to Leadership

As disillusionment with the "great man" and trait approaches to understanding leadership increased, attention turned to the study of

situations and the belief that leaders are the product of given situations. A large number of studies have been made on the premise that leadership is strongly affected by the situation from which the leader emerges and in which he or she operates. That this is a persuasive approach is indicated by the emergence of Franklin Delano Roosevelt in the Great Depression of the 1930s in the United States and the rise of Mao Zedong in China in the period after World War II. This approach to leadership recognizes that there exists an interaction between the group and the leader. It supports the follower theory that people tend to follow those whom they perceive (accurately or inaccurately) as offering them a means of accomplishing their personal desires. The leader, then, is the person who recognizes these desires and does things, or undertakes programs, designed to meet them.

Situational, or contingency, approaches obviously have much meaning for managerial theory and practice. They also tie into the system of motivation discussed in Chapter 14, and they are important for practicing managers, who must consider the situation when they design an environment for performance.

Fiedler's Contingency Approach to Leadership

Contingency theory of leadership People become leaders not only because of their personality attributes but also because of various situational factors and the interactions between leaders and group members.

Although their approach to leadership theory is primarily one of analyzing leadership style, Fred E. Fiedler and his associates at the University of Illinois came up with a **contingency theory of leadership**.[15] The theory holds that people become leaders not only because of the attributes of their personalities but also because of various situational factors and the interactions between leaders and group members.

Critical dimensions of the leadership situation

On the basis of his studies, Fiedler describes three critical dimensions of the leadership situation that help determine what style of leadership will be most effective:

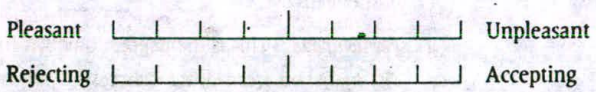
1. *Position power.* This is the degree to which the power of a position, as distinguished from other sources of power, such as personality or expertise, enables a leader to get group members to comply with directions. In the case of managers, this is the power arising from organizational authority. As Fiedler points out, a leader with clear and considerable position power can obtain good followership more easily than one without such power.

2. *Task structure.* With this dimension, Fiedler has in mind the extent to which tasks can be clearly spelled out and people held responsible for them. If tasks are clear (rather than vague and unstructured), the quality of performance can be more easily controlled and group members can be held more definitely responsible for performance.
3. *Leader–member relations.* Fiedler regards this dimension as the most important from a leader's point of view, since position power and task structure may be largely under the control of an enterprise. It has to do with the extent to which group members like and trust a leader and are willing to follow that leader.

Leadership styles

To approach his study, Fiedler set forth two major styles of leadership. One of these is primarily task-oriented, with the leader gaining satisfaction from seeing tasks performed. The other is oriented primarily toward achieving good interpersonal relations and attaining a position of personal prominence.

To measure leadership styles and determine whether a leader is chiefly task-oriented, Fiedler used an unusual testing technique. He based his findings on two types of sources: (1) scores on the *least preferred coworker* (LPC) scale, which are ratings made by people in a group of members with whom they would least like to work; and (2) scores on the *assumed similarity between opposites* (ASO) scale, which are ratings based on the degree to which leaders see group members as being like themselves, on the assumption that people will like best, and work best with, those who are seen as most like themselves. Today, the LPC scale is most commonly used in research. In developing this scale, Fiedler asked respondents to identify the traits of a person with whom they could work least well.[16] Respondents described the person by rating 16 items on a scale of attributes, such as the following:



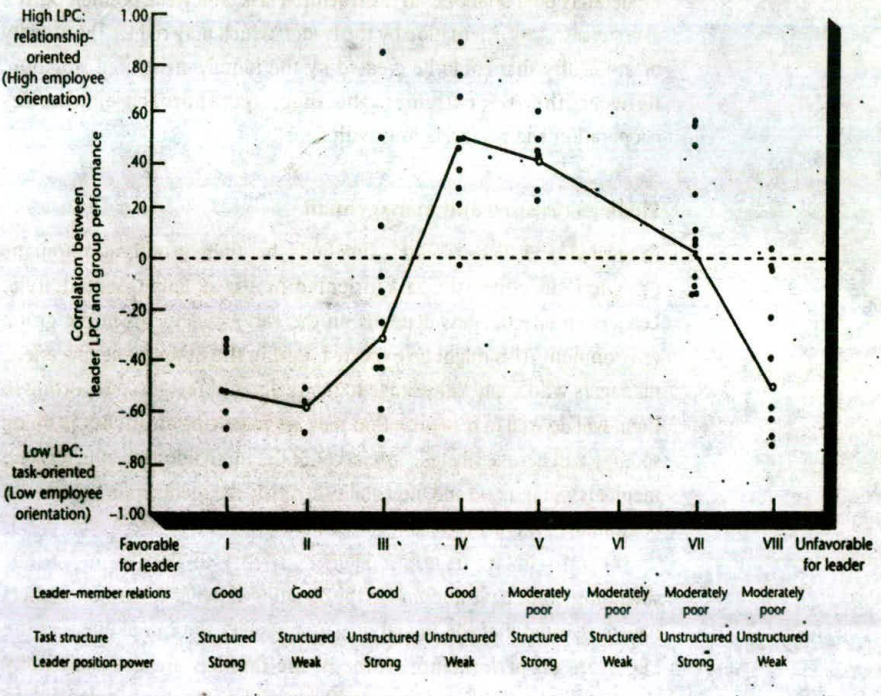
On the basis of his studies with this method, as well as studies done by others, Fiedler found that people who rated their coworkers high (i.e., in favorable terms) were those who derived major satisfaction from successful interpersonal relationships. People who rated their "least preferred coworker" low (i.e., in unfavorable terms) were seen as deriving their major satisfaction from task performance.

From his research, Fiedler came to some interesting conclusions. Recognizing that personal perceptions may be unclear and even quite inaccurate, he nonetheless found the following to be true:

> Leadership performance depends as much on the organization as it depends on the leader's own attributes. Except perhaps for the unusual case, it is simply not meaningful to speak of an effective leader or an ineffective leader; we can only speak of a leader who tends to be effective in one situation and ineffective in another. If we wish to increase organizational and group effectiveness, we must learn not only how to train leaders more effectively but also how to build an organizational environment in which the leader can perform well.[17]

Fiedler's contingency model of leadership is presented as a graph in Figure 15-4. This figure is really a summary of Fiedler's research, in which he found that in "unfavorable" or "favorable" situations the task-oriented

FIGURE 15-4 Fiedler's model of leadership



Each dot in the graph represents findings from a research study.

Adapted from F. E. Fiedler, *A Theory of Leadership Effectiveness* (New York: McGraw-Hill, 1967), p. 146. Used with permission.

leader would be the most effective. **Favorableness of situation** is defined by Fiedler as the degree to which a given situation enables a leader to exert influence over a group. In other words, when leader position power is weak, the task structure is unclear, and leader–member relations are moderately poor, the situation is unfavorable for the leader and the most effective leader will be one who is task-oriented (see the lower right corner of the graph). At the other extreme, where position power is strong, the task structure is clear, and leader–member relations are good—a favorable situation for the leader—the task-oriented leader will also be most effective. However, if the situation is only moderately unfavorable or favorable (the middle of the horizontal scale in the figure), the relationship-oriented leader will be most effective.

In a highly structured situation, such as in the military during a war, where the leader has strong position power and good relations with members, there is a favorable situation in which task orientation is the most appropriate. The other extreme, an unfavorable situation with moderately poor relations, an unstructured task, and weak position power, also suggests task orientation by the leader, which may reduce the anxiety or ambiguity that could be created by the loosely structured situation. Between the two extremes, the suggested approach emphasizes cooperation and good relations with people.

Fiedler's research and management

In reviewing Fiedler's research, one finds that there is nothing automatic or "good" in either the task-oriented or the people-oriented style. Leadership effectiveness depends on the various elements in the group environment. This might be expected. Cast in the desired role of leaders, managers who apply knowledge to the realities of the group reporting to them will do well to recognize that they are practicing an art. But in doing so, they will necessarily take into account the motivations to which group members will respond and their ability to satisfy the members in the interest of attaining enterprise goals.

Several scholars have put Fiedler's theory to the test in various situations. Some have questioned the meaning of the LPC score, and others have suggested that the model does not explain the causal effect of the LPC score on performance. Some of the findings are not statistically significant, and situational measures may not be completely independent of the LPC score.

Despite such criticisms, it is important to recognize that effective leadership style depends on the situation. Although this idea may not be new, Fiedler and his colleagues drew attention to this fact and stimulated a great deal of research.

The Path–Goal Approach to Leadership Effectiveness

Path–goal theory The main function of the leader is to clarify and set goals with subordinates, help them find the best path for achieving the goals, and remove obstacles.

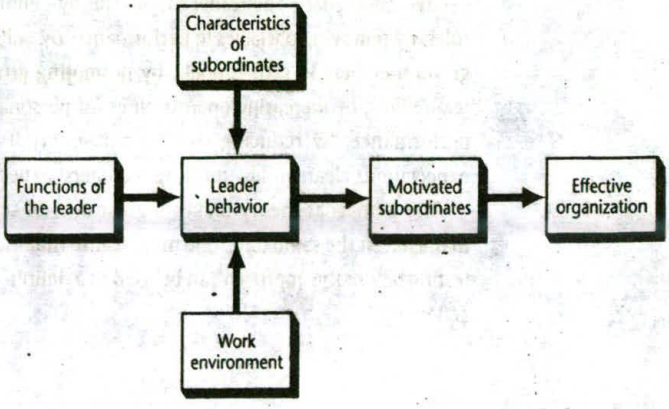
The **path–goal theory** suggests that the main function of the leader is to clarify and set goals with subordinates, help them find the best path for achieving the goals, and remove obstacles. Proponents of this approach have studied leadership in a variety of situations; and as stated by Robert House, the theory builds on various motivational and leadership theories of others.[18]

The theory proposes that situational factors contributing to effective leadership should be considered. These factors include (1) the characteristics of subordinates, such as their needs, self-confidence, and abilities; and (2) the work environment, including such components as the task, the reward system, and the relationship with coworkers (see Figure 15-5).

The theory categorizes **leader behavior** into four groups:

1. *Supportive leadership* behavior gives consideration to the needs of subordinates, shows concern for their well-being, and creates a pleasant organizational climate. It has the greatest impact on subordinates' performance when they are frustrated and dissatisfied.
2. *Participative leadership* allows subordinates to influence the decisions of their superiors, which may increase motivation.

FIGURE 15-5 Path–goal approach to leadership effectiveness



3. *Instrumental leadership* gives subordinates rather specific guidance and clarifies what is expected of them. It involves aspects of planning, organizing, coordinating, and controlling by the leader.
4. *Achievement-oriented leadership* involves setting challenging goals, seeking improvement of performance, and having confidence that subordinates will achieve high goals.

Rather than suggesting that there is one best way to lead, this theory suggests that the appropriate style depends on the situation. Ambiguous and uncertain situations can be frustrating for subordinates, and a more task-oriented style may be called for. In other words, when subordinates are confused, then the leader may tell them what to do and show them a clear path to goals. On the other hand, for routine tasks, such as those found on the assembly line, additional structure (usually provided by a task-oriented leader) may be considered redundant; subordinates may see such efforts as overcontrolling, which in turn may be dissatisfying. To put it differently, employees want the leader to stay out of their way because the path is already clear enough.

The theory proposes that the behavior of the leader is acceptable and satisfies subordinates to the extent that they see it as a source of their satisfaction. Another proposition of the theory is that the behavior of the leader increases the effort of subordinates—that is, it is motivating—insofar as (1) this behavior makes satisfaction of the needs of subordinates dependent on effective performance and (2) the behavior enhances the subordinates' environment through coaching, directing, supporting, and rewarding.

The key to the theory is that the leader influences the path between behavior and goals. The leader can do this by defining positions and task roles, by removing obstacles to performance, by enlisting the assistance of group members in setting goals, by promoting group cohesiveness and team effort, by increasing opportunities for personal satisfaction in work performance, by reducing stresses and external controls, by making expectations clear, and by meeting members' expectations.

The path–goal theory makes a great deal of sense to the practicing manager. At the same time, one must realize that the model needs further testing before the approach can be used as a definite guide for managerial action.

Transactional and Transformational Leadership

Transactional leaders identify what needs to be done to achieve goals, including clarifying roles and tasks, rewarding performance, and providing for the social needs of followers.

Managing involves carrying out the managerial functions effectively and efficiently. One of these functions relates to leading in general and to leadership in particular. A distinction can be made between transactional and transformational leaders. **Transactional leaders** identify what subordinates need to do to achieve objectives, clarify organizational roles and tasks, set up an organization structure, reward performance, and provide for the social needs of their followers. Such leaders work hard and try to run the organization effectively and efficiently.

Transformational leaders articulate a vision, inspire and motivate followers, and create a climate favorable for organizational change.

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Transformational leaders articulate a vision and inspire followers. They also have the capacity to motivate, shape the organization culture, and create a climate favorable for organizational change. Companies such as IBM and AT&T have programs to promote transformational leadership designed to transform their organizations quickly to respond to the rapid changes in the environment. There are many similarities between transformational leaders and charismatic leaders, with the former being noted for initiating innovation and change. When one thinks of charismatic leaders, one thinks of people such as Winston Churchill, Martin Luther King, and Mother Theresa, who inspired people through her selfless service to the poor.



Leadership at the Chinese Haier Group[19]

www.haier.com

Mr. Zhang Ruimin is the founder and CEO of the Haier Group, the most widely recognized home appliances manufacturer in China. Its many products include refrigerators, air conditioners, freezers, and microwave ovens. During China's Cultural Revolution, Mr. Zhang was sent to work in a metal processing plant, which may have helped him later in leading the appliance firm.

With the opening of China, Zhang became familiar with Harvard professor Michael Porter's book on competitive strategy, which emphasizes the importance of recognizing customer needs. Moreover, General Electric's approach to quality management and the emphasis on corporate culture illustrated by its CEO, Jack Welch, also influenced Zhang's view of managing.

www.ge.com

Quality was Mr. Zhang's major concern. When visiting his refrigerator company, he noted that many of the products were defective. To demonstrate his passion for quality, he had the brand new refrigerators destroyed in a dramatic fashion. Needless to say, the workers were impressed, not only by Zhang's

commitment to quality but also by his 14-hour daily work schedule. Uncommon in China at that time, he tied good performance of employees to monetary rewards and promotions.

He also adopted other managerial practices learned from his German partner company, Liebherr. His leadership by example transformed the bureaucratic enterprise into the Haier Group, which is now the best-known Chinese refrigerator company and operates in many countries, including the United States. But a leader cannot rest on accomplishments; a leader must articulate a vision for the future. Guided by Mr. Zhang's foresight, Haier ventured into computers and pharmaceuticals. The entrance of China into the World Trade Organization in 2001 opens opportunities but also presents new challenges for the Haier Group. Mr. Zhang's leadership illustrates that Western management practices can be transferred to countries such as China.

www.liebherr.com

Summary

Leadership is the art or process of influencing people so that they contribute willingly and enthusiastically toward group goals. Leadership requires followership. There are various approaches to the study of leadership, ranging from the trait to the contingency approach. One such approach focuses on three styles: autocratic, democratic or participative, and free-rein.

The managerial grid identifies two dimensions: concern for production and concern for people. On the basis of these dimensions, four extreme styles and a "middle-of-the-road" style are identified. Leadership can also be viewed as a continuum. At one extreme of the continuum, the manager has a great deal of freedom, while subordinates have very little. At the other extreme, the manager has very little freedom, whereas subordinates have a great deal.

Still another approach to leadership, built on the assumption that leaders are the product of given situations, focuses on the study of situations. Fiedler's contingency approach takes into account the position power of the leader, the structure of the task, and the relations between the leader and group members. The conclusion is that there is no one best leadership style and that managers can be successful if placed in appropriate situations. The path–goal approach to leadership suggests that the most effective leaders help subordinates achieve enterprise as well as personal goals. Transactional leaders clarify roles and tasks, set up a structure, and help followers achieve objectives. Transformational leaders articulate a vision,

inspire others, and transform the organization. Transformational and charismatic leadership concepts are similar.

KEY IDEAS AND CONCEPTS FOR REVIEW

Leadership
Ingredients of leadership
Principle of leadership
Leadership traits
Charismatic leadership
Leadership styles based on the use of authority
Managerial grid
Leadership as a continuum
Situational approach to leadership
Fiedler's contingency theory
Path–goal approach to leadership
Transactional leader
Transformational leader

FOR DISCUSSION

1. What do you see as the essence of leadership?
2. How are leadership theory and styles related to motivation?
3. Why has the trait approach as a means of explaining leadership been so open to question?
4. Can you see why the managerial grid has been so popular as a training device?
5. Select a business or political leader whom you admire, and identify his or her style of leading by applying the managerial grid or the continuum-of-behavior model of Tannenbaum and Schmidt.
6. What is Fiedler's theory of leadership? Applying it to cases of leaders whom you have known, do you perceive it as being accurate?
7. What are the advantages and limitations of the path–goal approach to leadership?
8. If you were selected to be the group leader for a class project (e.g., to make a case study of a particular company), which leadership style or what behavior would you use? Why?

EXERCISES/ACTION STEPS

1. Analyze a situation in which you were the leader. Which leadership approach discussed in this chapter helps explain why you were a leader?
2. Analyze a case in this book using the group approach. Specifically, the class should be divided into groups of about five students. Each group should select a spokesperson, who will present the case analysis to the class. For each group, one observer (this person should not be a participant in the case discussion) should describe the interactions in the group. Was there a leader in the group? If the answer is yes, why was he or she considered a leader? Was it owing to his or her personality, the other group members (followers), or the nature of the task (situation)? Explain the group processes in light of any leadership theory or concepts discussed in this chapter.

INTERNET RESEARCH

1. Use any search engine to find sources for the term "business leadership." Do you find different views on leadership?
2. Jack Welch of General Electric is considered by many an effective leader and manager. Scan the Internet for "Jack Welch" and identify his leadership behavior.



Profiles of Two Visionaries: Bill Gates and Steve Jobs[20]

Two men who gave their hearts and souls to developing their visions have driven the personal computer (PC) revolution. However, the way in which each of these men went about this quest has been different. Steve Jobs and Bill Gates have changed the way the world does business, but the story of their leadership styles is even more compelling than the success and innovation spawned by Apple and Microsoft.

Bill versus Steve: The Early Years

Bill Gates started developing his computer skills with childhood friend Paul Allen at Lakeside School in Seattle. At the age of 14, the two had formed their first computer company. After high school, Allen and Gates left Seattle for Boston. Gates went off to Harvard and Allen began working for Honeywell. After only two years at Harvard, Gates and Allen left Boston for Albuquerque to develop a computer language for the new Altair 8080 PC. This computer language would become BASIC and the foundation for Microsoft, which was created as a partnership in 1975.

After five years in New Mexico, Microsoft relocated to Bellevue, Washington, in 1980 with BASIC and two other computer languages (COBOL and FORTRAN) in its arsenal. Later that year, IBM began developing its first PC and was in need of an operating system. Microsoft developed the Microsoft disk operating system (MS-DOS) for IBM while two other companies created competing systems. Gates's determination and persuasion of other software firms to develop programs for MS-DOS made it the default IBM platform.

As Microsoft became more successful, Gates realized that he needed help managing the company. His enthusiasm, vision, and hard work were the driving force behind the company's growth, but he recognized the need for professional management. Gates brought in one of his friends from Harvard, Steve Ballmer. Ballmer had worked for Procter & Gamble after graduating from Harvard and was pursuing his MBA at Stanford. Gates persuaded Ballmer to leave school and join Microsoft. Over the years, Ballmer has become an indispensable asset to both Gates and Microsoft. In 1983, Gates continued to show his brilliance by hiring Jon Shriley, who brought order to Microsoft and streamlined the organization structure, while Ballmer served as an advisor and sounding board for Gates. Microsoft continued to grow and prosper in the 1990s, dominating

both the operating system market with its Windows and the office suite software market with Microsoft Office.

Gates recognized that his role was to be the visionary of the company and that he needed professional managers to run Microsoft. He combined his unyielding determination and passion with a well-structured management team to make Microsoft the giant it is today.

The other visionary, Steve Jobs, and his friend Steve Wozniak started Apple Computer in Jobs's garage in Los Altos, California, in 1976. In contrast to Bill Gates, Jobs and Wozniak were hardware experts and started with a vision for a PC that was affordable and easy to use. When Microsoft offered BASIC to Apple, Jobs immediately dismissed the idea on the basis that he and Wozniak could create their own version of BASIC in a weekend. This was typical Jobs: decisive and almost maniacal at times. Jobs eventually agreed to license Microsoft's BASIC while pursuing his own vision of developing a more usable and friendly interface for the PC.

Many see Jobs as the anti-Gates. He is a trailblazer and a creator as opposed to Gates, who is more of a consolidator of industry standards. Jobs's goal was to change the world with his computers. He was also very demanding of his employees. Jobs was different from Gates, Allen, and Wozniak. He was not a hard-core computer programmer. He was the person selling the idea of the PC to the public. Jobs made the decision to change the direction of Apple by developing the Macintosh (Mac) using a new graphical user interface that introduced the world to the mouse and on-screen icons. Jobs forced people to choose between the Microsoft–IBM operating system and his Mac operating system. In the beginning, Jobs was the visionary who changed the computer world, and Apple dwarfed Microsoft. With all this success, a major problem was brewing at Apple: Steve Jobs was overconfident and did not see Gates and Microsoft as a serious threat to Apple.

Soon after the release of the Macintosh computer, Jobs asked Microsoft to develop software for the Mac operating system. Gates obliged and proceeded to launch a project copying and improving Apple's user interface. The result of that venture was Microsoft Windows.

This cocky attitude and lack of management skills made Jobs a threat to Apple's success. He never bothered to develop budgets, and his relationship with his employees was criticized. Wozniak left Apple after the release of the Mac because of differences with Jobs. In 1985, John Scully, CEO of PepsiCo, replaced Steve Jobs as president and CEO of Apple Computer.

The 1990s saw Microsoft and Apple go in two very different directions. Microsoft became one of the most profitable companies in the world, making Bill Gates the world's richest man. Microsoft Windows became the industry's standard operating system. Apple fell from grace and became a niche market player. Jobs went on to found NeXT, a small computer manufacturing company, and Pixar, the animation house that produced the movies *Toy Story* and *A Bug's Life*.

Microsoft and Apple at the Turn of the Century: An Industry Giant and a Revitalized Leader

With the success of Windows, the Office application suite, and Internet Explorer, Microsoft has become a household name and Bill Gates has been hailed as a business genius. The fact that

Microsoft's competitors, the press, and the U.S. Justice Department have called Microsoft a monopoly reinforces Gates's determination to succeed. Many people question whether Microsoft could survive the Justice Department's decision. Bill Gates, however, has shown that he is the master of adapting to changing market conditions and technologies.

Apple has gone in the opposite direction in the 1990s. The outdated operating system and falling market share eventually led to a decrease in software development for the Mac. Something needed to be done. In 1998, Steve Jobs returned to Apple as the "interim" CEO. His vision, once again, resulted in the innovative iMac. The design is classic Jobs. In the 1980s, he created the simple-to-operate Mac to attract people who were using IBM PCs and their clones. Now he has developed a simple, stylish, and Internet-friendly computer to add some much-needed excitement to the computer market. Jobs has also changed as a manager and a leader. He has matured and looks to his professional staff for advice and ideas. Although he is the interim CEO, Jobs has sold all but one share of his Apple stock. Larry Ellison, Oracle's CEO and Apple board member, attributes Jobs's ability to lead Apple to this fact: "He owns only one share of Apple stock, yet he clearly owns the product and the idea behind the company. The Mac is an expression of his creativity, and Apple as a whole is an expression of Steve. That's why, despite the 'interim' in his title, he'll stay at Apple for a long time."[21] Many people believe that this will lead to continued success for Apple and a renewed battle between Gates and Jobs.

Questions

1. How did Bill Gates and Steve Jobs differ in their leadership style?
2. Compare and contrast the managerial practices of Gates and Jobs.
3. What do you think about the future of Microsoft and Apple Computer?

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Chapter 16

Committees, Teams, and Group Decision Making

CHAPTER OBJECTIVES

After studying this chapter, you should be able to:

1. Explain the nature of various types of committees and groups.
2. Outline the reasons why committees and groups are used, with special attention to their use in decision making.*
3. Present the disadvantages of committees, especially in decision making.
4. Discuss the requirements for using committees effectively.
5. Explain various group concepts.
6. Understand the nature of teams, team building, self-managing teams, and virtual teams.
7. Recognize conflict in committees, groups, and organizations.

* Decision making is also discussed in Chapter 6.

Committee A group of persons to whom, as a group, some matter is committed.

One of the most ubiquitous devices of organization is the committee. Whether it is referred to as a board, commission, task force, team, self-managing team, self-managed work group, or autonomous work group, its essential nature is similar. A **committee** is a group of persons to whom, as a group, some matter is committed. It is this characteristic of group action that sets the committee and team apart from other organizational devices, although, as will be seen, not all committees involve group decision making. As shown later in this chapter, the definition of *team* is similar. Therefore, much of the discussion of committees also pertains to teams, although this term may not be repeatedly used.

The Nature of Committees and Groups

Because of variation in the authority assigned to committees, much confusion has resulted as to their nature.

Group Processes in Committees

Four stages of group development: forming, storming, norming, and performing.

Some say that groups go through four stages: (1) *forming*, when the members of the group get to know each other; (2) *storming*, when the members of the group determine the objective of the meeting and conflict arises; (3) *norming*, when the group agrees on norms and some rules of behavior; and (4) *performing*, when the group gets down to the task. While these characteristics may be found in most groups, they may not necessarily follow these sequential steps.

People play certain roles in committees. Some seek information; others give information. Some try to encourage others to contribute; others are followers. Finally, some try to coordinate the group's effort or to achieve a compromise when disagreements occur, while others take a more aggressive role.

To be effective in a group, one must not only listen to what is said but also observe the nonverbal behavior. Furthermore, noting the seating of members may give clues as to the social bonds among the group participants. Those who know each other often sit next to each other. The seating arrangement may have an impact on the group interaction. Often the chairperson sits at the head of a rectangular table. However, at Daimler-

www.mercedes.com

Benz, the maker of Mercedes-Benz cars, the board of directors sits at a round table to de-emphasize the position of the chairperson.

Functions and Formality of Committees and Groups

Some committees and teams undertake the managerial functions of planning, organizing, staffing, leading, and controlling, while others do not. Some make decisions, while others merely deliberate on problems without authority to decide. Some have authority to make recommendations to a manager, who may or may not accept them, while others are formed to receive information, without making recommendations or decisions.

Plural executive A line committee that also carries out managerial functions, such as the board of directors.

A committee may have either line or staff functions, depending on its authority. If its authority involves decision making affecting subordinates it is responsible for, it is a **plural executive**—a *line committee* that also carries out managerial functions, such as the board of directors. If its authority relationship to a superior is advisory, then it is a *staff committee*.

International Perspective

Corporate Governance

Recently, the boards of directors in U.S. companies have come under intense scrutiny by the Securities and Exchange Commission and other groups because of accounting impropriety at organizations such as Tyco (a conglomerate), WorldCom (a telecommunication company), and Enron (an energy trader) that led to two of the largest bankruptcy cases in U.S. history. There is a call for strengthening the board of directors, a plural executive committee. Among the recommendations by various groups are the following:

- Change the accounting standards and audit regulations.
- Publish ethical and corporate governance guidelines on the company's Web site.
- Strengthen the role of independent directors.
- Make the board accountable to shareholders and involve shareholders in selecting board members.
- Obtain greater involvement of institutional investors (such as pension fund managers).
- Separate the job of the chairperson from that of the chief executive officer (CEO).
- Get the board more actively involved in selecting the CEO.

Other countries are also reviewing corporate governance. For example, German companies have two boards. The supervisory board provides oversight,

while the management board is responsible for managing the firm. Recently, there is a drive to publish the pay of top managers, which in the past was considered a private matter. There is also the push to increase the supervisory board's supervision of the activities of the management board. In France and Italy, the governance issue has not yet become a major issue. For example, in the Italian Fiat Company, families hold a large portion of shares. Still, the publicity on corporate scandals may raise awareness of the role of corporate governance.

Committees may also be formal or informal. If established as part of the organization structure, with specifically delegated duties and authority, they are *formal*. Most committees with any permanence fall into this class. Committees that are *informal* are organized without specific delegation of authority, usually by some person desiring group thinking or a group decision on a particular problem. For example, a manager may have a problem on which he or she needs advice or agreement from other managers or specialists outside his or her department. The manager may therefore call a special meeting for the purpose of solving the problem.

Committees may be relatively *permanent*, or they may be *temporary*. One would expect formal committees to be more permanent than the informal ones, although this is not necessarily so. A formal committee might be established by order of a company president, with appropriate provision in the organization structure, for the sole purpose of studying the advisability of building a new factory and be disbanded immediately upon the completion of its task. And an informal committee set up by the factory manager to advise on the improvement of product quality or to help coordinate delivery dates with sales commitments might continue indefinitely.

Reasons for Using Committees and Groups

One need not look far for reasons for the widespread use of committees and teams. Although the committee is sometimes regarded as having democratic origins and as being characteristic of democratic society, the reasons for its existence go beyond mere desire for group participation. Committees are widely used even in authoritarian organizations.

Group Deliberation and Judgment

Perhaps the most important reason for the use of committees is the advantage of gaining group deliberation and judgment—a variation of

the adage that "two heads are better than one." Very few important business problems fall entirely into one single enterprise function such as production, engineering, finance, or sales. Most problems require more knowledge, experience, and judgment than any individual possesses.

It should not be inferred that group judgment can be obtained only through the use of committees. The staff specialist who confers individually with many persons in a given phase of a problem can obtain group judgment without the formation of a committee. Similarly, an executive may ask key subordinates or other specialists for their analyses and recommendations. At times, group judgment can be obtained more efficiently this way, in terms of time, than by using the deliberations of a committee.

Fear of Too Much Authority in a Single Person

Another reason for the widespread use of committees is the fear of delegating too much authority to a single person. This fear, especially pronounced in government, dictated to the framers of the American Constitution not only the establishment of a two-house legislature and a multimember Supreme Court but also the division of the powers of government among the Congress, the Supreme Court, and the President. Despite this fear of centralized authority, the founders of the American republic placed the administration of laws in the hands of a single top executive. Yet, as President Nixon discovered, the legislature has the power to remove, or force the resignation, of the chief executive.

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www.whitehouse.gov

Representation of Interested Groups

Representation plays a part in the establishment and staffing of committees. Boards of directors are often selected on the basis of groups interested in the company and, perhaps more often, on the basis of groups in which the company has an interest. When executives have a particularly difficult internal problem involving managers and specialists in various departments and activities, they may choose members in such a way as to give these interested parties representation.

Coordination of Departments, Plans, and Policies

There is general agreement that committees are very useful for coordinating activities among various organizational units. They are also useful for coordinating plans and policies as well as their implementation. The

dynamics of modern enterprises place a heavy burden on the managers to integrate plans and activities. A committee permits individuals not only to obtain first-hand knowledge of the plans and of their own role in the execution of them, but also to make suggestions for the improvement of plans.

Transmission and Sharing of Information

Committees are useful for transmitting and sharing information. All group members affected by a mutual problem or project can learn about it simultaneously, and decisions and instructions can be received uniformly with opportunities for clarification. This may save time. The spoken word may clarify a point better than even carefully written memorandums.

Consolidation of Authority

A manager in a department, branch, or section often has only a portion of the authority necessary to accomplish a program. This is known as *splintered authority*. One way to handle a problem in this situation is to refer it upward in the organizational hierarchy until it reaches a point at which the requisite authority exists. But this place is often in the office of the president, and the problem may not be of sufficient importance to be decided at that level.

For example, a customer of a machine tool manufacturer may wish a slight but unusual change in the design of a piece of equipment. The customer approaches the sales department, which (if there is no established procedure for handling this change) cannot act without the authority of the engineering, production, and cost estimating departments. In such a case, the sales manager might establish a special purpose team to study the problem, to agree on the nature and cost of the change, and to use the combined authority of its members to approve the request.

The informal use of committees gives much flexibility to an organization. However, consolidating splintered authority through a committee should be considered carefully. It should be determined whether the organization structure itself should be changed in order to concentrate in one position the appropriate authority to make recurring decisions.

Motivation through Participation

Committees permit wide participation in decision making. People who take part in planning a program or making a decision usually feel more

enthusiastic about accepting and executing it. Even limited participation can be helpful.

Disadvantages and Misuse of Committees

Although there are good reasons for using committees, there are also disadvantages of doing so. They are costly. They may result in compromises at the least common denominator rather than in an optimal decision. They may lead to indecision. They also can split responsibility. Finally, they can lead to a situation in which a few persons impose their will on the majority, not allowing participation of other members.

The committee form has often fallen into disrepute through misuse. In general, committees should not be used as a replacement for a manager, for research study, for unimportant decisions, and for decisions beyond the participants' authority.



What People Say about Committees

Disparaging attitudes toward committees are reflected in such sayings as the following:

- "A camel is a horse invented by a committee."
- "A committee is made up of the unfit selected by the unwilling to do the unnecessary."
- "A committee is a place where the loneliness of thought is replaced by the togetherness of nothingness."

Successful Operation of Committees and Groups

Managers spend a great deal of time in committees. The use of committees is due not only to the democratic tradition but also to a growing emphasis on group management and group participation in organizations. In attempting to overcome some of the disadvantages of committees, managers may find the following guidelines useful.

Authority

A committee's authority should be spelled out so that its members know whether their responsibility is to make decisions, make recommendations, or merely deliberate and give the chairperson some insights into the issue under discussion.

Size

The complexity of interrelationships greatly increases with the size of the group.

The size of a committee is very important. As shown in Figure 16-1, the complexity of interrelationships greatly increases with the size of the group. If the group is too large, there may not be enough opportunities for adequate communication among its members. On the other hand, if the group consists of only three persons, there is the possibility that two may form a coalition against the third member. No precise conclusions can be drawn here about the appropriate size. As a general rule, a committee should be large enough to promote deliberation and include the breadth of expertise required for the job, but not so large as to waste time or foster indecision. It is obvious that the larger the group, the greater the difficulty in obtaining a "meeting of the minds" and the more time needed to allow everyone to contribute.

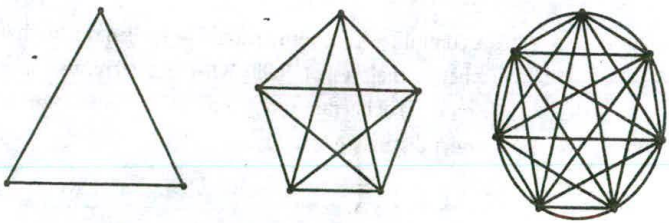
Membership

The members of a committee must be selected carefully. If a committee is to be successful, the members must be representative of the interests they are expected to serve. They must also possess the required authority and be able to perform well in a group. Finally, the members should have the capacity for communicating well and reaching group decisions by integrated group thinking rather than by inappropriate compromise.

Subject Matter

The subject must be carefully selected. Committee work should be limited to subject matter that can be handled in group discussion. Certain kinds of subjects lend themselves to committee action, while others do not. Jurisdictional disputes and strategy formulation, for example, may be suitable for group deliberation, while an expert in the relevant specialized field may better solve certain isolated, technical problems. Committees

FIGURE 16-1 Increased complexity of relationships through increase in group size



will be more effective if an agenda and relevant information are circulated well in advance so that members can study the subject matter before the meeting.

Chairperson

The selection of the chairperson is crucial for an effective committee meeting. Such a person can avoid the wastes and drawbacks of committees by planning the meeting, preparing the agenda, seeing that the results of research are available to members ahead of time, formulating definite proposals for discussion or action, and conducting the meeting effectively. The chairperson sets the tone of the meeting, integrates the ideas, and keeps the discussion from wandering.

Minutes

Effective communication in committees usually requires circulating minutes and checking conclusions. At times, individuals leave a meeting with varying interpretations as to what agreements were reached. This can be avoided by taking careful minutes of the meeting and circulating them in draft form for correction or modification before the committee approves the final copy.

Cost-Effectiveness

A committee must be worth its costs. It may be difficult to count the benefits, especially such intangible factors as morale, enhanced status of committee members, and the committee's value as a training device to enhance teamwork. But the committee can be justified only if the costs are offset by tangible and intangible benefits.

Additional Group Concepts[2]

Although the committee is of special importance as an organizational device, it is really only one of many types of groups that are found in organizations. In addition to committees, there are teams, conferences, task forces, and negotiation sessions, all involving group activities.

Group Two or more people acting interdependently in a unified manner toward the achievement of common goals.

A **group** may be defined as two or more people acting interdependently in a unified manner toward the achievement of common goals. A group is more than a collection of individuals; rather, through their interactions, new forces and new properties are created that need to be identified and studied in themselves. The goals may pertain to specific tasks, but they

may also mean that the people share some common concerns or values or an ideology. Thus, group members are attracted to each other by some social bonds.

Characteristics of Groups

Groups—and the focus is on groups in an organization—have a number of characteristics. First, group members share one or more common goals, such as the goals of a product group to develop, manufacture, and market a new product. A second characteristic of groups is that they normally require interaction and communication among members. It is impossible to coordinate the efforts of group members without communication. Third, members within a group assume roles. In a product group, various individuals are responsible for designing, producing, selling, or distributing a product. Naturally, the roles are in some kind of relationship to each other in order to achieve the group task. Fourth, groups usually are a part of a larger group. The product group may belong to a product division that produces many products of a similar nature. Large groups may also consist of subgroups. Thus, within the product group may be a subgroup specializing exclusively in the selling of the product. Also, groups interface with other groups. Thus, product group A may cooperate with product group B in the distribution of their products. It is evident, then, that the systems point of view, which focuses on the interrelatedness of parts, is essential in understanding the functioning of groups.

Norms The expected behavior of group members.

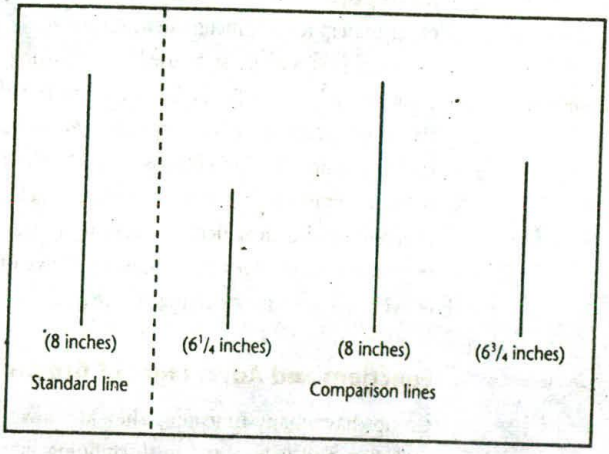
There are a number of other sociological characteristics of groups that must be recognized. Groups develop **norms**, which refer to the expected behavior of the group members. If individuals deviate from the norms, pressure is exerted to make them comply. This can be functional when, for example, a person who frequently shows up late for work is admonished by other group members. But there are also situations in which groups may be dysfunctional. For example, ambitious, highly motivated employees may be pressed to produce in congruence with generally accepted norms rather than according to their abilities.

International Perspective

Pressure toward Conformity: How Would You Respond?

In a widely publicized experiment, S. E. Asch showed the impact of group pressure toward conformity.[3] Members of a small group were asked to match a standard line (8 inches long) with three comparison lines ($6\frac{1}{4}$, 8, and $6\frac{3}{4}$ inches long) (see Figure 16-2). One member of the group (the naive subject) was not

FIGURE 16-2 Which comparison line is the same length as the standard line?



aware that all the other students in the group (confederates of the experimenter) were instructed to occasionally give wrong answers, such as saying that the 6¾-inch line was as long as the 8-inch standard line. The setting was arranged so that the naive subject was one of the last ones to make a judgment. It was found that an "innocent" member made wrong choices when the confederates did so unanimously. In later interviews, subjects reported that they wanted to agree with the majority. This illustrates that, even in a rather uncomplicated task, people may decide against their better judgment owing to group pressure. These findings explain to some extent the influence of group pressure toward conformity and how it may result in managerial decisions that are less than optimal.

A Special Kind of Group: The Focus Group

Focus groups have been used for some time in market research. For example, actual or potential customers are asked in a group setting to comment on a product or service before large-scale research is undertaken. The comments may be taped or notes may be taken. The responses are then analyzed to determine the customers' attitudes, perceptions, or satisfaction with regard to the product or service.

Elements of focus groups have also been used in Europe. Germany's public participated in value forums to determine long-term energy policies. The experience indicated that the public can contribute to value forums,

the participants were satisfied with this kind of procedure, and they were eager to help resolve inconsistencies.

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Focus groups may also be used for evaluating managerial aspects within an organization. The Public Service Company of New Mexico established six focus groups to elicit responses about its performance appraisal, compensation, and benefits systems. On the basis of the findings, the company implemented a more flexible benefits program, a job redesign program, and a new decision-making process. Rather than imposing organizational changes, the company allowed the employees to become actively involved in the change process.

Functions and Advantages of Groups[4]

Groups have many functions. They are powerful in changing behavior, attitudes, and values and in disciplining members. As noted, deviant members may be pressured to adhere to group norms. In addition, groups are used for decision making, negotiating, and bargaining. Thus, group members with diverse backgrounds may bring different perspectives to the decision-making process. This does not mean, however, that group decisions are always better than individual decisions.

Group concepts are very important for the topics covered in other chapters in this book. Specifically, different group structures influence *communication* patterns. Thus, communication will differ when it is channeled through one key member or when it flows freely among all the group members. One can hardly consider a number of people a team when each member communicates only with the boss; teamwork requires open communication among all members. Effective group interaction may also affect *motivation*. For example, group members participating in setting objectives may become committed to the achievement of group goals. Finally, *leadership* must be seen in the context of group processes. A grasp of group concepts helps in understanding the interactions between leaders and followers as well as among all the group members. In short, an understanding of groups is important for carrying out all managerial functions, particularly the function of leading. Groups are a fact of organized and unorganized life. It is important to know how they work and to use them in an effective and efficient manner in situations that favor group actions.

Groups also have advantages for individuals. Groups do provide social satisfaction for their members, a feeling of belonging, and support for the

needs of individuals. Another benefit of groups is that they promote communication. It may be the give-and-take in a formal meeting, or it can take the form of the grapevine, which is the informal communication through which group members become aware of "what is really going on in the organization." Groups also provide security. Labor unions are sometimes formed precisely for this reason—to give job security to their members. Finally, groups provide opportunities for promoting self-esteem through recognition from and acceptance by peers.

Teams[5]

Team A small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable.

A team consists of a number of people who are empowered to achieve team goals. As mentioned at the beginning of the chapter, committees, groups, and teams have similar characteristics. A **team** can be defined as "a small number of people with complementary skills who are committed to a common purpose, set of performance goals, and approach for which they hold themselves mutually accountable."[6] As with committees, there are different types of teams. Some make recommendations, others have the power to make decisions, and still others actually run operations. Some teams are created to solve problems, such as quality circles; others engage in activities that cross functional areas, such as design, marketing, finance, manufacturing, personnel, and so on. Such cross-functional teams may be used for developing a new product or to improve the quality of a product or service. For example, in the design and development of the Boeing 777 airliner, some 200 cross-functional teams were involved. It is clear that what has been said about committees also applies to teams.

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Team Building[7]

There are no definite rules for building effective teams. The following approaches, however, were found to be useful. Team members must be convinced that the team's purpose is worthwhile, meaningful, and urgent. Team members should also be selected according to the skills needed to achieve the purpose. Teams should have the right mix of skills, such as functional or technical skills, problem-solving and decision-making skills, and of course human relations skills. The team needs to be guided by rules for group behavior, such as regular attendance, confidentiality, discussions based on facts, and everyone contributing. Goals and required tasks should be identified early in team formation. Members should encourage each other through recognition, positive feedback, and rewards.

Self-managing Teams[8]

Self-managing team A group with members who have a variety of skills needed to carry out a relatively complete task.

Recently, organizations have used **self-managing teams**, which usually consist of members who have a variety of skills needed to carry out a relatively complete task. Thus, such a team may have the power to determine what needs to be done, how it will be done, when it needs to be completed, and who is going to do it. Team members may also be evaluated and rewarded as a group. Especially when the team has a great deal of power, it may be called a *high-performance team* or even a *super team*.

Virtual Teams

Virtual management Running a team whose members are not in the same location, do not report to the person managing it, and may not even work for the same organization.

In the rapidly changing environment, a company has to respond fast to take advantage of opportunities. This, in turn, may require **virtual management**, which has been described as "the ability to run a team whose members aren't in the same location, don't report to you, and may not even work for your organization."[9] Not being in the same location and not even reporting to the same superior make managing those teams even more difficult. Therefore, it is important to have a clear purpose, to define clearly the tasks and assumptions, and to communicate effectively by such means as e-mail, fax, telephone, and perhaps even a project Web site. It is also essential to carefully watch for possible conflict so that it can be resolved quickly.

Conflict in Committees, Groups, and Teams[10]

Conflict may arise between individuals, between groups, and between the organization and its environment.

Despite the many advantages of committees, groups, and teams, conflict will arise. In the discussion of committees, we pointed out the disadvantages of committees; they also apply to groups and teams. In addition, there is a great deal of literature dealing with work-group and team conflict.[11] Conflict may arise between individuals (interpersonal conflict), between groups (intergroup conflict), and between the organization and its environment, such as with other organizations. There can also be resentment toward "free riders," individuals who do not contribute their fair share yet share in group rewards.

Summary

A committee is a group of persons to whom, as a group, some matter is committed. Committees may be line or staff, formal or informal, permanent or temporary. Committees are used for obtaining group deliberation and

judgment, for preventing one person from accumulating too much authority, and for presenting the views of different groups. Committees are also used for coordinating departments, plans, and policies as well as for sharing information. At times, a manager may not have all the authority needed for making a decision; authority is therefore consolidated through committees. Moreover, committees often increase motivation by letting people participate in the decision-making process.

Committees also have disadvantages: they can be costly, their actions may result in compromises at the least common denominator, their discussions may lead to indecisions, and they have the tendency to be self-destructive when one person dominates the meetings. Another drawback is that responsibility is split, with no one person feeling responsible for a decision. Moreover, a small group of committee members may insist on the acceptance of their unwarranted view against the will of the majority.

Effective operation of a committee requires determining its authority, choosing an appropriate size, selecting members carefully, using it only for the proper subject matter, appointing an effective chairperson, taking and circulating minutes, and using it only when its benefits exceed its costs.

The experiment by Asch shows the impact of group pressure toward conformity. The focus group is a special kind of group that elicits responses from customers, the public, or employees. Before an organization uses group actions, it must consider the advantages and disadvantages of groups. A committee is one kind of group; another kind is a team. In the self-managing team, members have a variety of skills needed to carry out relatively complete tasks. In virtual management, team members are not in the same place, do not report to the same superior, and may not work for the same organization. With the wide use of committees, groups, and teams, interpersonal and intergroup conflict may arise. In addition, conflict between organizations as well as between organizations and their environments needs to be dealt with.

KEY IDEAS AND CONCEPTS FOR REVIEW

Committee
Four stages in group processes
Plural executive and board of directors
Line and staff committees
Formal and informal committees
Permanent and temporary committees
Reasons for using committees
Disadvantages and misuse of committees

Recommendations for making committees successful
Characteristics of groups
Norms
Asch's experiment on group pressure
Focus group
Functions and advantages of groups
Team and team building
Self-managing team
Virtual team
Conflict in committees, groups, and teams

FOR DISCUSSION

1. A prominent novelist-critic of the management scene has said: "I don't think we can go on very much longer with the luxurious practice of hiring ten men to make one man's decision. With all its advantages, professional management tends to encourage bureaucratic corpulence." Comment.
2. Distinguish between a committee, a team, and a group.
3. What are the reasons for using committees? If there are good reasons, why are committees criticized so much?
4. What is the relative effectiveness of individual and committee action in functional activities? Identify the activities that can be undertaken most effectively by a committee.
5. Describe and discuss the nature of misapplications of committees.
6. What would you recommend for making committees effective?
7. Go to the Internet and find out what has been written about team management.
8. What are the major characteristics of groups in organizations?

EXERCISES/ACTION STEPS

1. Discuss the case in this chapter in groups. Divide the class into groups of various sizes (e.g., groups of 3, 6, 9, and 12 students). Each group is to analyze the case and make recommendations. A spokesperson should be selected in each group to present the group's view on the case. On what basis was the spokesperson selected? What are the similarities and differences between a spokesperson and a chairperson? Discuss the advantages and problems encountered in the groups of various sizes. What do you think is the ideal group size?
2. Interview two managers and ask about their experiences in committees. Do they have a positive or a negative view of committees? What have they found to be most important for making committees effective and efficient? What do they think is the ideal size of a committee?

INTERNET RESEARCH

1. Search the Internet for the term "virtual team" and see how companies develop and apply tools for virtual teams in real situations.
2. Search the Internet using the key words "Asch effect" or "Asch experiment." Find out the details of the experiment.

International Case

To Merge or Not to Merge: That Is the Question for HP, Compaq, and CEO Fiorina[12]

The high-tech business is changing rapidly. Some companies, such as Dell and IBM, have gained strengths and pose a threat to other companies, such as Hewlett-Packard (HP) and Compaq. It appeared to make sense for the latter two to merge—or did it? At the center of the merger decision was HP's CEO, Carleton (Carly) S. Fiorina, who was instrumental in engineering the proposed merger. On the other side was Walter B. Hewlett, the son of one of the founders of HP Corporation, which was known for its humane organization culture. Hewlett, representing the HP Foundation, opposed the merger. Thus, the final decision on the merger would be a group decision.

Ms. Fiorina, an outsider, was brought in to head HP with the aim of reinvigorating the organization and move the company in a new direction. There were arguments supporting a merger with Compaq, but there were also reasons for not pursuing such a strategy. After the merger was announced, both companies' stocks fell.

Each company has its strengths and weaknesses, but there is also an overlap of their respective products and services. HP's strengths are in imaging and printing systems. Its software and service businesses have growth potential, although they are only a small part of the total business. The company also is strong in UNIX servers, an area that was dominated by Sun Microsystems.[13] Perhaps most important, HP has an excellent reputation for innovation and quality. Compaq's strengths, on the other hand, are in the hardware business and its strong distribution channels. Moreover, it is known for its information technology services providing one-stop solutions.

But both companies also have weaknesses. For HP, one is the declining growth of the personal computer (PC) market, where it is difficult to compete with IBM and Dell. It is also weak in the server market, which has profit potential (but note that Dell is also moving into this market). The company's direction is somewhat vague and it is not aggressive enough in the market, a problem Fiorina was supposed to solve. Instead, she lost the confidence of a portion of the work force.

One of Compaq's weaknesses at the time of the proposed merger was its high inventory. In contrast, its competitor Dell took orders and customized its computers, thus reducing inventory costs. Similarly, Dell's strength in online business showed up Compaq's weakness in this area.

It is clear that a merger between HP and Compaq could be beneficial by combining products and services (despite some overlaps), although there were several arguments that could be made against the merger. One would be the difficulty of merging two large firms (150,000 people in some 160 countries). Moreover, the PC market is losing importance, and competitors such as IBM and Dell are better positioned in that field. It would also be difficult to merge two companies with very different organization cultures. Certainly, the opposition to the merger by Walter Hewlett, who was on the HP board, was also hindering such a strategic move.

HP and Compaq maintained that the competitive situation seemed to demand such a merger, which could result in cost savings (estimated at $2.5 billion by the year 2004, but this may be too

optimistic). Also, the sharing of technology and consolidation of the customers of both companies would benefit the merged new HP, which would rival IBM in size.

Although Fiorina strongly argued for the proposed merger, she also had to realize the risks in the merger and weigh the pros and cons of this strategic move—risks not only for the company but also for her survival at HP. The decision to merge or not to merge was a group decision. The David and Lucile Packard Foundation, led by the children of the founders of the company, voted against the merger. The legal attempt by Mr. Packard was not successful and the merger proceeded. The question now is, can Ms. Fiorina, who was ranked as the most powerful woman in American business,[14] build a cohesive management team despite the division within HP and the diverse cultures of HP and Compaq?

Questions

1. List and discuss the pros and cons for the merger?
2. What are the personal risks for Ms. Fiorina?
3. How did she influence members of the group to approve the merger between HP and Compaq?
4. Why do you think Fiorina lost the confidence of the work force?
5. What should Fiorina do to build a cohesive management team of the combined company?

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Chapter -17

Communication

CHAPTER OBJECTIVES

After studying this chapter, you should be able to:

1. Describe the purpose of communication and the basic communication process.
2. Explain the flow of communication in an organization.
3. Describe the characteristics of written, oral, and nonverbal communication.
4. Identify barriers and breakdowns in communication and suggest approaches to improve it.
5. Understand the role of the electronic media in communication.

Communication The transfer of information from a sender to a receiver, with the information being understood by the receiver.

Although communication applies to all phases of managing, it is particularly important in the function of leading. **Communication** is the transfer of information from a sender to a receiver, with the information being understood by the receiver. This definition forms the basis for the communication process model discussed in this chapter. The model focuses on the sender, the transmission, and the receiver of the message. It also draws attention to "noise," which interferes with good communication, and feedback, which facilitates communication. This chapter also examines the impact of the electronic media on communication.

The Purpose of Communication

In its broadest sense, the purpose of communication in an enterprise is to effect change—to influence action toward the welfare of the enterprise. Communication is essential for the *internal* functioning of enterprises because it integrates the managerial functions. Especially, communication is needed (1) to establish and disseminate the goals of an enterprise; (2) to develop plans for their achievement; (3) to organize human and other resources in the most effective and efficient way; (4) to select, develop, and appraise members of the organization; (5) to lead, direct, motivate, and create a climate in which people want to contribute; and (6) to control performance.

Figure 17-1 graphically shows not only that communication facilitates the managerial functions but also that communication relates an enterprise to its *external* environment. It is through information exchange that managers become aware of the needs of customers, the availability of suppliers, the claims of stockholders, the regulations of governments, and the concerns of the community. It is through communication that any organization becomes an open system interacting with its environment, a fact whose importance is emphasized throughout this book.

The Communication Process

Simply stated, the communication process, diagramed in Figure 17-2, involves the sender, the transmission of a message through a selected channel, and the receiver. Let us examine closely the specific steps in the process.

FIGURE 17-1 The purpose and function of communication

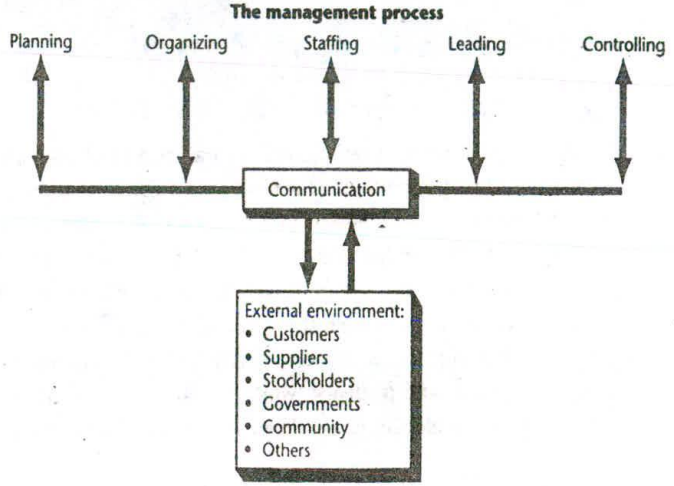
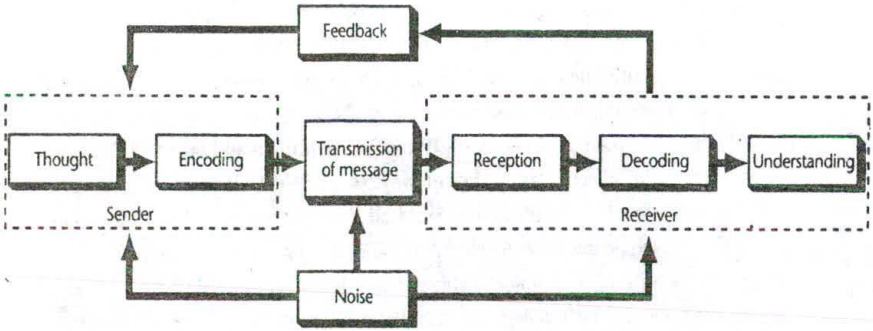


FIGURE 17-2 A communication process model



Sender of the Message

Communication begins with the sender, who has a *thought* or an idea, which is then encoded in a way that can be understood by both the sender and the receiver. While it is usual to think of *encoding* a message into a spoken language, there are many other ways of encoding, such as translating the thought into computer language.

Use of a Channel to Transmit the Message

The information is then transmitted over a channel that links the sender with the receiver. The message may be oral or written, and its *transmission*

may be through a memorandum, a computer, the telephone, a telegram, e-mail, television, or other media. Television, of course, also facilitates the transmission of gestures and other visual clues. At times, two or more channels are used. In a telephone conversation, for instance, two people may reach a basic agreement that they later confirm by a letter. Since many choices are available, each with advantages and disadvantages, the proper selection of the channel is vital for effective communication.

Receiver of the Message

The receiver has to be ready for the *reception* of the message so that it can be decoded into thoughts. A person thinking about an exciting football game, for example, may pay insufficient attention to what is being said about an inventory report, thus increasing the probability of a communication breakdown. The next step in the process is *decoding*, in which the receiver converts the message into thoughts. Accurate communication can occur only when both the sender and the receiver attach the same, or at least similar, meanings to the symbols that compose the message. Thus, it is obvious that a message encoded into French requires a receiver who understands French. Less obvious, and frequently overlooked, is the fact that a message in technical or professional jargon requires a recipient who understands such language. So communication is not complete unless it is understood. *Understanding* is in the mind of both the sender and the receiver. Persons with closed minds will normally not completely understand messages, especially if the information is contrary to their value system.

International Perspective

Cross-Cultural Barriers

Misunderstandings increase when communicating is done in different languages. The German language, for example, is rather distinct in its formality and the way people are addressed. The formal *Sie* is seldom replaced by *Du*. Only after people know each other for a long time and only after they know each other very well is the informal *Du* used. Similarly, adults usually address each other with *Herr* (Mr.) or *Frau* (Mrs.). The use of the first name is common only among relatives, very close friends, or children and teenagers. A non-German who is addressed with the formal *Sie* or the formal *Frau* or *Herr* may interpret such usage as meaning that the person does not like him or her or wants to maintain a social distance. This may not be true at all; the usage is simply dictated by cultural norms. On the other hand, if a German casual acquaintance is addressed

in German by his or her first name, that person may be offended. While such distinctions in a language may appear unimportant to a non-German, they not only create communication barriers but also may result in damaged relationships and possibly in a loss of business.

Noise Hindering Communication

"Noise" Anything—whether in the sender, the transmission, or the receiver—that hinders communication.

Unfortunately, communication is affected by "*noise*," which is anything—whether in the sender, the transmission, or the receiver—that hinders communication. Here are examples of "noise":

- A noise or a confined environment may hinder the development of a clear thought.
- Encoding may be faulty because of the use of ambiguous symbols.
- Transmission may be interrupted by static in the channel, such as may be experienced in a poor telephone connection.
- Inaccurate reception may be caused by inattention.
- Decoding may be faulty because the wrong meaning may be attached to words and other symbols.
- Understanding can be obstructed by prejudices.
- A desired change that is communicated may not occur because of the fear of possible consequences of the change.
- In cross-cultural communication, not only verbal expression but also gestures and posture can cause miscommunication.

Feedback in Communication

To check the effectiveness of communication, a person must have *feedback*. One can never be sure whether or not a message has been effectively encoded, transmitted, decoded, and understood until it is confirmed by feedback. Similarly, feedback indicates whether individual or organizational change has taken place as a result of communication.

Situational and Organizational Factors in Communication

The communication process is affected by many situational and organizational factors.

Many situational and organizational factors affect the communication process. Such factors in the external environment may be educational, sociological, legal–political, and economic. For example, a repressive political environment will inhibit the free flow of communication. Another situational factor is geographic distance. A direct face-to-face communication is different from a telephone conversation with a person on the other side of th

globe and different from an exchange of cables or letters. Time must also be considered in communication. The busy executive may not have sufficient time to receive and send information accurately. Other situational factors that affect communication within an enterprise include the organization structure, managerial and nonmanagerial processes, and technology. An example of the latter is the pervasive impact of computer technology on the handling of huge amounts of data.

The communication model provides an overview of the communication process, identifies the critical variables, and shows their relationships.

In summary, the communication model provides an overview of the communication process, identifies the critical variables, and shows their relationships. This in turn helps managers pinpoint communication problems so that they can take steps to solve them or, even better, prevent the difficulties from occurring in the first place.

Communication in the Organization

In today's enterprises, information must flow faster than ever before. Even a short stoppage on a fast-moving production line can be very costly in terms of lost output. It is therefore essential that production problems be communicated quickly for corrective action to be taken. Another important element is the amount of information, which has greatly increased over the years, frequently causing an information overload. What is often needed is not more information but relevant information. It is necessary to determine what kind of information a manager needs to have for effective decision making. Obtaining this information frequently requires getting information from managers' superiors and subordinates and also from departments and people elsewhere in the organization.



Management by Walking Around

Leadership demands information about what is really going on in the organization. Managers who never leave the office, and who rely on formal communication channels, may receive only the information that places subordinates in a favorable light. To overcome their isolation, managers need to supplement the formal communication channels with informal ones.

www.ual.com
www.hp.com

In their search for excellent companies, Thomas Peters and Robert Waterman noted that managers at United Airlines practice what has been labeled "management by walking around."[1] A similar practice is called "management by wandering around" at Hewlett-Packard. The belief is that managers will improve informal communication channels by walking through the plant

The Manager's Need to Know

To be effective, a manager needs information necessary for carrying out managerial functions and activities. Yet even a casual glance at communication systems shows that managers often lack vital information for decision making, or they may get too much information, resulting in overload. It is evident that managers must be discriminating in selecting information. A simple way for a manager to start is to ask, "What do I really need to know for my job?" or "What would happen if I did not get this information on a regular basis?" It is not maximum information that a manager needs but pertinent information. Clearly, there is no universally applicable communication system; rather, a communication system must be tailored to the manager's needs.

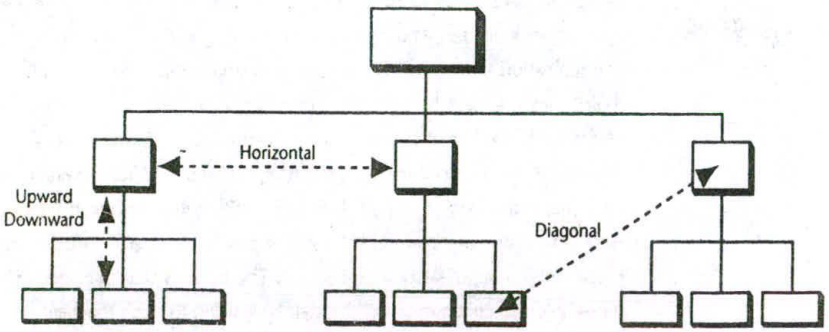
Communication Flow in the Organization

In an effective organization, communication flows in various directions: downward, upward, and crosswise. Traditionally, downward communication was emphasized, but there is ample evidence that problems will develop if communication flows only downward. In fact, one could argue that effective communication has to start with the subordinate, and this means primarily upward communication. Communication also flows horizontally and diagonally. The different kinds of information flows are diagramed in Figure 17-3 and elaborated below.

Downward communication

Downward communication flows from people at higher levels to those at lower levels in the organizational hierarchy. This kind of communication

FIGURE 17-3 Information flow in an organization



Downward communication flows from people at higher levels to those at lower levels in the organizational hierarchy.

exists especially in organizations with an authoritarian atmosphere. The media used for oral downward communication include instructions, speeches, meetings, the telephone, loudspeakers, and even the grapevine. Examples of written downward communication are memorandums, letters, handbooks, pamphlets, policy statements, procedures, and electronic news displays.

Unfortunately, information is often lost or distorted as it comes down the chain of command. Top management's issuance of policies and procedures does not ensure communication. In fact, many directives are not understood or even read. Consequently, a feedback system is essential for finding out whether information was perceived as intended by the sender.

Downward flow of information through the different levels of the organization is time-consuming. Indeed, delays may be so frustrating that some top managers insist that information be sent directly to the person or group requiring it.

Upward communication

Upward communication travels from subordinates to superiors and continues up the organizational hierarchy. Unfortunately, this flow is often hindered by managers in the communication chain, who filter the messages and do not transmit all the information, especially unfavorable news, to their bosses. Yet objective transmission of information is essential for control purposes. Upper management needs to know specifically production performance facts, marketing information, financial data, what lower-level employees are thinking, and so on.

Upward communication travels from subordinates to superiors and continues up the organizational hierarchy.

Upward communication is primarily nondirective and is usually found in participative and democratic organizational environments. Typical means of upward communication, besides the chain of command, are suggestion systems, appeal and grievance procedures, complaint systems, counseling sessions, joint setting of objectives, the grapevine, group meetings, the practice of an open-door policy, morale questionnaires, exit interviews, and the ombudsperson.

Ombudsperson A person assigned to investigate employee concerns, thus providing a valuable upward communication link.

The concept of the **ombudsperson** was used relatively little in the United States until recently. It originated in Sweden, where a civil servant could be approached by a citizen to investigate complaints about the government bureaucracy. Now some U.S. companies have established a position for a person who investigates employees' concerns. Companies have found that the ombudsperson can provide a valuable upward communication link. Effective upward communication requires an

environment in which subordinates feel free to communicate. Since the organizational climate is greatly influenced by upper management, the responsibility for creating a free flow of upward communication rests to a great extent, although not exclusively, with superiors.

International Perspective

Lack of Upward Communication Can Be Disastrous

The lack of upward communication can be disastrous. In the 1986 space shuttle disaster, vital information apparently did not reach the top management at the National Aeronautics and Space Administration (NASA). The Bank of America's top officials were surprised at the poor quality of their mortgage portfolio, which resulted in substantial losses for the bank. The brokerage house E. F. Hutton's executives were apparently unaware of the check-writing fraud of their lower-level managers.

www.nasa.gov
www.bofa.com

In some organizations, upward communication is hindered by an organization culture and climate that "punishes" managers who communicate bad news or information with which top management does not agree. Indeed, the tendency to report only good news upward is quite common. Yet correct information is absolutely necessary for managing an enterprise.

So what can managers do to facilitate the free flow of information? First, they must create an informal climate that encourages upward communication. An open-door policy is only useful when it is practiced. Second, the formal structure of information flow must be clear. Third, managers can learn a great deal by just wandering through the corridors. Hewlett-Packard is often mentioned as an example of open communication because of the practice of management by wandering around.

Crosswise communication

Horizontal flow of information is among people on the same or similar organizational levels.

Diagonal flow of information is among persons at different levels who have no direct reporting relationships with one another.

Crosswise communication includes the **horizontal flow** of information, among people on the same or similar organizational levels, and the **diagonal flow**, among persons at different levels who have no direct reporting relationships with one another. This kind of communication is used to speed information flow, to improve understanding, and to coordinate efforts for the achievement of organizational objectives. A great deal of communication does not follow the organizational hierarchy but cuts across the chain of command.

The enterprise environment provides many occasions for oral communication. They range from informal meetings of the company bowling team and lunch hours employees spend together to more formal

conferences and committee and board meetings. This kind of communication also occurs when members of different departments form task teams or project groups. Finally, communication cuts across organizational boundaries when, for example, staff members with functional or advisory authority interact with line managers in different departments.

In addition, written forms of communication keep people informed about the enterprise. These written forms include the company newspaper or magazine and bulletin board notices. Modern enterprises use many kinds of oral and written crosswise communication patterns to supplement the vertical flow of information.

Because information flow may not follow the chain of command, proper safeguards need to be taken to prevent potential problems. Specifically, crosswise communication should rest on the understanding that crosswise relationships will be encouraged wherever they are appropriate, that subordinates will refrain from making commitments beyond their authority, and that subordinates will keep superiors informed of important interdepartmental activities. In short, crosswise communication may create difficulties, but it is a necessity in many enterprises in order to respond to the needs of the complex and dynamic organizational environment.

Written, Oral, and Nonverbal Communication[2]

Written and oral communication media have favorable and unfavorable characteristics; consequently, they are often used together so that the favorable qualities of each can complement the limitations of the other. In addition, visual aids may be used to supplement both oral and written communications. A lecture in a management training session may be made more effective by the use of written handouts, transparencies, videotapes, and films. Evidence has shown that a message that is repeated through several media will be more accurately comprehended and recalled by the receiver.

In selecting the media, one must consider the communicator, the audience, and the situation. An executive who feels uncomfortable in front of a large audience may choose written communication rather than a speech. On the other hand, certain audiences who may not read a memo may be reached and become motivated by direct oral communication.

Written communication

French managers are almost obsessed with the use of written communication, not only for formal messages but also for informal notes. A French manager stated that something has no reality unless it is written down.

Written communication has the advantage of providing records, references, and legal defenses. A message can be carefully prepared and then directed to a large audience through mass mailings. Written communication can also promote uniformity in policy and procedure and can reduce costs in some cases.

The disadvantages are that written messages may create mountains of paper, may be poorly expressed by ineffective writers, and may provide no immediate feedback. Consequently, it may take a long time to know whether a message has been received and properly understood.

Oral communication

A great deal of information is communicated orally. Oral communication can occur in a face-to-face meeting of two people or in a manager's presentation to a large audience, it can be formal or informal, and it can be planned or accidental.

The principal advantage of oral communication is that it makes possible speedy interchange with immediate feedback. People can ask questions and clarify points. In a face-to-face interaction, the effect can be noted. Furthermore, a meeting with the superior may give the subordinate a feeling of importance. Clearly, informal or planned meetings can greatly contribute to the understanding of the issues.

However, oral communication also has disadvantages. It does not always save time, as any manager knows who has attended meetings in which no results or agreements were achieved. These meetings can be costly in terms of time and money.

Nonverbal communication

Nonverbal communication includes facial expressions and body gestures.

People communicate in many different ways. What a person says can be reinforced (or contradicted) by **nonverbal communication**, such as facial expressions and body gestures. Nonverbal communication is expected to support the verbal, but it does not always do so. An autocratic manager may pound a fist on the table while announcing that from now on participative management will be practiced; such contradictory communications will certainly create a credibility gap. Similarly, managers may state that they have an open-door policy, but then they may have a secretary carefully screen people who want to see them; this creates incongruence between what they say and what they do. This is an illustration of "noise" in the communication process model (Figure 17-2). Clearly, nonverbal communication may support or contradict verbal

communication, giving rise to the saying that actions often speak louder than words.

Communication Methods

There are different methods and channels for communication: some are oral, some are written, and some use information technology. They range from face-to-face communication, group meeting, and the various kinds of written communication discussed above. Technology is used for certain types of communication, such as the wired and wireless telephone, fax, voice mail, e-mail, as well as teleconference and videoconference. We highlighted above some of the advantages and disadvantages of various types of communication, including speed of feedback, ease of use, cost and time, as well as formality and informality. You probably do not want to invite an honored guest by e-mail. On the other hand, for informal communication and if time is of the essence—and the technology is available—you may want to use e-mail rather than "snail mail" (regular mail).

Other communication topics are discussed in other parts of the book. For example, the grapevine, the informal and unofficial communication channel, was discussed in Chapter 10. The impact of technology on communication will be discussed in Chapter 19.

Barriers and Breakdowns in Communication[3]

It is probably no surprise that managers frequently cite communication breakdowns as one of their most important problems. However, communication problems are often symptoms of more deeply rooted problems. For example, poor planning may be the cause of uncertainty about the direction of the firm. Similarly, a poorly designed organization structure may not clearly communicate organizational relationships. Vague performance standards may leave managers uncertain about what is expected of them. Thus, the perceptive manager will look for the causes of communication problems instead of just dealing with the symptoms. Barriers can exist in the sender, in the transmission of the message, in the receiver, or in the feedback. Specific communication barriers are discussed below.

Lack of Planning

Good communication seldom happens by chance. Too often, people start talking and writing without first thinking, planning, and stating the purpose

of the message. Yet giving the reasons for a directive, selecting the most appropriate channel, and choosing proper timing can greatly improve understanding and reduce resistance to change.

Unclarified Assumptions

Often overlooked, yet very important, are the uncommunicated assumptions that underlie messages. A customer may send a note stating that she will visit a vendor's plant. Then she may assume that the vendor will meet her at the airport, reserve a hotel room, arrange for transportation, and set up a full-scale review of the program at the plant. But the vendor may assume that the customer is coming to town mainly to attend a wedding and will make just a routine call at the plant. These unclarified assumptions in both instances may result in confusion and the loss of goodwill.

Semantic Distortion

Another barrier to effective communication is semantic distortion, which can be deliberate or accidental. An advertisement that states "We sell for less" is deliberately ambiguous, begging the question: less than what? Words may evoke different responses. To some people, the word *government* may mean interference or deficit spending; to others, the same word may mean help, equalization, and justice.

Poorly Expressed Messages

No matter how clear the idea is in the mind of the sender of communication, the message may still be marked by poorly chosen words, omissions, lack of coherence, poor organization, awkward sentence structure, platitudes, unnecessary jargon, and a failure to clarify its implications. This lack of clarity and precision, which can be costly, can be avoided through greater care in encoding the message.

Communication Barriers in the International Environment[4]

Communication in the international environment is made more difficult because of different languages, cultures, and etiquette.[5] Translating advertising slogans is very risky. The slogan "Put a Tiger in Your Tank" by Exxon was very effective in the United States, yet it may be an insult to the people in Thailand. Colors have different meanings in different cultures. Black is often associated with death in many Western countries, while in

www.exxon.com

the Far East white is the color of mourning. In business dealings, it is quite common in the United States to communicate on a first-name basis, yet in most other cultures, especially those with a pronounced hierarchical structure, people generally address one another by their surnames.

In the Chinese culture, words may not convey what people really mean because they may want to appear humble. For example, when a promotion is offered, the person may say that he or she is not qualified enough to assume great responsibility. But the expectation is that the superior will urge the subordinate to accept the promotion and will mention all the virtues and strengths of the candidate, as well as his or her suitability for the new position.

International Perspective

Country Differences in Explicit and Implicit Communication

Communication patterns differ between countries with respect to the degree to which they are explicit or implicit. In countries such as Germany and the United States, one expects that people mean what they say. The need for precision is illustrated in the popularity of management by objectives, where goals are stated precisely in quantitative, measurable terms whenever possible. In contrast, Japanese communication is implicit; the meaning has to be inferred. For example, Japanese dislike saying "no" in communication; instead, a negative answer is couched in ambivalent terms. This has been demonstrated many times in trade agreements between Japan and the United States, as well as between Japan and Europe.

While these observations may be, to some extent, an overgeneralization, managers who are aware of the different communication patterns still can benefit from this knowledge.

www.vw.com

To overcome communication barriers in the international environment, large corporations have taken a variety of steps. Volkswagen, for example, provides extensive language training. Furthermore, it maintains a large staff of translators. Frequently, local nationals, who know best the host country's language and culture, are hired for top positions. In the United States, foreign firms find it advantageous to hire students from their own country who are attending U.S. universities.

Loss by Transmission and Poor Retention

In a series of transmissions from one person to the next, the message becomes less and less accurate. Poor retention of information is another

serious problem. Thus, the necessity of repeating the message and using several channels is rather obvious. Consequently, companies often use more than one channel to communicate the same message.

Poor Listening and Premature Evaluation

There are many talkers but few listeners. Everyone probably has observed people entering a discussion with comments that have no relation to the topic. One reason may be that these persons are pondering their own problems—such as preserving their own egos or making a good impression on other group members—instead of listening to the conversation. Listening demands full attention and self-discipline. It also requires that the listener avoid premature evaluation of what another person has to say. A common tendency is to judge, to approve or disapprove what is being said, rather than trying to understand the speaker's frame of reference. Yet listening without making hasty judgments can make the whole enterprise more effective and more efficient. For example, sympathetic listening can result in better labor–management relations and greater understanding among managers. Specifically, sales personnel may better understand the problems of production people, and the credit manager may realize that an overly restrictive credit policy may lead to a disproportionate loss in sales. In short, listening with empathy can reduce some of the daily frustrations in organized life and result in better communication.

Impersonal Communication[6]

Effective communication is more than simply transmitting information to employees. It requires face-to-face contact in an environment of openness and trust. Improvement of communication often requires not expensive and sophisticated (and impersonal) communication media but the willingness of superiors to engage in face-to-face communication. Such informal gatherings, without status trappings or a formal authority base, may be threatening to a top executive, but the risks involved are outweighed by the benefits that better communication can bring.

Distrust, Threat, and Fear

Distrust, threat, and fear undermine communication. In a climate containing these forces, any message will be viewed with skepticism. Distrust can be the result of inconsistent behavior by the superior, or it

can be due to past experiences in which the subordinate was punished for honestly reporting unfavorable, but true, information to the boss. Similarly, in light of threats, whether real or imagined, people tend to tighten up, become defensive, and distort information. What is needed is a climate of trust, which facilitates open and honest communication.

Insufficient Period for Adjustment to Change

The purpose of communication is to effect change that may seriously concern employees: shifts in the time, place, type, and order of work or shifts in group arrangements or skills to be used. Some communications point to the need for further training, career adjustment, or status arrangements. Changes affect people in different ways, and it may take time to think through the full meaning of a message. Consequently, for maximum efficiency, it is important not to force change before people can adjust to its implications.

Information Overload

One might think that more and unrestricted information flow would help people overcome communication problems. But unrestricted flow may result in too much information. People respond to information overload in various ways.[7] First, they may *disregard* certain information. A person getting too much mail may ignore letters that should be answered. Second, overwhelmed with too much information, people may *make errors* in processing it. For example, they may leave out the word "not" in a message, which reverses the intended meaning. Third, people may *delay* processing information, either permanently or with the intention of catching up in the future. Fourth, they may *filter* information. Filtering may be helpful when the most pressing and most important information is processed first and the less important messages receive lower priority. However, chances are that attention will be given first to matters that are easy to handle, while more difficult but perhaps critical messages are ignored. Finally, people respond to information overload by simply *escaping* from the task of communication. In other words, they ignore information or do not communicate it.

Some responses to information overload may be adaptive tactics that can, at times, be functional. For example, delaying the processing of information until the amount is reduced can be effective. On the other hand, withdrawing from the task of communicating is usually not a helpful

response. Another way to approach the overload problem is to reduce the demand for information. Within an enterprise, this may be accomplished by insisting that only essential data be processed, such as information showing critical deviations from plans. Reducing external demand for information is usually more difficult because it is less controllable by managers. An example may be the government's demand for detailed documentation on governmental contracts. Companies that do business with the government simply have to comply with these requests.

Other Communication Barriers

There are many other barriers to effective communication. In *selective perception*, people tend to perceive what they expect to perceive. In communication, this means that they hear what they want to hear and ignore other relevant information.

Closely related to perception is the influence of *attitude*, which is the predisposition to act or not to act in a certain way; it is a mental position regarding a fact or state. Clearly, if people have made up their minds, they cannot objectively listen to what is said.

Still other barriers to communication are differences in *status* and *power* between the sender and the receiver of information. Also, when information has to pass through several organizational *levels*, it tends to be distorted.

Toward Effective Communication[8]

The communication process model introduced earlier (Figure 17-2) helps identify the critical elements in the communication process. At each stage, breakdowns can occur: in the encoding of the message by the sender, in the transmission of the message, and in the decoding and understanding of the message by the receiver. Certainly, "noise" can interfere with effective communication at each stage of the process.

Guidelines for Improving Communication

Effective communication is the responsibility of all persons in the organization, managers as well as nonmanagers, in working toward a common aim. Whether communication is effective can be evaluated by the intended results. The following guidelines can help overcome the barriers to communication.

1. Clarify the purpose of the message

Senders of messages must clarify in their minds what they want to communicate. This means that one of the first steps in communicating is to clarify the purpose of the message and to make a plan to achieve the intended end.

2. Use intelligible encoding

Effective communication requires that encoding and decoding be done with symbols that are familiar to both the sender and the receiver of the message. Thus, the manager (and especially the staff specialist) should avoid unnecessary technical jargon, which is intelligible only to experts in their particular field.

3. Consult others' views

The planning of the communication should not be done in a vacuum. Instead, other people should be consulted and encouraged to participate: to collect the facts, analyze the message, and select the appropriate media. For example, a manager may ask a colleague to read an important memo before it is distributed throughout the organization. The content of the message should fit the recipients' level of knowledge and the organizational climate.

4. Consider receivers' needs

It is important to consider the needs of the receivers of the information. Whenever appropriate, one should communicate something that is of value to them, in the short run as well as in the more distant future. At times, unpopular actions that affect employees in the short run may be more easily accepted if they are beneficial to them in the long run. For instance, shortening the workweek may be more acceptable if it is made clear that this action will strengthen the competitive position of the company in the long run and avoid layoffs.

5. Use appropriate tone and language and ensure credibility

There is a saying that the tone makes the music. Similarly, in communication, the tone of voice, the choice of language, and the congruency between what is said and how it is said influence the reaction of the receiver of the message. An autocratic manager ordering subordinate supervisors to

practice participative management will create a credibility gap that will be difficult to overcome.

6. Get feedback

Too often, information is transmitted without communicating. Communication is complete only when the message is understood by the receiver. And the sender never knows whether the message is understood unless he or she gets feedback. This is accomplished by asking questions, requesting a reply to a letter, and encouraging receivers to give their reactions to the message.

7. Consider receivers' emotions and motivations

The function of communication is more than transmitting information. It also deals with emotions, which are very important in interpersonal relationships between superiors, subordinates, and colleagues in an organization. Furthermore, communication is vital for creating an environment in which people are motivated to work toward the goals of the enterprise while they achieve their personal aims. Another function of communication is control. As explained in the discussion of management by objectives (MBO), control does not necessarily mean top-down control. Instead, the MBO philosophy emphasizes self-control, which demands clear communication with an understanding of the criteria against which performance is measured.

8. Listen

Effective communicating is the responsibility not only of the sender but also of the receiver of the information. Thus, listening is an aspect that needs additional comment.

Listening: A Key to Understanding

The rushed, never-listening manager will seldom get an objective view of the functioning of the organization. Time, empathy, and concentration on the communicator's message are prerequisites for understanding. People want to be heard, want to be taken seriously, want to be understood. Thus, managers must avoid interrupting subordinates and putting them on the defensive. It is also wise both to give and to ask for feedback, for without it one can never be sure whether the message is understood. To

elicit honest feedback, managers should develop an atmosphere of trust and confidence and a supportive leadership style, with a de-emphasis on status (such as barricading oneself behind an extrawide executive desk).

Listening is a skill that can be developed through appropriate techniques.

Listening is a skill that can be developed. John W. Newstrom and Keith Davis propose ten techniques for improving listening: (1) stop talking, (2) put the talker at ease, (3) show the talker that you want to listen, (4) remove distractions, (5) empathize with the talker, (6) be patient, (7) hold your temper, (8) go easy on arguments and criticism, (9) ask questions, and (10) stop talking! The first and the last points are the most important: people have to stop talking before they can listen.[9]

Tips for Improving Written Communication

Effective writing may be the exception rather than the rule; nor do education and intelligence guarantee good writing. Many people fall into the habit of using technical jargon that can be understood only by experts in the same field. Common problems in written communication are that writers omit the conclusion or bury it in the report, are too wordy, and use poor grammar, inappropriate words, ineffective sentence structure, and incorrect spelling. Yet a few guidelines may do much to improve written communication:[10]

- Use simple words and phrases.
- Use short and familiar words.
- Use personal pronouns (such as "you") whenever appropriate.
- Give illustrations and examples; use charts.
- Use short sentences and paragraphs.
- Use active verbs, such as "The manager *plans* . . .
- Avoid unnecessary words.

John Fielden suggests that the writing style should fit the situation and the effect the writer wants to achieve.[11] Specifically, he recommends a *forceful* style when the writer has power, using a polite but firm tone. The *passive* style is appropriate when the writer is in a position lower than that of the recipient of the message. The *personal* style is recommended for communicating good news and making persuasive requests for action. The *impersonal* style is generally right for conveying negative information. The *lively* or *colorful* style is suitable for good news, advertisements, and sales letters. On the other hand, a less colorful style, combining the impersonal with the passive, may be appropriate for common business writing.

Tips for Improving Oral Communication

For some people, including executives, the thought of having to give a speech may cause nightmares. Yet giving speeches and having fun doing it can be learned. A classic example of how one can learn oral communication is the Greek statesman Demosthenes, who, after being very discouraged following his poorly delivered first public speech, became one of the greatest orators through practice, practice, and practice.

Managers need to inspire, to lead, to communicate a vision. A clear idea of the organizational purpose is essential but insufficient for leading. This vision must be articulated. This means not only to state the facts but also to deliver them in a way that inspires people by catering to their values, their pride, and their personal objectives.

Most of the tips for written communication also apply to oral communication. The following Perspective provides helpful hints for improving oral communication.



Learning from Newscasters[12]

Some of the most effective communicators are American television news anchors, such as NBC's Tom Brokaw, ABC's Peter Jennings, and CBS's Dan Rather. How do they keep the television audience's attention despite the many attractive programs on other channels? Here are some hints you may use:

- Communicate with a large audience as you would do in a one-to-one conversation.
- Tell a story, an anecdote, and give examples.
- Pause—do not rush. In a discussion, a pause shows that you are listening.
- Use visual aids, such as diagrams, charts, overhead slides, and computer graphic presentations.
- Communicate confidence and create trust. This can be done by a strong and clear voice, good posture, and a smile.
- Use a colorful, specific language and show through your body language that you are confident and are in command of the situation.

The next time you watch television, think what you can learn from the highly paid news anchors, who reach sometimes millions of people.

Electronic Media in Communication

Organizations are increasingly adopting various electronic devices that improve communication. Electronic equipment includes mainframe

computers, minicomputers, personal computers, and e-mail systems, as well as cell phones for making calls while on the move and beepers for keeping in contact with the office. The impact of computers on all phases of the management process will be discussed in Chapter 19 in connection with management information systems and will therefore be mentioned only briefly here. Let us first look at telecommunication in general and at the increasing use of teleconferencing in particular.

Telecommunication

Telecommunication is now widely used. Many organizations have already effectively used the new technology in a variety of ways, as shown by the following examples:

- Some banks supply hardware and software to their corporate customers so that they can easily transfer funds to their suppliers.
- Several banks now make phone banking services available, even to individuals.
- Information can be transmitted within seconds or minutes to countries on the opposite side of the globe by fax or e-mail.
- Car makers stay in close contact with their suppliers through telecommunication means to inform them about their needs, thus permitting just-in-time delivery and reducing inventory costs.
- Computerized airline reservation systems facilitate flight booking.
- Many firms now have detailed personnel information, including performance appraisals and career development plans, in a data bank.

As you can see, there are many applications of telecommunication. But to make telecommunication systems effective, technical experts must make every effort to identify the real needs of organizations and their customers and to design systems that are useful and user-friendly. Let us now turn to a specific application of the new technology: teleconferencing.

Teleconferencing

Teleconference A group of people interacting with each other by means of audio and video media with moving or still pictures.

Owing to the wide variety of systems, including audio systems, audio systems with snapshots displayed on a video monitor, and live video systems, the term *teleconferencing* is difficult to define. In general, most people think of a **teleconference** as a group of people interacting with each other by means of audio and video media with moving or still pictures.

Full-motion video is frequently used to hold meetings among managers. Not only do they hear each other but they can also see each other's

expressions as well as visual displays. This kind of communication is of course rather expensive, and audio in combination with still video may be used instead. This method of communicating may be useful for showing charts or illustrations during a technical discussion.

Some of the potential advantages of teleconferencing include savings in travel expenses and travel time. Also, conferences can be held whenever necessary, since there is no need to make travel plans long in advance. Because meetings can be held more frequently, communication is improved between, for example, headquarters and geographically scattered divisions.

There are also drawbacks to teleconferencing. Because of the ease in arranging meetings in this manner, they may be held more often than necessary. Moreover, since this approach uses rather new technology, the equipment is more prone to breakdowns. Most important, perhaps, teleconferencing is still a poor substitute for face-to-face meetings. Despite these limitations, increased use of teleconferencing is likely in the future.

The Use of Computers for Information Handling and Networking

Electronic data processing now makes it possible to handle large amounts of data and to make information available to a large number of people. Thus, one can obtain, analyze, and organize timely data quite inexpensively. But it must never be forgotten that data are not necessarily information—information must inform someone. New computer graphics can inform visually, displaying important company information in a matter of seconds. At PepsiCo, Inc., managers used to dig through reams of computer printouts for information; now they can quickly display a colored map showing their competitive picture.

www.pepsi.com

The new information technology fundamentally changes communication.[13] Fax, e-mail, and instant messaging are replacing traditional communication channels, such as the postal mail. **Instant messaging** shows whether a friend or colleague is connected to the Internet; if connected, messages can be exchanged instantly. Internet access providers such as America Online, AT&T, Earthlink, and MSN provide systems through which mail can be sent electronically with speed and at a low cost. Information technology makes the global organization possible and enables companies to respond faster to global changes.

Instant messaging shows whether a friend or colleague is connected to the Internet; if connected, messages can be exchanged instantly.

www.aol.com
www.attbi.com
www.earthlink.com
www.msn.com

During the early application of computers, specialists, professionals, and managers were the dominant users of the computing infrastructure; now employees in nonmanagerial positions often have access to the same

information as top managers. There is also a shift from personal to work-group computing and from internal to interorganizational computing by connecting with people and organizations outside the company, such as banks, governments, distributors, customers, and suppliers. For example, outsourcing is facilitated by faster and better communication, which also aids coordination and cooperation.

The computer is expanding its role from simply managing information to communication. Networking can open channels of communication that never existed before and can become a tool for the learning organization. The Internet, for example, facilitates networking of human intelligence. But the new age of information technology brings with it a host of new problems, such as privacy invasion,[14] security breaches, and even threats to freedom. There will be more about the impact of the computer and networking in Chapter 19.

Summary

Communication is important for the internal functioning of the organization and for interaction with the external environment. Communication is the transfer of information from a sender to a receiver, with the information being understood by the receiver. The communication process begins with the sender, who encodes an idea that is sent in oral, written, visual, or some other form to the receiver. The receiver decodes the message and gains an understanding of what the sender wants to communicate. This in turn may result in some change or action. But the communication process may be interrupted by "noise," which is anything that hinders communication.

In an organization, managers should have the information necessary for doing a good job. The information may flow not only downward or upward in the organization structure but also horizontally or diagonally. Communication can be in written form, but more information is communicated orally. In addition, people communicate through gestures and facial expressions.

Communication is hindered by barriers and breakdowns in the communication process. Recognizing these barriers and listening facilitate not only understanding but also managing. Electronic media can improve communication, as illustrated by teleconferencing and the application of computers, two of many approaches to handling the increasing amount of information in organizations and coping with the trend of globalization.

KEY IDEAS AND CONCEPTS FOR REVIEW

Communication
Communication process model
"Noise" in communication
Downward communication
Upward communication
Ombudsperson
Crosswise communication
Written communication: advantages and disadvantages
Oral communication: advantages and disadvantages
Nonverbal communication
Barriers and breakdowns in communication
Responses to information overload
Guidelines for improving communication
Listening as a key to understanding
Teleconferencing
Instant messaging

FOR DISCUSSION

1. Briefly describe the communication process model. Select a communication problem and determine the cause (or causes) by applying the model in your analysis.
2. List different channels for transmitting a message. Discuss the advantages and disadvantages of the various channels.
3. What are some kinds of downward communication? Discuss those used most frequently in an enterprise you are familiar with. How effective are the various types?
4. What are some problems in upward communication? What would you suggest for overcoming the difficulties?
5. What are the advantages and disadvantages of written and oral communication? Which do you prefer: written or oral? Under what circumstances?
6. What is information overload? Do you ever experience it? How do you deal with it?
7. How well do you listen? How could you improve your listening skills?
8. Discuss the role of electronic media in communication.

EXERCISES/ACTION STEPS

1. Recall a situation that occurred at home or at work and identify the communication problems that you observed or experienced. Discuss how the communication model in this chapter can help you locate the problems.
2. Go to the library and do research on a public figure who communicates well. Discuss this person's characteristics as they relate to communication.

INTERNET RESEARCH

1. Search the Internet for the term "electronic data processing" or "EDP." Find out the definition of the term and see how it evolved through the history of business communication.
2. Use a search engine to find out about various forms of wireless or mobile communications. How can each type of wireless device enhance your business communication capability?

International Case

Could the Challenger Accident Have Been Avoided?[15]

The Challenger space shuttle accident on January 28, 1986, gripped America more than any other event in the last dozen years or so. It was a tragic accident in which seven people died. There is now evidence that the astronauts may have survived the initial explosion and may have died on impact when the space shuttle hit the water. The purpose of recounting the Challenger accident is to briefly explain what happened, possible reasons for why it happened, how it may have been prevented, and what one can learn from it.

The Challenger mission consisted of two complex systems: the technical system and the managerial system. The technical problem was the troublesome O-rings, which under pressure and low temperatures became ineffective and did not provide the required seal. Engineers and managers were aware of the problem. So why was the go-ahead given for launching the spacecraft? Can it be explained by the way the managerial system worked?

Engineers at Morton Thiokol, the contractor for the rocket booster, argued against the launch, citing previous problems at low temperatures. Management, on the other hand, may have felt pressure from NASA to go ahead with the launch. Roger Boisjoly, one of the engineers who argued strongly against the launch, stated that he received looks from management that seemed to say "Go away and don't bother us with the facts." He said that he felt helpless. Another engineer was told to take off his engineering hat and put on his management hat.

Eventually, the go-ahead was given by managers. Engineers were excluded from the final decision. What, then, were some possible reasons for the disaster? Some argued that there was a lack of communication between engineers and managers. They had different goals: safety versus on-time launching. Others suggested that people with responsibilities did not want to hear the bad news. Thus, no listening. Still others suggested that there was insufficient provision for upward communication outside the chain of command. There was also a suggestion that status differences between engineers and managers and between upper- and lower-level managers may have played a role in inhibiting upward communication. Perhaps there was also false confidence in the mission because of past luck. Managers and engineers knew of the problem, but nobody was killed before. Moreover, no one in the organizational unit wanted to be the "bad guy" to halt the launch. Morton Thiokol may also have been concerned about a pending contract.

The result of the series of events was the death of seven Americans: Jarvis, McAuliffe, McNair, Onizuka, Resnik, Scobee, and Smith. The question on our mind is: Could this accident have been prevented?

Questions

1. What can you learn from this disaster that may be relevant to your organization or an organization you know?
2. What do you think was the cause, or were the causes, of the Challenger disaster?

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Part - 5 closing

Global Leading

This part closing is on global leading. First, leading is practiced differently in different countries. The comparison here is between Japan, the United States, and China. Next, the international focus is on selected global aspects of leading, specifically the influence of different cultures. Finally, a global car industry case on Ford's chief executive officers (CEOs) is presented to illustrate managerial leading and leadership styles.

Leading Practices in Japan, the United States, and China[1]

Leading is the process of influencing people so that they will contribute to organizational aims; it is concerned with motivation, leadership, and communication. The managerial practices in leading are summarized in Table C5-1 for Japan, the United States, and China.

TABLE C5-1 Comparison of Japanese, U.S., and Chinese leading

Japanese	American	Chinese*
• Leader acting as a social facilitator and group member	• Leader acting as the decision maker and head of the group	• Leader acting as the head of the group (committee)
• Paternalistic style	• Directive style (strong, firm, determined)	• Directive style
• Common values facilitating cooperation	• Often divergent values; individualism sometimes hindering cooperation	• Common values; emphasis on harmony
• Avoidance of confrontation, sometimes leading to ambiguities; emphasis on harmony	• Face-to-face confrontation common; emphasis on clarity	• Avoidance of confrontation
• Critical communication top-down and bottom-up; noncritical communication often bottom-up	• Communication primarily top-down	• Communication top-down

* As practiced by state-owned enterprises.

Leading in Japan[2]

Japanese managers are seen as social integrators who are a part of the work group. Using a paternalistic leadership approach, managers show great concern for the welfare of their subordinates. Common values and team spirit facilitate cooperation. The role of managers is to create an environment of esprit de corps, and they are willing to help out in doing the same work that their subordinates do. In an attempt to maintain harmony at almost any cost, managers avoid face-to-face confrontation. This means that things may be purposely left ambiguous. Leadership requires followership, and managers are aided by the fact that individuals are expected to subordinate their self-interest to the interests of the group and the organization. While managers may not be very directive, influence is exerted through peer pressure. In fact, close personal relationships are nurtured not only because employees work together on common tasks but also because they meet and associate outside the work environment. The result is a confluence of organizational and private lives.

Communication patterns parallel those for decision making. Critical communication is top-down and bottom-up, while noncritical communication is often bottom-up. This communication pattern is promoted by Japanese managers, who take a great deal of time communicating with their subordinates, emphasizing face-to-face contact rather than memos.

Leading in the United States

The managerial function of leading is carried out quite differently in American companies. Leaders are seen as decision makers heading their groups; they are expected to be directive, strong, firm, and determined. Their task is to integrate diverse values, but the emphasis on individualism in the society in general and in organizations in particular may hinder cooperation. It is expected that managers will take decisive actions and clarify the direction of the group or the enterprise, even if this requires face-to-face confrontation with those who may disagree. Although managers work hard, they value their private life and separate it from their working life. Within the organization, the communication pattern is to a great extent from the top down through the hierarchy, with considerable emphasis given to written communication.

Leading in China[3]

The managerial function of leading in China, pertaining particularly to state-owned enterprises, has characteristics of Japanese and U.S. practices. The leader is the head of the group (in committees, for example), and the leadership style is generally quite directive. One interviewee described the relationship between leaders and followers as parent–child, in transactional analysis terms. In other words, it is expected that leaders' commands will be obeyed. Leaders, in turn, are responsible to higher authorities for performance and goals but not for meeting customer needs and demands (this, however, is slowly changing). Similar to leading in Japan, leading in China is

aided by common values and an emphasis on harmony rather than confrontation. On the other hand, communication is primarily top-down, as in many U.S. corporations.

International FOCUS

Leading in Different Cultures[4]

The managerial function of leading focuses on human interactions among people. Managers operating in the global environment need to understand at least some cultural aspects of the country in which they plan to work. The influence of the nation's culture on the organization culture may not be immediately recognized, yet it is reflected in organizational behavior and managerial practices.

Culture and Managerial Behavior

Culture is not easy to define. One way to describe culture is as a pattern of behavior related to values and beliefs that were developed over a period of time. Symbols, for example, may indicate what members of a society or an organization value. Indeed, one may distinguish between the culture of a nation and that of an organization. The external environment influences the way people interact within an organization. It must also be recognized that within a country the culture may differ widely, not only in countries as large and diverse as the United States but also in geographically small and relatively homogeneous countries such as Germany. Northern Germans behave differently than the people in southern Germany. It is with this precaution that culture and its impact on organizations must be viewed.

Today's managers need to develop a global perspective; a parochial view is inappropriate. In the past, many U.S. corporations (except the multinationals) saw little reason to develop a global view. The immense U.S. market was often sufficient for small and medium-sized firms. These companies did not see the need to expand beyond the national boundaries and venture to foreign countries, with different cultures, different languages, and increased risks. But now hardly any company can ignore the global environment, even if the firm has no plans to operate abroad. Increasingly, foreign firms are entering the U.S. market. Moreover, many U.S. firms employ people from different nations with different cultures.

Cultural differences affect managerial behavior and practices such as planning (e.g., short- versus long-term orientation), organizing (e.g., the kind of organization structure or the attitude toward delegation), staffing (e.g., selection based on family relationships versus on professional qualifications), leading (e.g., participative versus directive leadership style), and controlling (e.g., tight and close control versus broad control).

Culture also affects interpersonal relations, such as those found in negotiations. In Russia, for example, people in business may not seek long-term relations with their negotiating partners.[5] Also, one should not be surprised to see very few Russians smile in public. In Russian business

dealings, toasts are very common, so foreign managers would be well advised not to try to keep up with the way Russians drink alcoholic beverages.

Americans may find doing business with the British relatively easy. Not only do Americans and the British share many cultural aspects, but they also communicate in the same native language, which facilitates interpersonal relations. However, the British do not like to discuss business at the dinner table.

In France, conflict is a common part of daily life. The French attempt to seek the truth in universal laws. They also base their personal trust on the character of the individual, rather than on professional achievement. Moreover, competitive drive is not as pronounced in France as it is in the United States. The social class structure and the status related to this structure are very important for social interactions within and outside the organization.

Since business relationships with Japanese firms are becoming more frequent, and since foreign managers, in particular Westerners, are often unaware or uncertain of Japanese cultural aspects in social interactions, some guidelines will be provided.

Understanding the Business Culture in Japan

People from Western countries may feel uncomfortable doing business in Japan. It may be extremely difficult to understand the subtleties of the Japanese culture, so thorough preparation may be vitally important for harmonious business relationships.

Establishing business relationships

It is virtually impossible to meet new Japanese business partners without establishing contacts long before the trip to Japan. Appointments need to be preceded by connections and letters planning the meetings. While it may be difficult to learn the Japanese language, one should at least learn greetings and some common phrases. In a male-dominated society such as Japan, Western women may feel uncomfortable at first. However, they are aided by the fact that the Japanese are very polite to foreigners in general. Moreover, even Japanese women have made some career advancement in recent years in Japanese firms.

For the Japanese, face-to-face communication is very important. They want to know their foreign partners very well before doing business with them. Moreover, it must be remembered that Japanese managers try to reach a consensus among themselves before responding to questions or making statements. One of the authors had the opportunity to visit a major Japanese car maker. Questions directed at the Japanese host were first discussed by the managers (in Japanese) before one of the managers provided answers.

Recognizing what the panese may think about Westerners

The Japanese may admire the innovativeness of Westerners as well as their energy in getting things done. On the other hand, foreigners are often viewed as being impatient, making quick

acquaintances but shallow friendships. Moreover, the Japanese often feel that deprivation, such as that experienced after World War II, made them hard workers. Some Japanese political and business leaders feel that Japan should now be assuming economic leadership in the world. These same leaders realize that the economic prosperity of their more than 120 million people depends on exports and the operation of Japan's multinational corporations abroad. Furthermore, Japan has only limited natural resources and must import all its oil from abroad.

Understanding the art of gift giving

One can distinguish between two kinds of gifts: personal and corporate. Personal gifts may include picture books or items for which the home country is known. Other items may include golf balls, caps, tie clips, or native jewelry from the home country. If the Japanese partner has children, then T-shirts, children's books, or pens or pencils may be appropriate gifts. Corporate gifts may include pens, T-shirts, bookmarks, or other items with the company logo. These items should be made in the home country, not in Japan.

The way gifts are presented is also important. Presents should be wrapped in colors appropriate for the occasion, such as blue, brown, gray, or green. Showy colors, such as pink or red, and flowered paper are not appropriate. Moreover, black and white, known as funeral colors, should be avoided. Giving and receiving gifts is done with both hands. Gift packages are generally not opened in front of the giver, in case it may embarrass him or her. If a gift consists of several similar items, avoid giving four or nine items of a kind, as this may imply death or choking, respectively.

Meeting with the Japanese

Business meetings in Japan are generally more formal than in the United States. The preliminary aspects take a great deal of time, yet they are essential for a successful meeting. Unless introduced, one introduces oneself first to the senior Japanese businessperson. At this time, business cards are exchanged. If the ranking, or senior, person is not known, it usually becomes evident from the behavior of subordinates, who show great respect toward this person. Moreover, it is usually the senior person who enters the room first. At the meeting, the ranking person usually sits in the middle position at the table or in the middle among his advisors. (Note that there are only few women in top management positions in Japanese companies.)

The presentation of business cards is an essential ritual. Never leave your home without your business card when going to Japan. Ideally, the card should be in English and Japanese. Younger persons, or those of lower ranking, present their card first to the Japanese business partner. However, lower-level foreign managers only give their card when the Japanese CEO has offered his. The card should be presented with both hands, unless the cards are exchanged with a handshake. Also, the printed side (the English side if the other side is in Japanese) should be held face up and in such a way that the recipient can read it without having to turn the card. While the Japanese have a custom of bowing, a friendly nod by the foreign person will suffice.

Meetings serve not only for "making deals" but also for establishing relationships. The Japanese would like to know whether they feel comfortable enough to deal with the counterpart. This means that they want to know whether a person is trustworthy, has a thorough knowledge of the product or service offered, and is listening and being receptive to their needs. Americans are often perceived as being too talkative or too pushy in obtaining a decision.

Modern managers need to develop a perspective with a global geographic and multicultural orientation. Being aware of cultural differences is a prerequisite for personal and organizational success.



Leadership at Ford: With Bill Ford in the Driver Seat, Which Way Will He Drive?[6]

In 2000, Ford Motor Company was considered the best-managed firm among the Big 3 U.S. auto makers: Ford, General Motors, and Chrysler (now DaimlerChrysler). Since then, however, several problems have emerged. For one, Ford's salaried workers were unhappy with the leadership of their CEO, Jacques A. Nasser, who was disliked for his autocratic style that allowed little delegation. He also was tough in dealing with suppliers and dealers and was considering downsizing the company because of the oversupply of cars in the industry. Moreover, the quality of cars began to slip and rather few new exciting cars were planned for the near future. The costly recall of Firestone tires and the diminishing popularity of the successful sport utility vehicle (SUV) Explorer and the F-150 pickup truck contributed to the poor profitability situation and the fall in stock prices.

This was the situation when William C. (Bill) Ford, the great-grandson of Henry Ford, took over the helm as CEO in October 2001. The big question is whether he can drive the company to profitability. He has not only the advantage of the Ford name, but he is also well liked by employees, partly because he is less inclined to downsizing the company than his predecessor. His concern for the impact of cars on the environment brought him the praise of environmentalists, and his aim is to make Ford vehicles 25 percent more fuel-efficient. Bill Ford also has a reputation for being socially responsible.

The challenges are great. Bill Ford seems more inclined to delegate tasks to his top management team, including chief operating officer Nick Scheele and the experienced vice chairman Carl E. Reichardt, who has the responsibility for straightening out the financial problems caused partly by the huge rebate offerings for Ford vehicles. Scheele has a good track record for improving the quality of Ford's Jaguar division, while Reichardt, the retired Wells Fargo & Company chairman, has a reputation for making decisive financial decisions. In addition, James Padilla, with his manufacturing expertise, will focus on improving the quality of Ford vehicles. With the top management team in place, Bill Ford faces the problem of reducing excess capacity, which will be difficult because the union contract states that for a certain period of time Ford will not close

or sell any plants. Yet, to reduce costs, this may have to be done. Bill Ford's leadership will be tested on how he can deal with union leader Stephen P. Yokich, who, however, is nearing his retirement.

Besides dealing with the various stakeholders, Ford also has to make several strategic decisions, such as bringing new consumer-appealing products with improved quality to the market. Although the Explorer was very successful, several competitors are now offering smaller SUVs, which appeal to consumers. Similarly, the profitable F-150 truck may need improvement or replacement. Bill Ford's leadership will be severely tested, especially after the September 11, 2001, attack on the World Trade Center towers in New York, which greatly affected the U.S. economy. Indeed, critics point to several weaknesses, such as declining market share in early 2002 and the elimination of certain car lines including the Mercury Cougar and the Lincoln Continental. Even Ford's popular Taurus and Explorer models show weaknesses. But there is hope for the Premier Automotive Group, which includes Volvo and Jaguar.

Questions

1. How should Bill Ford deal with the union members, who like him but who are also concerned about plant closing because of the need to cut costs?
2. What model strategy should Ford pursue?
3. Will Bill Ford's easy leadership manners be more suitable for the company than the tough autocratic style of his predecessor, Jacques Nasser?
4. Would Bill Ford's easy leadership style change if profits were declining?

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Part - 6

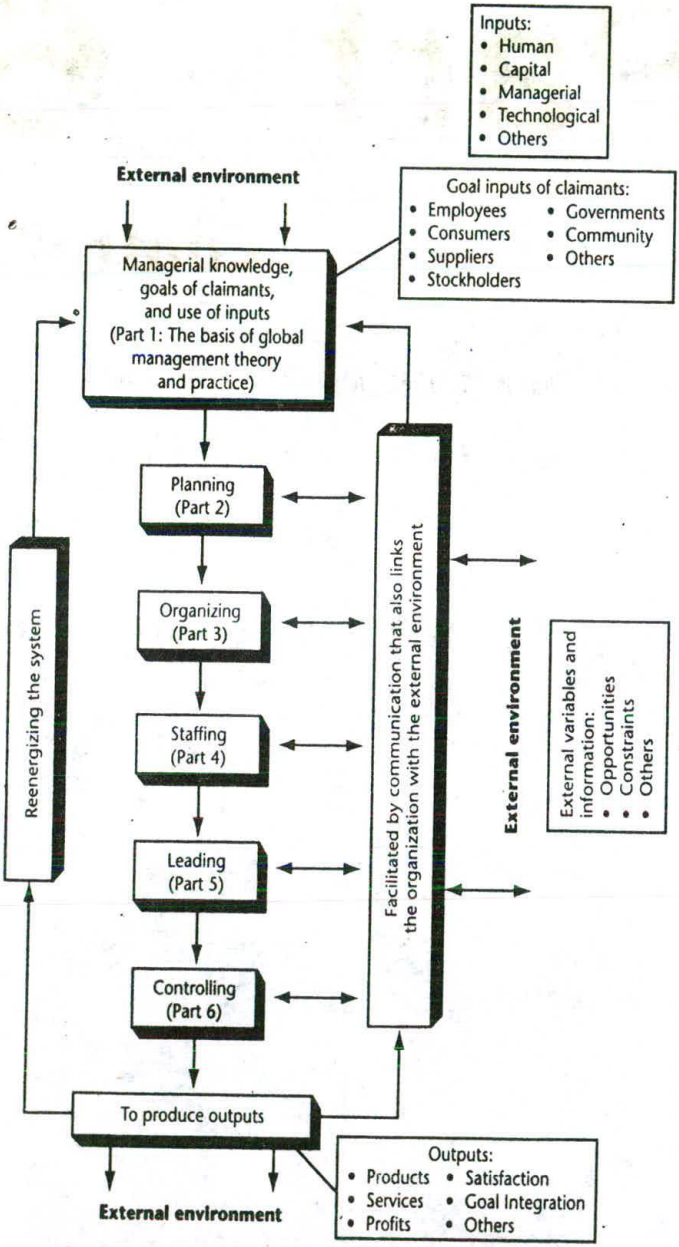
Controlling

Chapter 18 *The System and Process of Controlling*

Chapter 19 *Control Techniques and Information Technology*

Chapter 20 *Productivity, Operations Management, and Total Quality Management*

Part 6 Closing *Global Controlling and Global Challenges*



Systems approach to management

Chapter 18

The System and Process of Controlling

CHAPTER OBJECTIVES

After studying this chapter, you should be able to:

1. Describe the steps in the basic control process.
2. Enumerate and explain the critical control points, standards, and benchmarking.
3. Illustrate applications of the feedback system.
4. Understand that real-time information will not solve all the problems of management control.
5. Show that feedforward control systems can make management control more effective.
6. Describe some of the most widely used techniques of overall control of an enterprise.
7. Recognize the use and problems of management audits by accounting firms.
8. Understand the difference between bureaucratic and clan control.
9. List and explain the requirements for effective controls.

Controlling The measurement and correction of performance in order to make sure that enterprise objectives and the plans devised to attain them are being accomplished.

The managerial function of **controlling** is the measurement and correction of performance in order to make sure that enterprise objectives and the plans devised to attain them are being accomplished. Planning and controlling are closely related. In fact, some writers on management think that these functions cannot be separated. It is wise to separate them conceptually, however, which is why they are discussed individually in parts 2 and 6 of this book. Still, planning and controlling may be viewed as the blades of a pair of scissors: the scissors cannot work unless there are two blades. Without objectives and plans, control is not possible because performance has to be measured against some established criteria.

The Basic Control Process

Control techniques and systems are essentially the same for controlling cash, office procedures, morale, product quality, and anything else. The basic control process, wherever it is found and whatever is being controlled, involves three steps: (1) establishing standards, (2) measuring performance against these standards, and (3) correcting variations from standards and plans.

Establishment of Standards

Standards Criteria of performance.

Because plans are the yardsticks against which managers devise controls, the first step in the control process logically would be to establish plans. However, since plans vary in detail and complexity, and since managers cannot usually watch everything, special standards are established. **Standards** are simply criteria of performance. They are the selected points in an entire planning program at which measures of performance are made so that managers can receive signals about how things are going and thus do not have to watch every step in the execution of plans.

There are many kinds of standards. Among the best are verifiable goals or objectives, as suggested in the discussion of managing by objectives (see Chapter 4). You will learn more about standards later, especially those that point out deviations at critical points.

Measurement of Performance

Although such measurement is not always practicable, the measurement of performance against standards should ideally be done on a forward-looking basis so that deviations may be detected in advance of their occurrence and avoided by appropriate actions. The alert, forward-looking manager can sometimes predict probable departures from standards. In the absence of such ability, however, deviations should be disclosed as early as possible.

Correction of Deviations

Standards should reflect the various positions in an organization structure. If performance is measured accordingly, it is easier to correct deviations. Managers know exactly where, in the assignment of individual or group duties, the corrective measures must be applied.

Correction of deviations is the point at which control can be seen as a part of the whole system of management and can be related to the other managerial functions. Managers may correct deviations by redrawing their plans or by modifying their goals. (This is an exercise of the principle of navigational change.) Or they may correct deviations by exercising their organizing function through reassignment or clarification of duties. They may correct, also, by additional staffing, by better selection and training of subordinates, or by that ultimate restaffing measure—firing. Another way is to correct through better leading—fuller explanation of the job or more effective leadership techniques.

International Perspective

Special Considerations in Controlling International Companies

Controlling domestic companies is often difficult, let alone exercising control of operations in different countries. The geographic distances make certain controls, such as observation, very difficult, despite modern jet service. Wal-Mart, for example, has operations around the globe. The same measurement criteria can hardly be applied to all stores.

www.walmart.com

Control standards have to be adjusted to the local environment. Subsidiaries in low labor-cost countries may have lower cost budgets than those in countries with a high-cost labor force. And productivity in countries with low labor costs may lag behind that of other countries.

Transfer pricing between the headquarters and the subsidiaries or between subsidiaries may distort the profitability and return-on-investment pictures. A similar distortion can occur through currency fluctuations among the various

countries. Moreover, erratic or chronic inflation makes the setting of standards and measurement against those standards difficult.

Other factors should also be considered in controlling. As pointed out in the discussion of organizing, the organization structure should facilitate control. Multinational corporations require a different departmentation from that of domestic firms. Another way to exercise control is to prevent deviations from occurring by selecting competent managers. In the past, multinational corporations sent experienced managers to head their foreign subsidiaries. More recently, however, companies have been selecting and training local managers from the country in which they operate. Furthermore, managers with special skills in cultural adaptation may even come from a third country. At one time, the chief executive officer (CEO) of Volkswagen in America was neither a German nor an American but a Canadian.

www.vw.com

The way control is exercised differs between countries. In the United States, attempts are made to pinpoint responsibility for deviations from standards. In many Asian countries, superiors usually try not to let the person responsible lose face. Moreover, standards may not even be set in measurable terms in the first place. How, then, can control be exercised? In countries such as Japan where group work is common, peer pressure may be a very effective means for exercising control.

In short, controlling—setting standards, measuring performance, and taking corrective actions—must be flexible enough to take into account the organizational and country-specific environment.

Critical Control Points, Standards, and Benchmarking[1]

Standards are yardsticks against which actual or expected performance is measured. In a simple operation, a manager might control through careful personal observation of the work being done. However, in most operations, this is not possible because of the complexity of the operations and the fact that a manager has far more to do than personally observe performance for a whole day. A manager must choose points for special attention and then watch them to be sure that the whole operation is proceeding as planned.

The points selected for control should be *critical*, in the sense either of being limiting factors in the operation or of being better indicators than other factors of whether plans are working out. With such standards,

Principle of critical point control Effective control requires attention to factors critical to evaluating performance against plans.

managers can handle a larger group of subordinates and thereby increase their span of management, with resulting cost savings and improvement of communication. The **principle of critical point control**, one of the more important control principles, states that effective control requires attention to those factors critical to evaluating performance against plans. Another way of controlling is comparing company performance with that of other firms through benchmarking.

Types of Critical Point Standards

Every objective, every goal of the many planning programs, every activity of these programs, every policy, every procedure, and every budget can become a standard against which actual or expected performance might be measured. In practice, however, standards tend to be of the following types: (1) physical standards, (2) cost standards, (3) capital standards, (4) revenue standards, (5) program standards, (6) intangible standards, (7) goals as standards, and (8) strategic plans as control points for strategic control.

Physical standards

Physical standards are nonmonetary measurements and are common at the operating level, where materials are used, labor is employed, services are rendered, and goods are produced. They may reflect quantities, such as labor-hours per unit of output, pounds of fuel per horsepower per hour, ton-miles of freight traffic carried, units of production per machine-hour, or feet of wire per ton of copper. Physical standards may also reflect quality, such as hardness of bearings, closeness of tolerances, rate of climb of an airplane, durability of a fabric, or fastness of a color.

Cost standards

Cost standards are monetary measurements and, like physical standards, are common at the operating level. They attach monetary values to specific aspects of operations. Illustrative of cost standards are such widely used measures as direct and indirect costs per unit produced, labor cost per unit or per hour, material cost per unit, machine-hour costs, cost per seat-mile, selling cost per dollar or unit of sales, and cost per foot of oil well drilled.

Capital standards

There are a variety of capital standards, all arising from the application of monetary measurements to physical items. They have to do with the capital invested in the firm rather than with operating costs and are therefore primarily related to the balance sheet rather than to the income statement. Perhaps the most widely used standard for new investment, as well as for overall control, is return on investment. The typical balance sheet will disclose other capital standards, such as the ratios of current assets to current liabilities, debt to net worth, fixed investment to total investment, cash and receivables to payables, and bonds to stocks, as well as the size and turnover of inventories

Revenue standards

Revenue standards arise from attaching monetary values to sales. They may include such standards as revenue per bus passenger-mile, average sales per customer, and sales per capita in a given market area.

Program standards

A manager may be assigned to install a variable budget program, a program for formally following the development of new products, or a program for improving the quality of a sales force. Although some subjective judgment may have to be applied in appraising program performance, timing and other factors can be used as objective standards.

Intangible standards

More difficult to set are standards not expressed in either physical or monetary measurements. What standard can a manager use for determining the competence of the divisional purchasing agent or the personnel director? What can one use for determining whether the advertising program meets both short- and long-term objectives? Or whether the public relations program is successful? Are supervisors loyal to the company's objectives? Are the office staff alert? Such questions show the difficulty of establishing standards or goals for clear quantitative or qualitative measurement.

Goals as standards

With the present tendency for better-managed enterprises to establish an entire network of verifiable qualitative or quantitative goals at every level

of management, the use of intangible standards, while still important, is diminishing. In complex program operations, as well as in the performance of managers themselves, modern managers are finding that through research and thinking it is possible to define goals that can be used as performance standards. While the quantitative goals are likely to take the form of the standards outlined above, the definition of qualitative goals represents an important development in the area of standards. For example, if the program of a district sales office is spelled out to include such elements as training salespeople in accordance with a plan with specific characteristics, the plan and its characteristics themselves furnish standards that tend to become objective and therefore "tangible."

Strategic plans as control points for strategic control

Strategic control Systematic monitoring at strategic control points and modifying the organization's strategy based on this evaluation.

Strategic control requires systematic monitoring at strategic control points and modifying the organization's strategy based on this evaluation. As pointed out earlier, planning and controlling are closely related. Therefore, strategic plans require strategic control. Moreover, since control facilitates comparison of intended goals with actual performance, it also provides opportunities for learning, which in turn is the basis for organizational change. Finally, through the use of strategic control, one gains insights not only about organizational performance but also about the ever-changing environment by monitoring it.

Benchmarking[2]

Benchmarking An approach for setting goals and productivity measures based on best industry practices.

Benchmarking is a concept that is now widely accepted. It is an approach for setting goals and productivity measures based on best industry practices. Benchmarking developed out of the need to have data against which performance can be measured. What should the criteria be? If a company needs six days to fill a customer's order and the competitor in the same industry needs only five days, five days does not become the standard if a firm in an unrelated industry can fill orders in four days. The four-day criterion becomes the benchmark even when at first this seems to be an unachievable goal. The process involved in filling the order is then carefully analyzed, and creative ways are encouraged to achieve the benchmark.

Three types of benchmarking: strategic, operational, and management.

There are three types of benchmarking. First, *strategic benchmarking* compares various strategies and identifies the key strategic elements of success. Second, *operational benchmarking* compares relative costs or possibilities for product differentiation. Third, *management benchmarking*

focuses on support functions such as market planning and information systems, logistics, human resource management, and so on.

The benchmarking procedure begins with the identification of what is to be benchmarked. Then superior performers have to be selected. Data need to be gathered and analyzed, which become the basis for performance goals. During the implementation of the new approach, performance is periodically measured and corrective actions are taken at that time.

Control as a Feedback System

Managerial control is essentially the same basic control process as that found in physical, biological, and social systems. Many systems control themselves through information feedback, which shows deviations from standards and initiates changes. In other words, systems use some of their energy to feed back information that compares performance with a standard and initiates corrective action. A simple feedback system was shown in Figure 4-1 in Chapter 4.

International Perspective

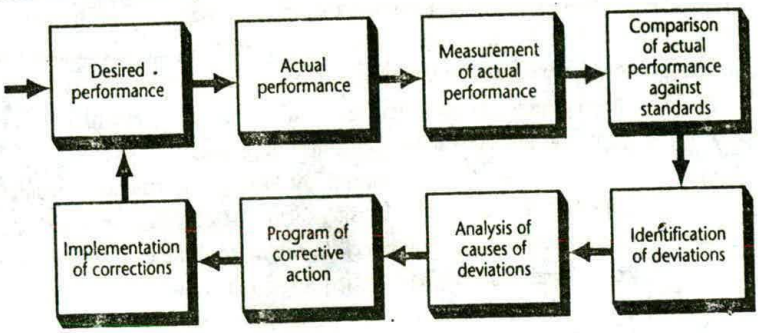
Examples of Feedback Systems

The house thermostat is a system of feedback and information control. When the house temperature falls below the preset level, an electric message is sent to the heating system, which is then activated. When the temperature rises and reaches the set level, another message shuts off the heater. This continual measurement and turning on and off of the heater keeps the house at the desired temperature. A similar process activates the air-conditioning system. As soon as the temperature exceeds the preset level, the air-conditioning system cools the house to the desired temperature. Likewise, in the human body, a number of feedback systems control temperature, blood pressure, motor reactions, and other conditions. Another example of feedback is the grade a student receives on a midterm test. This is intended, of course, to give the student information about how he or she is doing and, if performance is less than desirable, to send a signal suggesting improvement.

Management control is usually perceived as a feedback system similar to the common household thermostat.

Management control is usually perceived as a feedback system similar to that which operates in the common household thermostat. This can be seen clearly in Figure 18-1, which shows the feedback process in management control. This system places control in a more complex and realistic light than if it is regarded merely as a matter of establishing standards, measuring performance, and correcting for deviations. Managers

FIGURE 18-1 Feedback loop of management control



do measure actual performance, compare this measurement against standards, and identify and analyze deviations. But then, to make the necessary corrections, they must develop a program for corrective action and implement this program in order to arrive at the performance desired.

Real-Time Information and Control

Real-time information Information about what is happening while it is happening.

One of the interesting advances arising from the use of the computer and from electronic gathering, transmission, and storage of data is the development of systems of **real-time information**. This is information about what is happening while it is happening. It is technically possible through various means to obtain real-time data on many operations. For years, airlines have obtained information about seat availability simply by entering a flight number, trip segment (e.g., London to New York), and date into a memory system, which immediately responds with the information. Supermarkets and department stores have electronic cash registers in operation that immediately transmit data on every sale to a central data storage facility, where inventory, sales, gross, profit, and other data can be obtained as sales occur. A factory manager can have a system that reports at any time the status of a production program in terms of such things as the production point reached, labor-hours accumulated, and even whether the project is late or on time in the manufacturing process.

Some people see real-time information as a means of getting real-time control in areas of importance to managers—in other words, control effected at the very time information shows a deviation from plans. But reference to the management control feedback loop in Figure 18-1 shows that real-time information does not, except possibly in the simplest and

most unusual cases, make possible real-time control. It is possible in many areas to collect real-time data that measure performance. It may also be possible in many of these cases to compare these data with standards and even to identify deviations. But the analysis of causes of deviations, the development of programs of correction, and the implementation of these programs are likely to be time-consuming tasks.

In the case of quality control, for example, it may take considerable time to discover what is causing factory rejects and more time to put corrective measures into effect. In the more complex case of inventory control, particularly in a manufacturing company, which has many items—raw materials, component parts, goods in process, and finished goods—the correction time may be very long. Once it is learned that an inventory is too high, the steps involved in getting it back to the desired level may take a number of months. And so it goes with most other instances of management control problems: time lags are unavoidable.

This does not mean that prompt measurement of performance is unimportant. The sooner managers know that activities for which they are responsible are not proceeding in accordance with plans, the faster they can take action to make corrections. Even so, there is always the question of whether the cost of gathering real-time data is worth the few days saved. Often it is, as in the case of the airline business, in which ready information on seat availability is likely to be crucial to serving customers and filling airplanes. But in a major defense company producing one of the highest-priority defense equipment items, there was little real-time information in an otherwise highly sophisticated information control system. Even for this program, it was thought that the benefit of gathering real-time data was not worth the expense because the correction process took so long.

Feedforward Control

The time lag in the management control process shows that control must be directed toward the future if it is to be effective. It illustrates the problem of only using feedback from the output of a system and measuring this output as a means of control. It shows the deficiency of historical data, such as those received from accounting reports. One of the difficulties with such historical data is that they tell business managers in November that they lost money in October (or even September) because of something that was done in July. At this late time, such information is only a distressingly interesting historical fact.

Managers need for effective control a system that will tell them potential problems, giving them time to take corrective action before those problems occur.

What managers need for effective control is a system that will tell them, in time to take corrective action, that certain problems will occur if they do not do something now. Feedback from the output of a system is not good enough for control. It is little more than a postmortem, and no one has found a way to change the past.

Future-directed control is largely disregarded in practice, mainly because managers have been so dependent for purposes of control on accounting and statistical data. To be sure, in the absence of any means of looking forward, reference to history—on the questionable assumption that what is past is prologue—is admittedly better than no reference at all.

Feedforward in Human Systems

There are many examples of feedforward control in human systems. A motorist, for example, who wishes to maintain a constant speed in going up a hill would not usually wait for the speedometer to signal a drop in speed before depressing the accelerator. Instead, knowing that the hill represents a disturbing variable in the system, the driver would probably correct for this by pressing the accelerator before speed falls. Likewise, a hunter will always aim ahead of a duck's flight to correct for the time lag between a shot and a hoped-for hit.

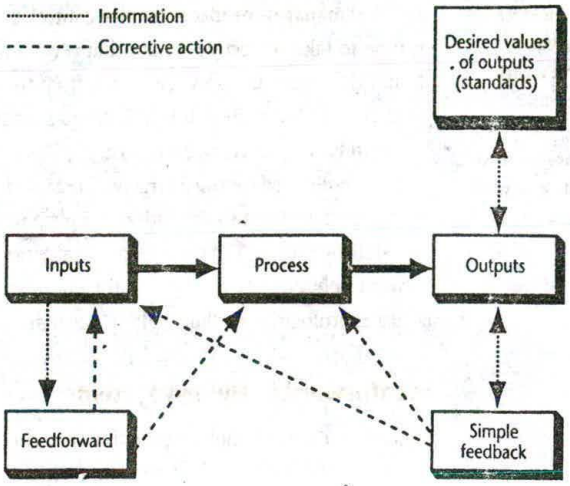
Feedforward versus Feedback Systems

Feedforward systems monitor inputs into a process to ascertain if the inputs are as planned; if they are not, the inputs or the process is changed in order to obtain the desired results.

Simple feedback systems measure outputs of a process and feed information about the system or the inputs of the system corrective actions to obtain desired outputs. For most management problems, because of time lags in the correction process, this is not good enough. Feedforward systems monitor *inputs* into a process to ascertain whether the inputs are as planned; if they are not, the inputs, or perhaps the process, are changed in order to obtain the desired results. A comparison of feedforward and feedback systems is depicted in Figure 18-2.

In a sense, a feedforward control system is really a kind of feedback system. However, the information feedback is at the *input* side of the system so that corrections can be made before the system output is affected. Also, even with a feedforward system, a manager would still want to measure the final system output, since nothing can be expected to work perfectly enough to ensure that the final output will always be exactly as desired.

FIGURE 18-2 Comparison of simple feedback and feedforward systems



Feedforward in Management*

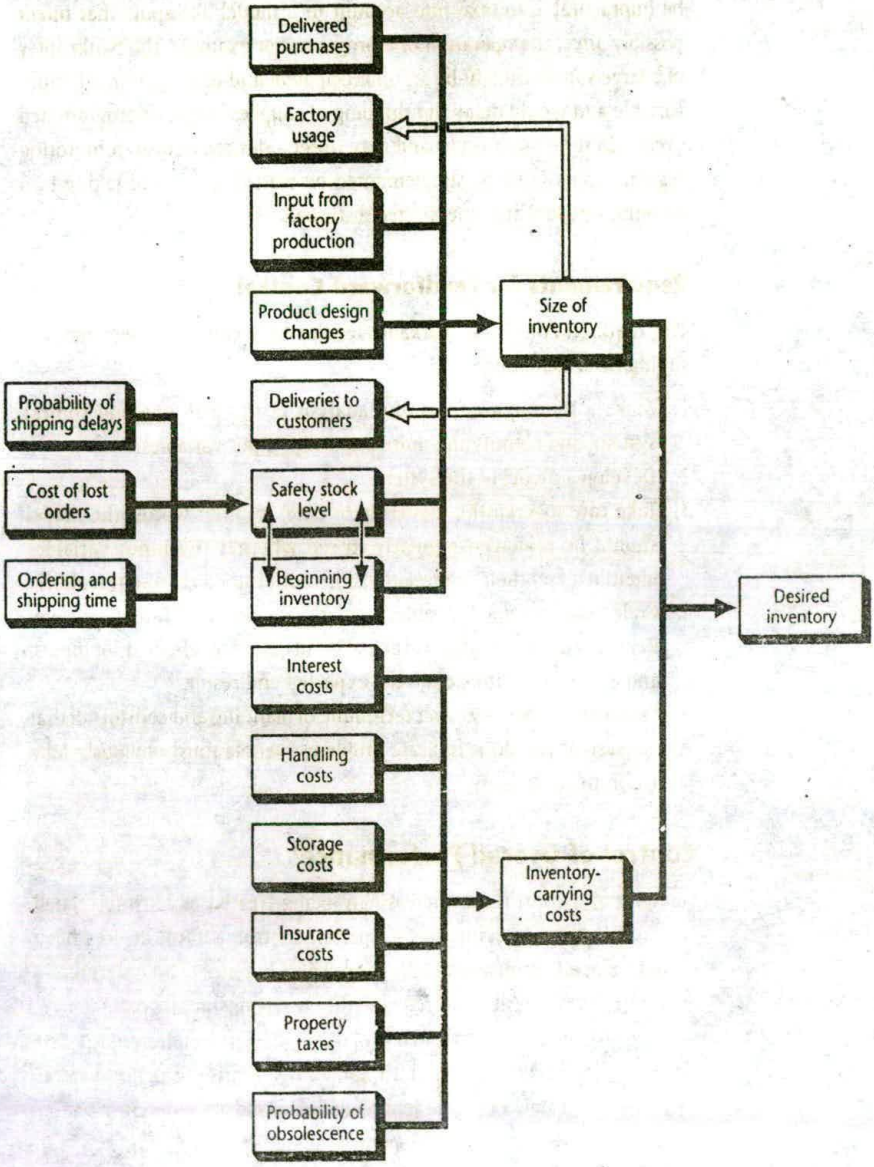
An idea of what feedforward means in management control can be conveyed through the example of inventory planning system. Figure 18-3 illustrates what is involved. The somewhat simplified schematic figure of input variables for inventory planning and control indicates that, if managers are to exercise effective control over inventory, they must identify the variables in the system. Some of the variables have either a negative or a positive effect on inventory.

Also, if the system of variables and their impact on a process are accurately portrayed—and each enterprise should design its own system, appropriate to the realities of its situation—a deviation from any planned input can result in an unplanned output, unless something is done about it in time. For example, in the case of the inventory model, if delivered purchases are greater than planned or if factory usage turns out to be less than planned, the result will be a higher-than-planned inventory, unless corrective action is taken. Of course, to make feedforward work in practice, inputs must be carefully monitored.

One of the problems in all feedforward control systems is the necessity of watching for what engineers call disturbances. These are factors which have not been taken into account in the input model but which may have

* Sometimes called preliminary control or steering control.

FIGURE 18-3 System of inputs for feedforward inventory control



an impact on the system and the desired end result. Obviously, it would be impracticable to take into account in a model all inputs that might possibly affect the operation of a program. For example, the bankruptcy of a large supplier might be an unanticipated, and unprogrammed, input variable and would delay the shipping of supplies. Since unprogrammed events do sometimes occur and may upset a desired output, monitoring regular inputs must be supplemented by watching for, and taking into account, unusual and unexpected disturbances.

Requirements for Feedforward Control

The requirements for a workable feedforward control system may be summarized as follows:

1. Make a thorough and careful analysis of the planning and control system, and identify the more important input variables.
2. Develop a model of the system.
3. Take care to keep the model up to date; in other words, the model should be reviewed regularly to see whether the input variables identified and their interrelationships continue to represent realities.
4. Collect data on input variables regularly, and put them into the system.
5. Regularly assess variations of actual input data from planned-for inputs, and evaluate the impact on the expected end result.
6. Take action. Like any other technique of planning and control, all that the system can do is indicate problems; people must obviously take action to solve them.

Control of Overall Performance[3]

Planning and control are increasingly being treated as an interrelated system. Along with techniques for partial control, control devices have been developed for measuring the overall performance of an enterprise—or an integrated division or project within it—against total goals.

There are many reasons for control of overall performance. In the first place, just as overall planning must apply to enterprise or major division goals, so must overall control be applied. In the second place, decentralization of authority—especially in product or territorial divisions—creates semi-independent units, and these must be subjected to overall control to avoid the chaos of complete independence. In the third place, overall control permits the measurement of an integrated area manager's total effort, rather than parts of it.

Many overall controls in business are financial.

Many overall controls in business are, as one might expect, financial. Business owes its continued existence to profit making; its capital resources are a scarce, life-giving element. Since finance is the binding force of business, financial controls are certainly an important objective gauge of the success of plans. Moreover, sophisticated computer programs can use financial records as strategic tools.[4]

Financial measurements also summarize, as a common denominator, the operation of a number of plans. Further, they accurately indicate total expenditure of resources in reaching goals. This is true in all forms of enterprises. Although the purpose of an educational or government enterprise is not to make monetary profits, any responsible manager must have some way of knowing what goal achievement has cost in terms of resources. Proper accounting is important not only for business but for government as well.

Financial controls, like any other control, have to be tailored to the specific needs of the enterprise or the position. Doctors, lawyers, and managers at different organizational levels do have different needs for controlling their area of operation. Financial analyses also furnish an excellent "window" through which accomplishment in nonfinancial areas can be seen. A deviation from planned costs, for example, may lead a manager to find the causes in poor planning, inadequate training of employees, or other nonfinancial factors.

International Perspective

Planning and Controlling at Grupo Modelo[5]

Planning and controlling are closely related. Without plans, control is not effective. Mexican Grupo Modelo, best known for its Corona beer, has a worldwide presence. Its early growth was achieved through strategic alliances, followed by an integration strategy. To control its worldwide enterprise, Grupo Modelo measures its success against its competitors. Another critical success factor is its emphasis on product quality as measured by customer expectations. Moreover, manufacturing plants have adopted ISO 9000 certification standards. Close financial control helped the company cope with the Mexican peso crisis as well as the economic slowdown in South America.

Profit and Loss Control

The income statement for an enterprise as a whole serves important control purposes, mainly because it is useful for determining the immediate revenue or cost factors that have accounted for success or failure. Obviously,

if it is first put in the form of a forecast, the income statement is an even better control device in that it gives managers a chance, before things happen, to influence revenues, expenses, and consequently profits.

The Nature and Purpose of Profit and Loss Control

The profit and loss statement shows all revenues and expenses for a given time, so it is a true summary of the results of business operations.

Since the survival of a business usually depends on profits, and since profits are a definite standard against which to measure success, many companies use the income statement for divisional or departmental control. As it is a statement of all revenues and expenses for a given time, it is a true summary of the results of business operations. Profit and loss control, when applied to divisions or departments, is based on the premise that, if it is the purpose of the entire business to make a profit, each part of the enterprise should contribute to this purpose. Thus, the ability of a part to make an expected profit becomes a standard for measuring its performance.

Limitations of Profit and Loss Control

Profit and loss control suffers from the cost of the accounting and paper transactions involving intracompany transfer of costs and revenues. But the use of computers has greatly reduced this cost. Duplication of accounting records, efforts involved in allocating the many overhead costs, and the time and effort required to calculate intracompany sales can make this control costly if it is carried too far.

Control through Return on Investment[6]

Return-on-investment control measures both the absolute and the relative success of a company or company unit by the ratio of earnings to investment of capital.

Another control technique is that of measuring both the absolute and the relative success of a company or company unit by the ratio of earnings to investment of capital. The return-on-investment approach, often referred to simply as ROI, has been the core of the control system of the Du Pont Company. This yardstick is the rate of return that a company or a division can earn on the capital allocated to it. This tool therefore regards profit not as an absolute but as a return on capital employed in the business. The goal of a business is seen, accordingly, not necessarily as optimizing profits but as optimizing return from capital devoted to business purposes. This standard recognizes the fundamental fact that capital is a critical factor in almost any enterprise and, through its scarcity, limits progress. It also emphasizes the fact that the job of managers is to make the best possible use of assets entrusted to them.

Management Audits and Accounting Firms

Although many management consulting firms have undertaken various kinds of appraisals of management systems, usually as part of an organizational study, the greatest interest in pursuing management audits has been demonstrated by accounting audit firms. One of the significant developments has been their entry into the field of management services of a broad consultancy nature. While this has been an attractive field of expansion for these auditing companies, since they are already inside an organization and the financial information to which they have access furnishes a ready window on problems of managing, it does open the question of conflict of interest. In other words, the question is whether the same firm can be in the position of a management consultant furnishing both advice and services and still be completely objective as an accounting auditor. To be sure, accounting firms have attempted to avoid this problem by organizationally separating these two activities.

Accounting firms had enjoyed a great deal of trust, but this changed when U.S. federal prosecutors charged the accounting firm Arthur Andersen with obstruction of justice in connection with the collapse of Enron in 2002.[7]

Bureaucratic and Clan Control

Bureaucratic control is characterized by the wide use of rules, regulations, policies, procedures, and formal authority.

Organizations exercise control in different ways. One can distinguish between two kinds of structural control: the bureaucratic and the clan control. **Bureaucratic control** is characterized by a wide use of rules, regulations, policies, procedures, and formal authority. This kind of control requires clear job descriptions, budgets, and often standardized tasks. Employees are expected to comply with the rules and regulations and may have limited opportunities for participation.

Clan control is based on norms, shared values, expected behavior, and other cultural variables.

Clan control, on the other hand, is based on norms, shared values, expected behavior, and other aspects relating to organization culture, which was discussed in Chapter 10. Clan control can be illustrated by the use of teams and by organizations operating in a very dynamic environment that requires quick adaptation to changes in that environment. Nokia, the largest wireless phone manufacturer in Finland, tries to keep bureaucracy at a minimum and instead creates an environment consistent with Finnish culture.

www.nokia.com

Requirements for Effective Controls

All alert managers want to have an adequate and effective system of controls to assist them in making sure that events conform to plans. It is sometimes not realized that the controls used by managers must be designed for the specific task and person they are intended to serve. While the basic process and the fundamentals of control are universal, the actual system requires special design.

Indeed, if controls are to work, they must be tailored to plans and positions, to the individual managers and their personalities, and to the needs for efficiency and effectiveness.

Tailoring Controls to Plans and Positions

All control techniques and systems should reflect the plans they are designed to follow. They should also be tailored to positions. What will be appropriate for a vice president in charge of manufacturing will certainly not be suitable for a shop supervisor. Controls should also reflect the organization structure, showing who is responsible for the execution of plans and for any deviation from them.

Tailoring Controls to Individual Managers

Controls must also be tailored to individual managers. Control systems and information are of course intended to help individual managers carry out their function of control. If they are not of a type that a manager can or will understand, they will not be useful. What individuals cannot understand they will not trust. And what they do not trust they will not use.

Designing Controls to Point up Exceptions at Critical Points

One of the most important ways of tailoring controls to the needs for efficiency and effectiveness is to design them to point up exceptions. In other words, controls that concentrate on exceptions from planned performance allow managers to benefit from the time-honored *exception principle* and detect areas that require their attention.

But it is not enough merely to look at exceptions. Some deviations from standards have little meaning, while others have a great deal. Small deviations in certain areas may have greater significance than larger exceptions in other areas. A manager might be concerned if the cost of

Efficient control requires that managers look for exceptions, while effective control requires that managers pay primary attention to things that are most important.

office labor deviated from the budget by 5 percent but might be unworried if the cost of postage stamps deviated from the budget by 20 percent.

Consequently, the exception principle should be accompanied in practice by the *principle of critical point control*. It is not enough just to look for exceptions; one must look for them at critical points. Certainly, the more that managers concentrate their control efforts on exceptions, the more efficient their control will be. But effective control requires that managers pay primary attention to things that are most important.

Seeking Objectivity of Controls

Management necessarily has many subjective elements, but whether a subordinate is doing a good job should ideally not be a matter for subjective determination. If controls are subjective, a manager's or a subordinate's personality may influence judgments of performance and make them less accurate. However, people would have difficulty dismissing control of their performance if the standards and measurements are kept up to date through periodic review. Effective control requires objective, accurate, and suitable standards. McDonald's, for example, is very strict in applying and maintaining the same quality standards in all its restaurants, as you have seen in the McDonald's case discussed in Chapter 1.

www.mcdonalds.com

Ensuring Flexibility of Controls[8]

If controls are to remain effective despite failure, or unexpected changes of plans, they must be flexible.

Controls should remain workable in the face of changed plans, unforeseen circumstances, or outright failures. If controls are to remain effective despite failure or unexpected changes of plans, they must be flexible.

The need for flexible control can readily be illustrated. A budget system may project a certain level of expenses and grant authority to managers to hire labor and purchase materials and services at this level. If, as is usually the case, this budget is based on a forecast of a certain level of sales, it may become meaningless as a system of control if the actual sales volume is considerably above or below the forecast. Budget systems have been brought into ill repute in some companies because of inflexibility in such circumstances. What is needed, of course, is a system that will reflect sales variations as well as other deviations from plans.

Fitting the Control System to the Organization Culture

To be most effective, any control system or technique must fit the organization culture. If an organization has given its employees

To be most effective, any control system or technique must fit the organization culture.

considerable freedom and participation, a tight control system may go so strongly against the grain that it will be doomed to failure. On the other hand, if subordinates have been managed by a superior who allows little participation in decision making, a generalized and permissive control system will hardly succeed. People who have little desire to participate or who have not been accustomed to participating are likely to want clear standards and measurements and specific directions. At one time, Mercedes-Benz, the luxury car maker, publicized that each of its cars underwent checks by many inspectors. But later, with a change in organization culture, a great deal of responsibility for quality was given to individual production workers.

www.mercedes.com

Achieving Economy of Controls

Controls must be worth their costs.

Controls must be worth their costs. Although this requirement is simple, it is often difficult to accomplish in practice. A manager may have difficulty ascertaining what a particular control system is worth or what it costs. Economy is relative, since the benefits of control vary with the importance of the activity, the size of the operation, the expense that might be incurred in the absence of control, and the contribution the system can make.

Establishing Controls that Lead to Corrective Action

An adequate control system will disclose where failures are occurring and who is responsible for them, as well as ensuring that corrective action is taken.

An adequate system will disclose where failures are occurring and who is responsible for them, and it will ensure that corrective action is taken. Control is justified only if deviations from plans are corrected through appropriate planning, organizing, staffing, and leading. As mentioned in Chapter 13, General Electric and Motorola aim at Six Sigma quality, or no more than 3.4 defects for a million operations.[9]

Summary

The managerial function of controlling is the measurement and correction of performance in order to ensure that enterprise objectives and the plans devised to attain them are being accomplished. It is a function of every manager, from president to supervisor.

Control techniques and systems are basically the same regardless of what is being controlled. Wherever it is found and whatever is being controlled, the basic control process involves three steps: (1) establishing standards, (2) measuring performance against these standards, and (3) correcting variations from standards and plans. There are different kinds

of standards, and all should point out deviations at critical points. Performance can be measured against best industry practices, an approach known as benchmarking.

Managerial control is usually perceived as a simple feedback system similar to the common household thermostat. However, no matter how quickly information is available on what is occurring (even real-time information, which is information on what is happening as it happens), there are unavoidable delays in analyzing deviations, developing plans for taking corrective action, and implementing these programs. In order to overcome these time lags in control, it is suggested that managers utilize a feedforward control approach and not rely on simple feedback alone. Feedforward control requires designing a model of a process or system and monitoring inputs with a view to detecting future deviations of results from standards and plans, thereby giving managers time to take corrective action before problems occur.

Many overall controls are financial, one of which is profit and loss control. Another is the exercise of control through calculating and comparing return on investment. This approach is based on the idea that profit should be considered not as an absolute measure but as a return on the capital employed in a business or a segment of it. The management audit has also been used as a control device. Bureaucratic control is based on rules, regulations, policies, procedures, and formal authority. On the other hand, clan control is influenced by norms, shared values, and expected behavior.

If controls are to work, they must be specially tailored to plans and positions, to individual managers, and to the needs for efficiency and effectiveness. To be effective, controls also should be designed to point up exceptions at critical points, to be objective, to be flexible, to fit the organization culture, to be economical, and to lead to corrective action.

KEY IDEAS AND CONCEPTS FOR REVIEW

Controlling
Steps in controlling
Critical point control
Types of critical point standards
Benchmarking
Feedback system
Real-time information system
Feedforward control
Profit and loss control
Return-on-investment control
Management audit
Bureaucratic control
Clan control
Requirements for effective controls
Exception principle
Principle of critical point control

FOR DISCUSSION

1. Planning and control are often thought of as a system; control is also often referred to as a system. What do these observations mean? Can both statements be true?
2. Why is real-time information not good enough for effective control?
3. What is feedforward control? Why is it important to managers? Besides the example of inventory control mentioned in this chapter, can you think of any other areas in which feedforward would be used? Select one of these and explain how you would proceed.
4. Why do most controls of overall performance tend to be financial? Should they be? What else would you suggest?
5. "Profit and loss control is defective in that it does not emphasize return on investment; the latter is defective in that it places too great an emphasis on present results, possibly endangering future results." Discuss.
6. If you were asked to institute a system of "tailored" controls in a company, how would you go about it? What would you need to know?
7. In benchmarking, companies compare their performance with best practices. Why do you think firms that have an effective system are willing to share information with other companies?

EXERCISES/ACTION STEPS

1. Design a control system for measuring the progress that you make in your course work. Apply the feedback and feedforward concepts discussed in this chapter.
2. Interview two managers about the controls used in their companies. Can you identify standards against which performance can be accurately measured? How is performance measured against the standards, and how timely is the reporting of deviations? If deviations are detected, how long does it take before corrections are made in specific situations?

INTERNET RESEARCH

1. Search the Internet for the term "feedforward control." How does it differ from feedback control?
2. Search the Internet for the term "profit and loss statement." What is it?



Wal-Mart in America and around the Globe[10]

By 2002, Wal-Mart has become the largest company in the world in terms of sales. It is also the biggest private employer in the world. Moreover, the company has one of the most sophisticated

logistic systems controlled by computers. Yet its headquarters are located in a small town in Bentonville, Arkansas. The small-town orientation in its business approach contributed to its value-based success story.

Success did not come by accident; rather, it is based on careful planning of a unique strategy, a simple organization structure, an effective human resource policy, an inspiring leadership style initiated by founder Sam Walton, and a clever use of information technology to manage its inventory. When the company made mistakes, it learned from them. One concern is whether the strategy of invading rural areas will also work in the urban areas of America and in the global environment.

The Background

It all began in 1962 in a small town in Arkansas when Sam Walton noted the need for serving customers in small towns. Retailers such as Kmart and Sears focused on big towns. This created an opportunity for Wal-Mart to fill people's needs in rural areas. This small-town orientation is reflected in the company's values, which emphasize maintaining good relationships with staff as well as suppliers. Sam Walton's values and his philosophy of simplicity and frugality live on after his death. The focus on cost savings enables the company to offer "everyday low prices," which has become the familiar company slogan.

Planning: From Small Towns to a Global Strategy

Besides the traditional stores, the company has Supercenters with a full line of groceries for one-stop family shopping. They may also include specialties shops with a vision center, tire and lubrication facilities, and photo processing. In addition, Sam's Club is a members-only warehouse club for individual and business members.

Since the early 1990s, Wal-Mart has gone international, starting with a Sam's Club store near Mexico City. Now Wal-Mart operates clubs and stores worldwide in countries such as Argentina, Brazil, Canada, China, Germany, South Korea, Mexico, Puerto Rico, and the United Kingdom, employing more than 280,000 people.

The tremendous size of the company gives it a great deal of buying power, which in turn makes it possible to offer goods at low prices, a policy that differentiates Wal-Mart from other retailers. The company is known for its national brand strategy, which allows consumers to compare prices. In addition, Wal-Mart has its own private labels with product offerings in apparel health and beauty care, dog food, and other items.

In its hub-and-spoke distribution system, merchandise is brought to a distribution center where it is sorted and prepared for delivery to the stores. These highly automated distribution centers operate 24 hours a day and may serve some 150 stores. Other merchandise is shipped directly from the suppliers to the stores.

Simple Organization Structure: Centralized and Decentralized

While the company's proprietary information system is centralized, the operation is decentralized with a great deal of authority delegated to local managers in, for example, pricing the merchandise according to the local environment. The autonomy given to store managers makes them in a sense a small shopkeeper who can make decisions to adjust inventory according to local needs. Employees, called associates, are informed and celebrated at the Saturday morning meetings, where they are cheered for their accomplishments. The meetings also provide an opportunity to reinforce the notion that the customer is number 1.

Wal-Mart's organization culture is built on three basic values promulgated by Sam Walton. It was established in 1962 and still permeates the organization. The values are (1) respect for the individual, (2) service to the customer, and (3) striving for excellence. Other factors influencing the organization culture include exceeding the expectations of customers, assisting people so that they can make a difference, quickly approaching customers to help, doing today what can be done today rather than postponing it, and pricing for providing value to the customer.

Human Resource Management: People, the Most Important Assets

Clearly, the organization culture has an impact on the staffing function. Associates are treated with respect in this lean organization. Having a great deal of authority motivates people. Training is decentralized with management seminars offered at the distribution centers instead of at the company headquarters. The company atmosphere encourages employees to submit suggestions, many of them being implemented through the "Yes We Can Sam" suggestion system. Associates are rewarded bonuses for cost reduction through the "shrink incentive plan." Supervisors and managers receive a salary as well as incentive compensation based on store performance. Associates can also participate in a profit-sharing plan with Wal-Mart contributing a certain percentage.

Leadership by Example: Simple Frugality Communicated Effectively

Sam Walton, the founder, provided leadership by example. His philosophy influenced his style. Once the richest person in America, he was a very frugal man, flying economy class and driving an old pickup truck. Similarly, Lee Scott, the present CEO, drives a Volkswagen Beetle. Sam Walton was a good communicator during his time as CEO, and his style was described as "management by walking and flying around" because of his frequent visits to his stores. Although he felt that trusting people and giving them responsibility was essential in managing people effectively, he also had the necessary control systems. Although Walton passed away in 1992, his legacy and philosophy still permeate his organization, as shown by the spartanly furnished headquarters in Bentonville.

Controlling a Large Organization: Sharing Information and Technologies with Suppliers

One of the key factors for Wal-Mart's success is the inventory system that uses modern technology. The proprietary computer-controlled logistic system is considered one of the largest in America, ranking just below the Pentagon's system. The store manager can easily find out how his or her department managers are doing and which products are in high demand. Wal-Mart's inventory turns over about twice as fast as the industry average, thus reducing greatly inventory costs. Suppliers, who are considered a part of the Wal-Mart family, also have access to the system and receive real-time data to help them plan for the fast-moving items.

The relationship with suppliers is, however, very businesslike. Contracts are negotiated in no-nonsense rooms with a table and some chairs—no plush offices can be found. What is found, however, is a sign that says Wal-Mart's buyers do not accept bribes, which could influence buying decisions.

Global Challenges for the Future[11]

Although Wal-Mart has been successful, there are considerable challenges ahead. To continue its growth, Wal-Mart would have to continue aggressively with opening new stores at home and abroad. In addition, product and service offerings need to be expanded, such as providing banking services as well as adding food. International expansion is another way to grow. The company has been successful in the expansion into Canada and Mexico, but other strategies have been less successful. One such example was the move into Germany, which the company did not plan carefully. Lee Scott attributes the failure to poor management. The company tries to learn from its mistakes and impresses on its associates to provide good service with a smile. In fact, a big problem for the rapidly growing company is developing competent managers and associates.

Domestically, the Wal-Mart image has been hurt by the publicity on the impact of the big retailer on small communities. The "60 Minutes" television program showed how small retailers of small towns could not effectively compete against the giant and were driven out of business. Still, consumers in the small communities were attracted by the everyday low prices.

One of Wal-Mart's latest attempts to remain the world's largest retailer is to become the neighborhood grocer, which has created fear among other food stores. Food business is big business. People may shop once or more times a week for food. At the same time, they may be enticed to buy other goods Wal-Mart has to offer.[12]

Wal-Mart effectively practiced the managerial functions of planning, organizing, staffing, leading, and controlling, which led to its remarkable success, but challenges remain. Companies such as Costco as well as foreign firms such as the French Carrefour and the German Metro (although both are much smaller than Wal-Mart) are attempting to take business away from Wal-Mart.

Questions

1. With a saturation of stores in the rural areas in America, can Wal-Mart employ the same strategies for setting up stores in the cities? Why or why not? What difficulties may the company encounter?
2. Can the organization culture, which was so effective in the United States, be transferred to other countries? What changes, if any, would you suggest?
3. Could competitors copy the inventory system of Wal-Mart?
4. Would you like to be a manager at Wal-Mart? Why or why not?
5. What should Wal-Mart do to be successful in other countries?
6. How can Wal-Mart control the global enterprise?

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Chapter 19

Control Techniques and Information Technology

CHAPTER OBJECTIVES

After studying this chapter, you should be able to:

1. Explain the nature of budgeting and the types of budgets.
2. Describe zero-base budgeting.
3. Discuss nonbudgetary control devices.
4. Explain time–event network analysis as a major technique of planning and control.
5. Understand the nature and applications of information technology.
6. Recognize the importance of computers in handling information.
7. Explain the opportunities as well as challenges created by the new information technology.
8. Discuss the digital economy as well as developments in e-commerce and m-commerce.

Although the basic nature and purpose of management control do not change, a variety of tools and techniques have been used over the years to help managers control. As this chapter will show, all these techniques are in the first instance tools for planning. They illustrate the fundamental truth that the task of controls is to make plans succeed; naturally, in doing so, controls must reflect plans, and planning must precede control.

The Budget as a Control Device

A widely used device for managerial control is the budget.* Indeed, it has sometimes been assumed that budgeting is *the* device for accomplishing control. However, many nonbudgetary devices are also essential.

The Concept of Budgeting[1]

Budgeting The formulation of plans for a given future period in numerical terms.

Budgeting is the formulation of plans for a given future period in numerical terms. As such, budgets are statements of anticipated results, either in financial terms—as in revenue and expense as well as capital budgets—or in nonfinancial terms—as in budgets of direct-labor-hours, materials, physical sales volume, or units of production. It has sometimes been said, for example, that financial budgets represent the "dollarizing" of plans.

Dangers in Budgeting

Budgets are used for planning and control. Unfortunately, some budgetary control programs are so complete and detailed that they become cumbersome, meaningless, and unduly expensive. In addition, budgetary control may be used for the wrong reasons.

How often have you heard managers say "This is a good idea, but it's not in my budget"? Budgets often control the wrong things. They measure inputs but ignore outputs such as product quality and customer satisfaction.

* Primarily because of the negative implications of budgeting in the past, the more positive phrase *profit planning* is sometimes used, and the budget is then known as the *profit plan*.

These items are difficult to measure, yet they may be the key to success or failure of the business. Managers may make unwise decisions to meet the budget, especially if incentive pay is given for staying within the budget. They may not invest in research and development, make capital investment for productivity, or invest in activities that will result eventually in greater market share because these investments do not show immediate results. Some of these items should be included in the long-range plan rather than in the one-year budget. Real savings may come from more efficient machines, new products, or other creative ideas, not from adhering to the budget.

Zero-Base Budgeting

Zero-base budgeting Dividing enterprise programs into packages composed of goals, activities, and needed resources and calculating the costs for each package from base zero.

One type of budgeting is **zero-base budgeting**. The idea behind this technique is to divide enterprise programs into "packages" composed of goals, activities, and needed resources and then to calculate the costs for each package from the ground up. By starting the budget of each package from base zero, budgeters calculate costs afresh for each budget period; thus, they avoid the common tendency in budgeting of looking only at changes from a previous period.

This technique has generally been applied to so-called support areas, rather than to actual production areas, on the assumption that there is room for discretion in expenditures for most programs in such areas as marketing, research and development, personnel, planning, and finance. The various programs thought to be desirable are costed and reviewed in terms of their benefits to the enterprise and are then ranked in accordance with those benefits and selected on the basis of which package will yield the benefit desired.

The principal advantage of this technique is of course the fact that it forces managers to plan each program package afresh. As managers do so, they review established programs and their costs in their entirety, along with newer programs and their costs.

Traditional Nonbudgetary Control Devices

There are of course many traditional control devices not connected with budgets, although some may be related to, and used with, budgetary controls. Among the more important of them are the use of statistical data of many aspects of the operation, special reports and analyses of specific areas, the operational audit and independent appraisal by a staff of internal

or external auditors, and personal observation such as managing by walking around.

Time–Event Network Analyses

Another planning and control technique is a time–event network analysis called the program evaluation and review technique (PERT). Before the development of PERT, there were other techniques designed to assess how the parts of a program fit together during the passage of time and events.

Gantt Charts

Gantt chart A bar chart that shows the time relationships between the "events" of a production program.

The first of these techniques was the chart system developed by Henry L. Gantt early in the 20th century that culminated in the bar chart bearing his name (see Figure 19-1). Although simple in concept, this chart, showing time relationships between the "events" of a production program, has been regarded as revolutionary in management. What Gantt recognized was that total program goals should be regarded as a series of interrelated supporting plans (or events) that people can comprehend and follow. The most important developments of control reflect this simple principle as well as basic principles of control, such as picking out the more critical elements of a plan to watch carefully.

Milestone Budgeting

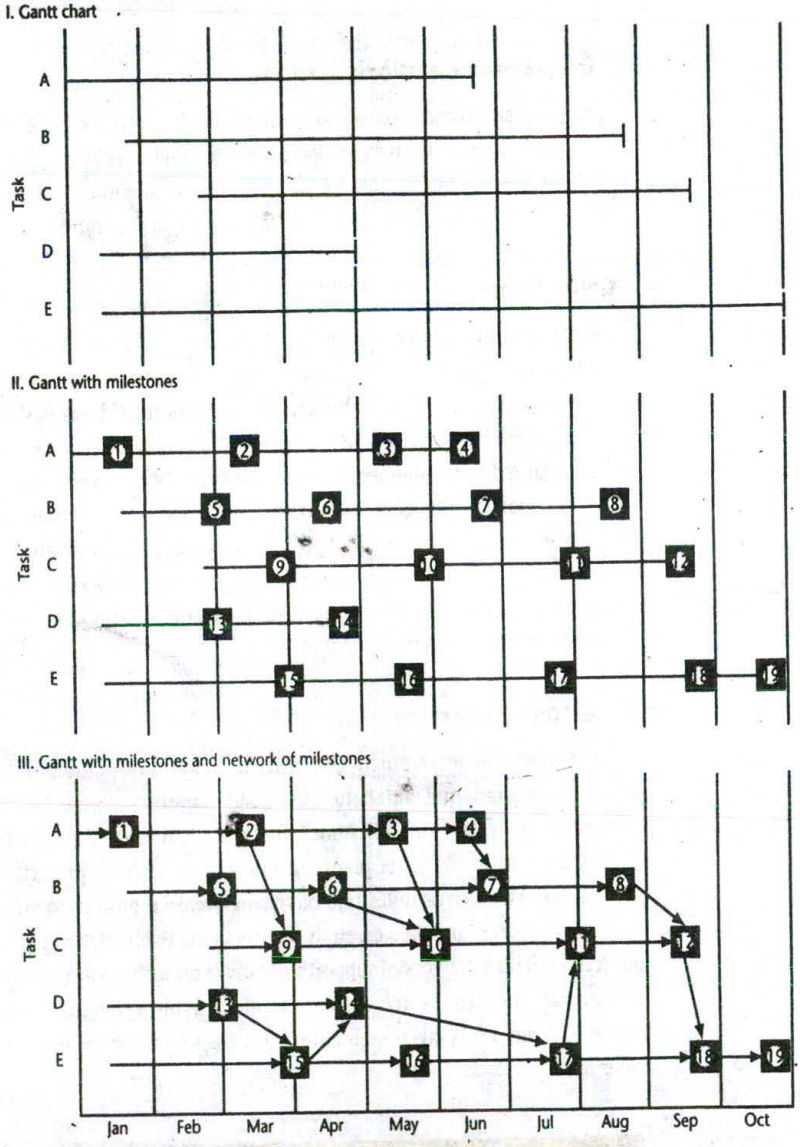
As a result of the development of further techniques from the principles of the Gantt chart, and with better appreciation of the network nature of programs, "milepost" or "milestone" budgeting and PERT were devised, contributing much to better planning and control of many projects and operations. Milepost or milestone budgeting breaks a project down into controllable pieces and then carefully follows them. Even relatively simple projects contain a network of supporting plans or projects. In this approach to control, milestones are defined as identifiable segments. When accomplishment of a given segment occurs, costs or other results can be determined.

International Perspective

Planning and Control in Engineering

The best way to plan and control an engineering project is to break it down into a number of events, such as completion of preliminary drawings, an experimental model, a package design, a packaged prototype, and a production design. Or a

FIGURE 12-1 Transition from a Gantt chart to PERT



The Gantt chart in I above shows the scheduled time of accomplishing a task, such as procurement (task A), and the related schedules of doing other tasks, such as manufacture of parts (task B). When each of these tasks is broken down into milestones, such as the preparation of purchase specifications (task A-1), and when network relationships between the milestones of each task to those of other tasks are worked out, the result provides the basic elements of a PERT chart.

project might be broken down vertically into subprojects—for example, the design of a circuit, a motor, a driving mechanism, a sensing device, a signal feedback device, and similar components—that can be completed individually, in a time sequence so that components are ready when needed. Milestone budgeting allows a manager to see a complex program as a series of simpler parts and thus to maintain some control through knowing whether a program is succeeding or failing.

Program Evaluation and Review Technique (PERT)*

Developed by the Special Projects Office of the U.S. Navy, PERT was first formally applied to the planning and control of the Polaris Weapon System in 1958 and worked well in expediting the completion of that program. For a number of years, it was so enthusiastically received by the armed services that it became virtually a required tool for major contractors and subcontractors in the armament and space industry. Although PERT is no longer much heard of in defense and space contracts, its fundamentals are still essential tools of planning and control. Moreover, in a host of nongovernmental applications, including construction, engineering and tooling projects, and even such simple tasks as the scheduling of activities to produce monthly financial reports, PERT or its companion network technique, the critical path method, may be used.

Major features of PERT

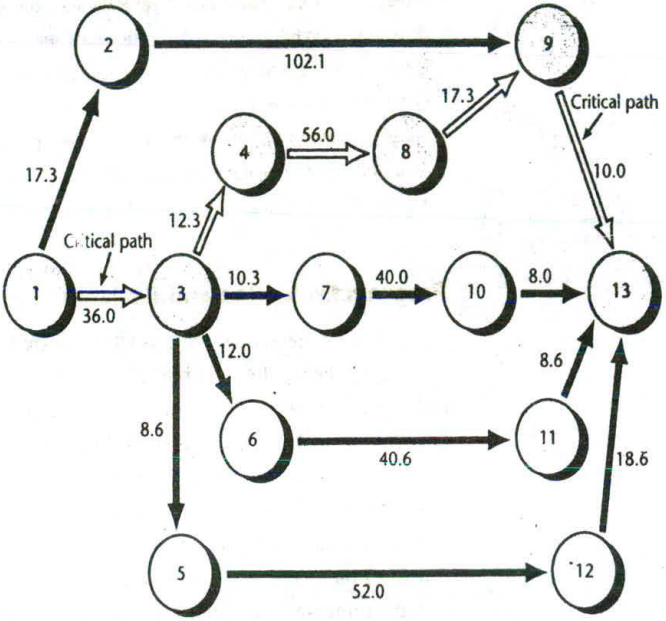
PERT A time–event network analysis system in which the various events in a program or project are identified, with a planned time established for each.

PERT is a time–event network analysis system in which the various events in a program or project are identified, with a planned time established for each. These events are placed in a network showing the relationships of each event to the other events. In a sense, PERT is a variation of milestone budgeting (see Figure 19-1).

Figure 19-2 shows a PERT flowchart for the major assembly of an airplane. This example illustrates the basic nature of PERT. Each circle represents an *event*—a supporting plan whose completion can be measured at a given time. The circles are numbered in the order in which the events occur. Each arrow represents an *activity*—the time-consuming element of a program, the effort that must be made between events. *Activity time,*

* The technique was also separately developed as the critical path method by engineers at the Du Pont Company at virtually the same time. Only PERT is discussed here because the critical path method, although different in some respects, utilizes the same principles.

FIGURE 19.2 PERT flowchart



Events (major milestones of progress) in the major assembly of an airplane (shown with time in weeks): (1) order program go-ahead; (2) initiate engine procurement; (3) complete plans and specifications; (4) complete fuselage drawings; (5) submit GFAE* requirements; (6) award tail assembly subcontract; (7) award wings subcontract; (8) complete manufacture of fuselage; (9) complete assembly of fuselage engine; (10) receive wings from subcontractors; (11) receive tail assembly from subcontractors; (12) receive GFAE; (13) complete aircraft.

* GFAE: government-furnished airplane equipment.

represented by the numbers beside the arrows, is the time required to accomplish an event.

In this example, only a single time is shown for each activity, but in the original PERT program there were three *time estimates*: "optimistic" time, an estimate of the time required if everything goes exceptionally well; "most likely" time, an estimate based on the time the project engineer really believes is necessary for the job; and "pessimistic" time, a time estimate based on the assumption that some logically conceivable bad luck, other than a major disaster, will be encountered. These estimates are often included in PERT because it is very difficult, in many engineering and development projects, to estimate time accurately. When several estimates are made, they are usually averaged, with special weight given to the most likely estimate; a single estimate is then used for calculations.

Critical path The sequence of events that takes the longest time and that has zero (or the least) slack time.

The next step is to compute the *critical path*, which is the sequence of events that takes the longest time and that has zero (or the least) slack time. In Figure 19-2, the critical path comprises events 1–3–4–8–9–13. Over this path, the activity time for this sequence of events is 131.6 weeks; if promised delivery is in 135 weeks, even this critical path will have been completed 3.4 weeks ahead of time. Some of the other paths are almost as long as the critical path. For example, the path 1–2–9–13 is 129.4 weeks. This is not unusual in PERT charts, and it is customary to identify several crucial paths in order of importance. Although the critical path has a way of changing as key events are delayed in other parts of the program, identifying it at the start makes possible close monitoring of this particular sequence of events to ensure that the whole program is on schedule.

Typical PERT analyses involve hundreds or thousands of events. Even though smaller PERT analyses can be done manually, estimates indicate that when more than 200 to 300 events are involved it is virtually impossible to handle the calculations without a computer.

Strengths and weaknesses of PERT

There are five important advantages of PERT. First, it forces managers to plan because it is impossible to make a time–event analysis without planning and seeing how the pieces fit together. Second, it forces planning all the way down the line because each subordinate manager must plan the event for which he or she is responsible. Third, it concentrates attention on critical elements that may need correction. Fourth, it makes possible a kind of forward-looking control; a delay will affect succeeding events and possibly the whole project, unless the manager can make up the time by shortening the time allocated to some action in the future. Fifth, the network system with its subsystems enables managers to aim reports and pressure for action at the right spot and level in the organization structure at the right time.

PERT also has certain limitations. Because of the importance of activity time to its operation, the technique is not useful when a program is nebulous and no reasonable "guesstimates" of schedule can be made. Even in this case, however, insurance can be "bought" by such practices as putting two or more groups of people to work on an event when costs permit. A major disadvantage of PERT is its emphasis on time only, not on costs. While this focus is suitable for programs in which time is of the essence or in which, as so often is the case, time and costs have a close, direct relationship, the tool is more useful when considerations other than time

are introduced into the analysis. (There is, however, another program called PERT/cost that does consider costs.)

Information Technology[2]

The developments in information technology greatly facilitate organizational control at a relatively low cost. The systems model of management (Chapter 1) shows that communication is needed for carrying out managerial functions and for linking the organization with its external environment. Communication and the management information system (MIS) are the linkage that makes managing possible.

At the outset, one has to realize the distinction between data and information. *Data* are the raw facts that may not be very useful until they become *information*, that is, after they are processed and become meaningful and understandable by the receiver (see also the communication model in Chapter 17). While this applies to interpersonal communication, it is also true for information technology.

Information technology encompasses a variety of technologies, including various kinds of hardware (e.g., computers, printers), software (e.g., operating systems, word or data processing), and computing and communication technologies (e.g., telecommunication, database management).[3] In fact, new technologies are rapidly developing, such as 3G, the third generation of wireless technology, expanding and enhancing the capabilities of information technology. Even before 3G is widely implemented, the fourth-generation (4G) technology is developed. But it may not be available before 2010.[4]

Management information system A formal system of gathering, processing, and dispersing information internal and external to the enterprise in a timely, effective, and efficient manner to support managers in their jobs.

Information technology has promoted the development of MIS. The definition of the term **management information system** varies. It is defined here as a formal system of gathering, integrating, comparing, analyzing, and dispersing information internal and external to the enterprise in a timely, effective, and efficient manner to support managers in performing their jobs. MIS has to be tailored to specific needs and may include routine information, such as monthly reports; information that points out exceptions, especially at critical points; and information necessary to predict the future.

Electronic equipment permits fast and economical processing of huge amounts of data. The computer can, with proper programming, process data toward logical conclusions, classify them, and make them readily available for use. As noted above, data do not become information until they are processed into a usable form that informs.

Expansion of Basic Data

The focus of attention on management information, coupled with its improved processing, has led to the reduction of long-known limitations. Managers have recognized for years that traditional accounting information, aimed at the calculation of profits, has been of limited value for control. Yet, in many companies, this has been virtually the only regularly collected and analyzed type of data. Managers need all kinds of nonaccounting information about the external environment, such as social, economic, political, and technical developments. In addition, they need nonaccounting information on internal operations. The information should be qualitative as well as quantitative.

While not nearly enough progress has been made in meeting these requirements, the computer, plus operations research, has led to an enormous expansion of available managerial information. One sees this especially in relation to data on marketing, competition, production and distribution, product costs, technological change and development, labor productivity, and goal accomplishment. When readers of *The Economist* were asked what kind of technology would influence economic activity, the vast majority listed information technology.[5]

Information Indigestion and Intelligence Services

Managers who have experienced the impact of better and faster data processing are justly concerned about the danger of "information indigestion." With their appetite for figures whetted, the data originators and processors are turning out material at an almost frightening rate. Managers are complaining that they are being buried under printouts, reports, projections, and forecasts that they do not have time to read or cannot understand or which do not fill their particular needs.

One attempt at solving the problem of information overload is the establishment of intelligence services and the development of a new profession of intelligence experts. The service is provided by specialists who know (or find out) what information managers need and who know how to digest and interpret such information for managerial use. Some companies have established organizational units under such names as "administrative services" or "management analyses and services" for making information understandable and useful.

The Use of Computers in Handling Information

The computer can store, retrieve, and process data so that they become information.

The computer can store, retrieve, and process data so that they become information. Often a distinction is made between kinds of computers. The *mainframe* is a full-scale computer, often costing millions of dollars, that is capable of handling huge amounts of data. The most powerful mainframes are the supercomputers, which are used for engineering, simulation, and the manipulation of large databases.* The *minicomputer* has less memory and is smaller than the mainframe. This kind of computer is often connected with peripheral equipment. The *microcomputer* is even smaller and may be a desktop computer, home computer, personal computer, portable computer, or a small computer for a business system. Increasingly, however, minicomputers are used by large organizations either as stand-alone computers or as parts of a network.

The distinction between the various classes of computers is disappearing with the introduction of the microcomputer and the linkage of smaller computers into a network. Some tasks that previously required a powerful computer can now be carried out by smaller computers that are hooked together. The food biotechnology company Monsanto uses grid technology to gain such computing power. Rather than buying larger computers, smaller computers are connected. Although grid technology was developed in academia and government research laboratories, it has found its way into business.[6] It should be noted that the full utilization of the hardware (the computers) depends also on the development of software programs.

Among the many business applications of the computer are material requirement planning, manufacturing resource planning, computer-aided control of manufacturing machinery, project costing, inventory control, and purchasing. Some of the tools will be discussed in the next chapter. The computer also aids design and engineering, an application that made the U.S. space program possible. Then there are of course the many uses in processing financial information such as accounts receivable and accounts payable, payroll, capital budgeting, and financial planning. Computer-aided communication impacts not only on decision making but also on organizational design.

* The supercomputer was developed by the legendary Seymour Cray, who has been called the father of supercomputing. The first supercomputer was used at Los Alamos National Laboratory in 1978, costing some $8.8 million.

The Impact of Computers on Managers at Different Organizational Levels

Information needs vary at different organizational levels. Therefore, the impact of computers will also be different. At the supervisory level, activities are usually highly programmable and repetitive. Consequently, the use of computers is widespread at this level. Scheduling, daily planning, and controlling of the operation are just a few uses.

Middle-level managers, such as department heads or plant managers, are usually responsible for administration and coordination. Much of the information important to them is now also available to top management if the company has a comprehensive information system. For this reason, some people think that the computer will reduce the need for middle-level managers. Others predict that their roles may be expanded and changed.

Top-level managers are responsible for the strategy and overall policy of the organization. In addition to determining the general direction of the company, they are responsible for the appropriate interaction between the enterprise and its environment. Clearly, many of the tasks of chief executives are not easily programmable. Yet top managers can use the computer to retrieve information from a database to facilitate the application of decision models. This enables the company to make timely responses to changes in the external environment. Still, the use of the computer will probably affect the jobs of top managers less severely than it will affect the jobs of those at lower levels.

The Application and Impacts of Microcomputers

The personal computer is becoming increasingly appealing to managers because it is flexible and relatively inexpensive and can be used more quickly than the mainframe computer. Its applications include the following: spreadsheets, graphic presentations, financial analyses, budget preparation, forecasting, simulation modeling, word processing, e-mail, database access, and time-sharing.

The implications of the increasing use of the microcomputer are manifold. There is a need for specialized staff support, training for managers and nonmanagers, and a redefinition of jobs. For example, the distinction between line and staff is becoming less clear. The information that was formerly gathered by staff can now be obtained with ease by line managers when they access a common database. On the other hand, information that was the prerogative of upper-level managers can also be made available

to personnel at lower levels, possibly resulting in the shift of power to lower levels in the organization. But not all information should be accessible to all people in the company. Thus, one of the problems currently faced by many firms is maintaining the security of information.

Opportunities and Challenges Created by Information Technology

Preventing the unauthorized use of information is just one of many challenges created by information technology. Other challenges as well as opportunities brought by information technology include overcoming resistance to the use of computers, adapting speech recognition devices, telecommuting, installing computer networks, and using the Internet.

Resistance to Computer Use

While high school students may feel comfortable using the computer, some managers fear it. One study revealed that the typical executive affected by this phobia is male, is about 50 years old, and has worked most of his life for the same company. Some managers are reluctant to use the computer because they are afraid of looking unskilled if they are not able to understand the new technology or do not have the typing skill often necessary for entering data into the computer. In the past, typing was considered the task of the secretary, not the manager. At Kaiser Permanente, the largest health maintenance organization in the United States, doctors resisted the new information technology because they were required to enter the medical records of patients. To encourage use, doctors were given checklists that could be easily filled out on-screen. When the benefits were realized, resistance decreased.

www.kp.org

Speech Recognition Devices

One way to encourage the use of computers is through speech recognition devices. The aim is to put data into the computer by speaking in a normal manner, rather than by using the keyboard. Several companies are working on such devices. Simple speech recognition has been in limited use for some time. Merely expanding the vocabulary through a larger memory is not enough. Imagine the program sophistication needed to distinguish between similar sounds (in the English vocabulary) such as "then" and "than" or "to" and "too" and "two." Despite the complex problems, some

people think that the efforts made in this area will result in products that may revolutionize office operations.

After a slow start, speech recognition is increasingly used at call centers of telephone companies, airlines, and financial service firms.[7] The cost-effectiveness of this technology is one of the major factors for its increasing use. Computers have become less expensive, and broadband access to the Internet and wireless Ethernet have become more common. Still, the greatest impact of speech recognition may be in the car. Perhaps the most important impediment to this development is, at least in the United States, the disagreement about a common industry standard.

Telecommuting

Telecommuting
Working at a computer terminal at home instead of commuting to work.

The widespread use of computers and the ease of linking them through telephone lines (or even wireless devices) to a company's mainframe computer have led to **telecommuting**. This means that a person can work at a computer terminal at home instead of commuting to work. Some of the advantages claimed include greater flexibility in scheduling work, the avoidance of traffic congestion, and a reduced need for office space.

The futurist Alvin Toffler envisioned an "electronic cottage" with computer terminals installed at home. But John Naisbitt, in his book *Megatrends*, is skeptical of the idea and suggests that, after telecommuting for some time, workers will miss the office gossip and the human interaction with colleagues.[8] Some companies that have contracted work to telecommuters have been criticized for not providing the benefits usually given to office workers. At Pacific Bell, however, participants in the voluntary program are considered full-time employees. Moreover, some employees go to the office at least once a week to check their mail and to mingle with coworkers.

With the worsening traffic congestion, especially in metropolitan areas, one may see a greater use of telecommuting. But it is doubtful that it will replace the office as we know it today.

Computer Networks

The widespread use of stand-alone computers often results in duplication of efforts. The database in the mainframe or the minicomputer, for example, may not be accessible from the desktop computer. Therefore, computer networks have been developed that link workstations with each other,

with larger computers, and with peripheral equipment. The interconnection allows users at several workstations to communicate with each other as well as to access other computers. Moreover, workstations can be connected to costly hardware that may be underutilized by a single user. For example, laser printers or tape backup units for saving data files can be shared.

There are many other applications of computer networks, such as e-mail and the collection, dissemination, and exchange of data, information, and knowledge. Although computer networking is still in its infancy, new technological developments are rapidly changing the system of information handling.

The Internet

The Internet is the largest network of computers and a network of networks.

The Internet is the largest network of computers. Actually, it is a network of networks. It ranges from large formal networks at AT&T to informal ones that can be accessed by anyone. The Internet started at the U.S. Department of Defense in 1969 with the purpose of linking it with military research contractors and universities conducting research for the military. Now governments, universities, companies, and anyone with a computer and a modem can use the Internet. Private persons often use an online service such as America Online, CompuServe, Earthlink, Prodigy, or AT&T to send and receive e-mail, "chat" with other people anywhere in the world, and retrieve information (e.g., from an online library or newspaper). They can check the weather forecast or sports results. The Internet is also an excellent tool for conducting company research and doing business.[9] Another common use is for discussion on bulletin boards of any topics, ranging from computer assistance to hobbies and sports events. Building online communities is one purpose of the Internet.[10]

The Internet received a boost through the World Wide Web, which was developed at the European Particle Physics Laboratory. The standard for representing data on the Web is called Hypertext Markup Language (HTML). The Web, in turn, got a boost from the Mosaic browser released by University of Illinois student Marc Andreessen. With Mosaic, one has an easy-to-use tool for accessing information around the world, such as visiting a company's Web pages to learn about the company and its products and services. Mosaic could be downloaded for free. Later, Netscape, the commercial product of Mosaic, was offered by Andreessen, who became a multimillionaire at the company's public offering in 1995.

No one is sure how many people use the Internet. The number of users has been estimated at about 2,000 in 1993, more than 33 million in 1996, and possibly between 1 and 2 billion by 2001.[11] And the number is climbing.

The Internet is transforming many industries, ranging from telecommunication to travel. It is inexpensive, it will soon be found everywhere, and it is an open system. It has created Internet-related companies such as Netscape, Yahoo, Cybercash, and many others that did not exist a few years ago.[12] It is also transforming the way business is conducted and service is delivered. For instance, one can have a personalized news retrieval service through PointCast software. At regular intervals, the software connects through the Internet to the PointCast server to collect the kind of information requested.[13]

Electronic communication has a great impact on language too. A new cyber jargon has created words such as Web browser (a program for exploring the Web), newsgroup, World Wide Web, netiquette, and of course Internet.[14] Language links the world, and the most widely used language on the Internet is English. It has been estimated that 80 percent of all information stored in computers is in English. How much of the information on the Internet is in English is not known, but almost all scientific material on the Internet is in English. To advance in one's career and to function in the global environment, people will need to know at least some English, even if it is not their native language.

The Internet has also political and social implications.[15] In Asia, for example, governments want their countries to be technologically advanced in cyberspace, yet they may consider limiting objectionable or socially or politically sensitive material transmitted on the Internet.

What is the future of the Internet? Nobody can say for sure. Craig McCaw, who sold his firm McCaw Cellular Communications to AT&T for $11.5 billion in 1994, envisions Internet delivery using several hundreds of satellites.[16] Specifically, he hopes that through his Teledesic venture 840 satellites will encircle the globe at low altitude transmitting signals around the earth.

Other Types of Networks

Besides the Internet, there are other types of networks. The **intranet** is a network that applies computer and Internet technologies to an organization or selected groups within the organization. Similarly, the **extranet** also uses computer and Internet technologies, but it connects selected users

inside as well as outside the organization. For example, a purchasing agent may be linked to certain vendors for conducting selling and buying transactions.

Groupware

Groupware Software that enables a group of people on a network to collaborate over long distances at the same time.

Networks facilitate the management process and other business activities. A group of people on a network can collaborate over long distances at the same time using **groupware**. This software allows a document to be shown to several users on their monitors and for them to comment or make changes to the document. Thus, people who may be located in different parts of the world can collaborate on the same task simultaneously.

Information Security[17]

With the growing use of information technology, the concern for security also increases. Not only businesses but also individuals are vulnerable to computer break-ins or interception or alteration of electronic transmissions. A hacker (someone who breaks into a computer) may alter or even destroy bank or other records. Protection of computers can be afforded through encryption, whereby a secret code is used to scramble the message so that it is not readable. The use of a firewall also provides some protection. Firewalls come as software programs (e.g., Norton Personal Firewall 2002 or Zone Alarm Pro) or as hardware such as the Ethernet router. A great variety of antivirus programs protect against computer viruses or worms, which may cause extensive damage to computers and networks. Of additional concern are the people who work with information systems in organizations. They need to be responsible, be trained, and be held accountable for their behavior with severe penalties attached for breaching security. Individuals and companies also should protect data by regularly making backup copies and storing them in a secure place, perhaps outside their place of work.

The Digital Economy, E-Commerce, and M-Commerce

Alan Greenspan, chairman of the U.S. Federal Reserve Board, one of the most influential persons in the world of finance, stated in 1999: "The newest innovations, which we label information technology, have begun to alter the manner in which we do business and create value, often in ways not readily foreseeable even five years ago." **E-commerce**—business transactions on the Web—is changing the way we do business.

The Emerging Digital Economy

Information technology affects most aspects of business and personal life. While computer power is growing rapidly, its price is dropping dramatically. The Ford Taurus car of today has more computing power than the million-dollar mainframe computer in the Apollo space program. Information technology raises productivity not only in the production and distribution of goods but also in services. Productivity improvement, in turn, results in higher living standards. This new technology impact is global, increasing competition and innovation. The ability to easily process vast amounts of data in research and development has shortened the development time of new products, speeding up their introduction to the market.[18]

One of the major impacts of the Internet is on the way business is conducted. Relationships with suppliers and customers are changing dramatically. Telecommunication and information technology have contributed greatly to the longest peacetime economic expansion in the United States. The investment in those technologies finally paid out. Today, we have e-everything: e-mail, e-commerce, e-business, e-cash (use of smart cards and digital cash), e-travel, e-finance, e-loan, e-music, e-books, e-stamps, and many more e-activities.

The economic gains of e-commerce come from the lower costs of online companies (when compared to brick-and-mortar firms with physical stores), reduction in distribution costs, and the elimination of intermediaries. Buyers benefit from being able to compare prices and select the best choice from the comfort of their home or office. How can the brick-and-mortar businesses with their higher costs compete with e-businesses? Stores like Kmart and Wal-Mart now also transact their business through the Web, becoming "clicks and mortar" or "clicks and bricks" companies. This means you can make purchases with a click of the mouse or by physically visiting their stores.

The Internet facilitates four kinds of transactions, as shown in Figure 19-3. These transactions are:

1. *Business to consumer (B2C).* Ordering books or other items from Amazon.com or buying a computer from Dell online are examples of B2C transactions. The Safeway grocery store delivers Web-ordered groceries to customers' home.
2. *Consumer to business (C2B).* An example of C2B transaction is the bidding for airline tickets by would-be flyers through Priceline.com.
3. *Consumer to consumer (C2C).* The eBay auction Web site offers C2C transactions, through which individuals can sell items.

FIGURE 19-3 Matrix for e-commerce

	Consumer	Business
Consumer	**C2C** eBay (auction)	**C2B** Priceline ("you name the price" travel offers)
Business	**B2C** Amazon (books, etc.) Travelocity (travel)	**B2B** Ford, General Motors, DaimlerChrysler (manufacturers to suppliers)

Adapted from "E-Commerce Survey," *The Economist*, February 26, 2000, Insert p. 11.

4. *Business to business (B2B).* B2B transactions are probably going to have the greatest impact on the economy. For example, the two largest car manufacturers, General Motors (GM) and Ford, plan to transfer all purchasing to the Web within the next few years. GM claims that its Web site will be the world's largest virtual marketplace. So what could this mean to the consumer in the future? Ford and GM may build cars to order for delivery in just a few days, just like you order today customized computers from Dell.[19] It is possible that GM and Ford will become virtual companies with expertise in car design and brand marketing.

Covisint, the new joint venture between Ford, GM, DaimlerChrysler, and Renault/Nissan, could become the exchange where suppliers trade with each other.[20] There is concern that this may lead to monopolistic practices, which may prompt the U.S. Justice Department to investigate.

In the airline business, another battle takes shape. The five largest U.S. airlines—Continental, Delta, Northwest, United, and American Airlines—have a common Web site called Orbitz.com. This site collides with the traditional travel agents as well as with online travel agents such as Travelocity and Expedia (a Microsoft company) by trying to undercut their prices.[21]

www.orbitz.com

Three-quarters of all e-commerce is conducted in the United States, from which 90 percent of all commercial Web sites originated.[22] However, the country with the most Internet hosts per inhabitant is Finland; the United States ranks second. Among the world's most admired companies identified by *Fortune* magazine, many are in the information technology business.[23] Here are some familiar names: Microsoft, Dell, Cisco Systems, Intel, Nokia, and Lucent Technologies. However, in 2002, some of the

www.nokia.com

www.dot.com

so-called dot-com companies fell out of favor with investors. Outside the information technology industry, many firms use sophisticated technologies to gain a competitive advantage, including Wal-Mart, General Electric, and Ford.

M-Commerce and Wireless Communications

While e-commerce is changing the way business is conducted, wireless communications and m-commerce (mobile commerce) are emerging to take it further. Japan and Europe have the leading edge in this area. However, Europe lags behind Japan, even though m-commerce and wireless applications are expected to increase greatly in Europe in the next few years. It has been estimated that globally by 2003 some 200 million cell phones would be connected to the Internet and by 2005 over 25 percent of all e-commerce may be conducted through wireless means.[24] Companies such as BellSouth, Motorola, Qualcomm, Ericsson, Lucent, Nokia, and Microsoft are trying to exploit opportunities in wireless communications. Devices using the Wireless Application Protocol (WAP) include cell phones and personal digital assistants (PDAs) such as the Palm Pilot. Wireless applications may include business transactions, provision of financial and travel information, and community sites for chatting or sending e-postcards.

www.palm.com



Mobile Phone Services

www.docomo.com

In late 2001, NTT DoCoMo announced the introduction of the 3G mobile phone service for Japan, putting the country ahead of Europeans and Americans with this new technology. Many countries have been using text messaging with comparatively low-level technology for some time. The Japanese are fortunate to be able to use both high and low technologies. 3G allows very high-speed connections, the display of color screens and graphics, and even video calls. NTT DoCoMo is the leader in mobile communications in Japan and the largest telecommunication operator on the globe. The company has already set its goal on the future with its Vision 2010 consisting of MAGIC, which stands for mobile, anywhere, global, integrated, and customized personal service. At this time, however, the focus is on the introduction of the 3G service and text messaging.

The European companies that introduced 3G have incurred heavy debt in acquiring 3G licenses and may not have the necessary resources to build the required extensive network. These companies are concerned whether customers will be willing to pay for these new services.

Some Europeans and Asians use a much less sophisticated technology and may not be willing to subscribe to the costly 3G services. Text messaging (or short message service, SMS) allows the user to send short messages from one mobile phone to another. This service has been widely used in Europe (especially in Sweden and Italy) as well as in Asia. In contrast, it is hardly used at all in the United States, partly because mobile phones are less common there (40 percent of the people use it) than in certain countries in Europe (with up to 70 percent usage). Although text messaging is cumbersome, it is inexpensive.

The developments in e-business, e-commerce, and m-commerce provide great opportunities for enterprises. Managers need to observe the trends and develop strategies to take advantage of the new technologies.

Summary

A variety of tools and techniques have been used to help managers control. These techniques are generally, in the first instance, tools for planning, and they illustrate the fact that controls must reflect plans. Some of these tools have long been used by managers; others are refinements. One of the older control devices is the budget. Budgeting is the formulation of plans for a given future period in numerical terms. There are also dangers in budgeting. Budgeting is made much more precise by zero-base budgeting, in which programs are divided into "packages." The costs for each package are calculated from a base of zero. In order to make budgetary control effective in practice, managers must always realize that budgets are tools and are not intended to replace managing. Among the traditional nonbudgetary control devices are statistical data and their analyses, special reports and analyses, the operational audit, and personal observation.

One of the techniques of planning and control is the time–event network analysis. The program evaluation and review technique (PERT) is a refinement of the original Gantt chart, which was designed to show, in bar-chart form, the various tasks that must be done, and when, in order to accomplish a program. PERT is also a refinement of milestone budgeting, in which the tasks that have to be done are broken down into identifiable and controllable pieces called milestones. When milestones are connected to form a network and the time required to complete each milestone is identified, the result is a PERT/time–event network. Using the sequences of events and the times required for them, one can determine the critical path, which is the sequence that takes the longest time and has zero (or the least) slack time.

The management information system is a formal system of gathering, integrating, comparing, analyzing, and dispersing information internal and external to the enterprise in a timely, effective, and efficient manner to support managers in their work.

Computers (mainframes, minicomputers, and microcomputers) are now extensively used. Their impact on managers at various organizational levels differs. Information technology provides many challenges. Some managers still resist using computers, but speech recognition devices will encourage computer use. Computers have also contributed to telecommuting, allowing people to work from home at a computer that is linked to a company's mainframe computer. Increasingly, computer networks are installed to link workstations with each other, with larger computers, and with peripheral equipment.

The Internet revolution brings exciting new opportunities for business and personal life. It is changing how business is conducted. The relationships with suppliers and customers are changing dramatically. The four kinds of electronic business transactions are shown in Figure 19-3. There is now a trend toward wireless communications and m-commerce, especially in Japan and Europe.

KEY IDEAS AND CONCEPTS FOR REVIEW

Budgeting
Types of budgets
Budgeting problems
Zero-base budgeting
Nonbudgetary control devices
Gantt chart
Milestone budgeting
Program evaluation and review technique (PERT), critical path
Information technology
Management information system
Types of computers
Impact of computers on managers
Application of microcomputers
Speech recognition devices
Telecommuting
Computer networks
Internet
Groupware
Information security
E-commerce: B2C, C2B, C2C, B2B
M-commerce and wireless communications

FOR DISCUSSION

1. The techniques of control appear to be as much techniques of planning as they are of control. In what ways is this true? Why would you expect it to be so?
2. If you were going to institute a program of special control reports and analyses for a top manager, how would you go about it?

3. PERT is a management invention that takes basic principles and knowledge and, through design to get a desired result, comes up with a useful technique of planning and control. Analyze PERT with this in mind.
4. Give examples of how information technology has affected you.
5. Why do you think computers impact on managers at various organizational levels differently?
6. How will e-commerce affect you in the future on buying or selling of goods and services?

EXERCISES/ACTION STEPS

1. Prepare a budget for your studies at the university. What are the advantages in preparing a budget? What are some problems?
2. Select an organization that you know and show how it uses computers or conducts e-commerce.

INTERNET RESEARCH

1. B2C, C2B, C2C, and B2B have been widely used phrases in the Internet economy. Search for these terms on the Internet to find out how these concepts are applied by organizations.
2. Search the Internet for the term "management information system," and identify the various applications and usages of this system.

International Case

Information Technology at American Airlines[25]

The information system at American Airlines has become an integral part of the overall strategy to gain a competitive edge in the industry. The extensive use of computers began in the 1950s in payroll and inventory control and extended to customer service. In the early 1960s, American Airlines developed the widely known SABRE system (SABRE stands for semi-automated business research environment). It is one of the most sophisticated passenger reservation systems used by travel agents and customers.

Shortly after implementing SABRE, American Airlines also used the system for other tasks, such as controlling freight shipments as well as dispatching and tracking flights. When the government deregulated the airline industry in 1978, the information system became an even more important tool for competing against low-cost airlines, whose labor costs were as much as 40 to 50 percent lower.

American Airlines' strategy was to use the information system to compete in a variety of ways. One application was to have as many aircraft seats as possible filled without having many passengers "bumped" through overbooking. Another application was to obtain a proper balance between discount and regular fares. It was estimated that revenue could be increased dramatically

by shifting only 1 percent of discount fares to the full fare—clearly a competitive advantage in a market where price changes occur daily and even hourly.

Still another application of the information system was to find the most efficient way to fly in order to reduce fuel costs, which is the second largest expense. Some airplanes have sensors on board to monitor essential equipment; the operational information is sent to the ground station. Maintenance can then be planned effectively and performed more efficiently when the aircraft lands. Yet another application was to determine the most profitable routes.

The complexity of scheduling over 13,000 pilots and flight attendants on 1,300 daily flights is horrendous. The high cost of overtime can put an airline at a competitive disadvantage. Robert L. Crandall, the former chairman and president of American Airlines, thinks that information systems are the key to success. He stated: "We have taken what was once a basic reservation system and built it into an integrated information system that drives our corporate strategy as much as it is driven by that strategy."

While American Airlines has been the industry leader in the use of information technology, competition has developed. The 1992 program of the European Community (now the European Union) was designed to eliminate trade and many political barriers. The European airline industry also became deregulated. Rather than engaging in mergers, some airlines are now integrated into a network linking selected carriers together. An illustration of the cooperation among airlines involves the two computer reservation systems Galileo and Amadeus. Thus, American Airlines—with a strategy of expanding in the European market, the largest market in the industrialized world—has ample competition. Recently, the company joined forces with the other four largest U.S. airlines (Continental, Delta, Northwest, and United Airlines) to develop a common Web site called Orbitz.com, which could also affect SABRE.[26]

Technology that may have once given a competitive advantage to a company may, in time, become obsolete, unless the firm adapts to new demands and develops new applications. Max Hopper, the architect of the SABRE system, suggests that the old models are no longer sufficient. Those who can use the available tools and modify them will gain a competitive edge. The trend is away from stand-alone applications to platforms that facilitate new approaches to problem solving and decision making. SABRE is not only a reservation system but also a system for controlling inventory, making flight plans, and scheduling flight crews. Other databases were added for car rental, hotel reservation, and theater show booking. SABRE has become an electronic travel supermarket.

Questions

1. Discuss the evolving use of information technology at American Airlines.
2. Should American Airlines expand its position in Europe? What are the arguments for and against this expansion?

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Chapter 20

Productivity, Operations Management, and Total Quality Management

CHAPTER OBJECTIVES

After studying this chapter, you should be able to:

1. Identify the nature of productivity issues and suggest ways to improve effectiveness and efficiency.
2. Describe production and operations management as an applied case of managerial planning and control.
3. Understand the operations management system.
4. Discuss the tools and techniques for improving productivity.
5. Recognize the importance of quality, the nature of a variety of techniques for improving quality, and lean manufacturing.
6. Distinguish between supply chain management and value chain management, although the terms are sometimes used interchangeably.

In a real sense, this whole book is about the improvement of productivity. But this important topic will receive special attention in this chapter, with an emphasis on the micro level of production and operations management.*

Productivity Problems and Measurement

Undoubtedly, productivity is one of the major concerns of managers in the 21st century. This is a concern in many parts of the world. Even Japan, which is admired for productivity improvement, is now concerned about remaining competitive in the world market.

Productivity Problems

Productivity implies measurement, which in turn is an essential step in the control process. Although there is general agreement about the need for improving productivity, there is little consensus about the fundamental causes of the problem and what to do about them. The blame has been assigned to various factors. Some people place it on the greater proportion of less-skilled workers with respect to the total labor force, but others disagree. There are those who see the cutback in research and the emphasis on immediate results as the main culprit. Another reason given for the productivity dilemma is the growing affluence of people, which makes them less ambitious. Still others cite the breakdown in family structure, workers' attitudes, and government policies and regulations. Increasingly, attention shifts to management as the cause of the problem—as well as the solution, which is the focus of this book.

Measurement of Productivity of Knowledge Workers

Productivity The output–input ratio within a time period with due consideration for quality.

As defined in Chapter 1, **productivity** is the output–input ratio within a time period with due consideration for quality. This definition can be

* Additional topics in production and operations management are discussed in other parts of the book. See, for example, Chapter 6 for various aspects of decision making, Chapter 11 for job design, and Chapter 19 for management information systems and different kinds of control techniques.

applied to the productivity of organizations, managers, staff personnel, and other workers. Measurement of skill work is relatively easy, but it becomes more difficult for knowledge work. The difference between the two kinds of work is the relative use of knowledge and skills. Thus, a person on the production line would be considered a skill worker, while the assistant to the manager with planning as his or her main function would be a knowledge worker. Managers, engineers, and programmers are knowledge workers because the relative amount of their work does not consist of utilizing skills, as would be the case for bricklayers, mechanics, and butchers. But the job title cannot be the sole guide for making distinctions. The owner of a gas station may schedule the day's tasks, determine priorities, and direct subordinates, but he or she may also change brakes, adjust the carburetor, or realign the front wheels on a car.

It is clear that, in general, the productivity of the knowledge worker is more difficult to measure than that of the skill worker. (Note also that worker productivity measurement is somewhat artificial because it often ignores the cost of capital.) One difficulty in measuring the productivity of knowledge workers is that some outputs are really activities that help achieve end results. Thus, the engineer contributes indirectly to the final product. Another difficulty is that knowledge workers often assist other organizational units. The advertising manager's efforts should improve sales, but it is hard to say for sure what the exact contribution is. Still another difficulty is that the quality of knowledge workers' outputs is often hard to measure. The effects of a strategic decision, for example, may not be evident for several years, and even then the success or failure of the new strategic direction may depend on many external forces beyond the control of the manager.

It is evident that productivity improvement is achieved by the good management practices advocated throughout this book. But the discussion will now turn to the specific area of production and operations management, where measurement is relatively easy and which consequently has been the focus of productivity improvement programs in the past.

Production and Operations Management: Manufacturing and Service

One of the major areas in any kind of enterprise, whether business, government, or others, is production and operations management. It is also the area where managing as a scientifically based art got its start. The

contributions of such management pioneers as Frederick Taylor, Henry Gantt, and Frank Gilbreth, to mention only a few, indicate that their interest was largely in improving productivity and manufacturing products most efficiently while still recognizing, as they did, the importance of the human factor as an indispensable input.

Production management deals with activities necessary to manufacture products.

In the past, **production management** was the term used to refer to those activities necessary to manufacture products. However, in recent years, the area has been generally expanded to include such activities as purchasing, warehousing, transportation, and other operations from the procurement of raw materials through various activities until a product is available to the buyer. The term **operations management** refers to activities necessary to produce and deliver a service as well as a physical product.

Operations management deals with activities necessary to produce and deliver a service as well as a physical product.

There are of course other essential activities undertaken by a typical enterprise. These activities often include research and development, engineering, marketing and sales, accounting, and finance. This chapter deals only with what has come to be called operations management or production management or, often, production and operations management. It should be pointed out that this is not the same thing as operational management theory. Operational management theory is the study of the practice (managing) which that theory or science is designed to underpin.

Service organizations do not produce a physical output but provide some service as an output. For instance, the input of students with limited knowledge, skills, and attitudes becomes enriched and transformed through attending lectures, doing case analyses, participating in exercises, and engaging in other activities that will result in the output of educated students, which is documented by a degree. Other examples of service providers are hospitals, doctors, consultants, airlines, restaurants, musicians, and the great variety of retail stores.



GE's Transformation from Products to Services[1]

www.ge.com

General Electric (GE) is known for a variety of products, including medical imaging equipment such as CAT scanners and magnetic resonance imagers. Now it has expanded its business into servicing not only its own sophisticated products but even those of its competitors. GE's then chief executive, Jack Welch, said: "We are in the services business to expand our pie."

GE offers services ranging from health care to utilities. Thus, it provides such services as maintenance of medical systems, maintenance and overhaul of aircraft

engines, operation and maintenance of utility power plants, locomotive maintenance, servicing of electronic tracking devices for railroads, and even providing help in running corporate computer networks. The result is that almost 60 percent of GE's profits come from services. Jack Welch would even like it to be 80 percent. The new direction in U.S. industry may be a trend toward services so that products are only one aspect of the business.

Quality Measurement in the Information Age[2]

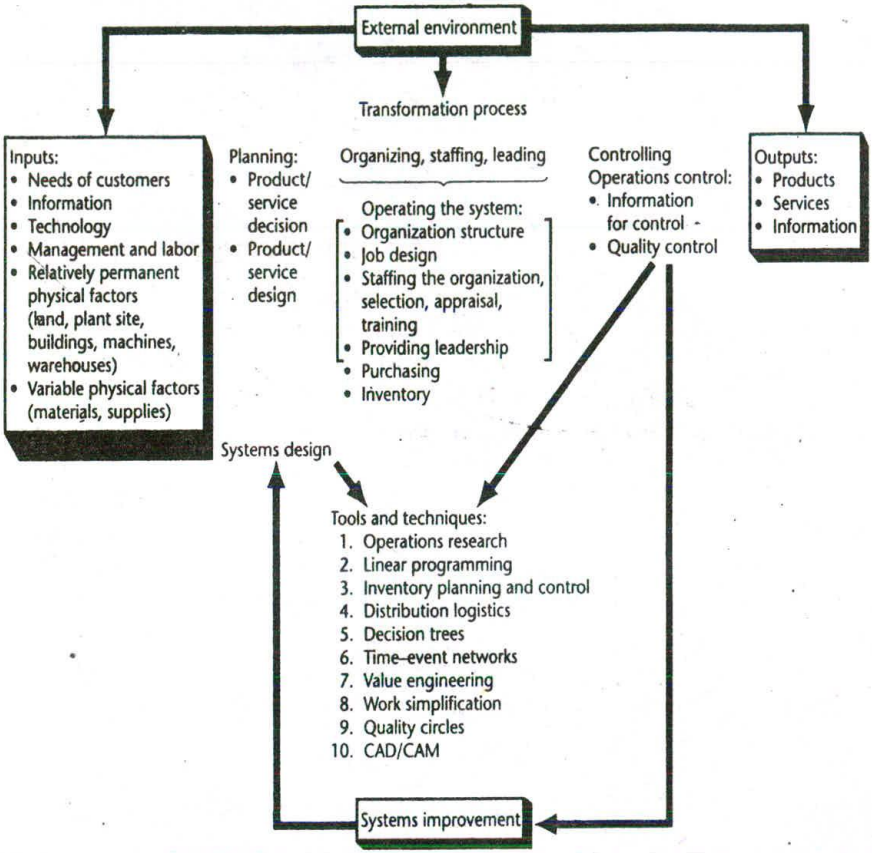
In the past, the concepts of quality were mostly applied to products, such as cars or refrigerators. With the increase in service companies, quality concepts must also be applied in those firms. This means such things as the measurement of expectations, experiences, and emotions. For example, how do customers feel waiting in line in a restaurant or at Disneyland rides, or waiting on the telephone for help?

Quality in the information age takes on new dimensions. Software package quality does not only include reliability but also technical support services, compatibility, upgradability of the software, and the integration of the information infrastructure not only with the company but also with its suppliers and customers. Wal-Mart, for example, gains a competitive edge through supply chain management. Focusing on the quality of the information infrastructure is critical for company success in the new information age.

The Operations Management System

Operations management has to be seen as a system. Figure 20-1 gives an overview of the operations function. In the operations management model, the *inputs* include needs of customers, information; technology, management and labor, fixed assets, and variable assets that are relevant to the transformation process. Managers and workers use the information and physical factors to produce outputs. Some physical elements, such as land, plant site, buildings, machines, and warehouses, are relatively permanent. Other physical elements, such as materials and supplies, are consumed in the process of producing outputs. The *transformation process* incorporates planning, operating, and controlling the system. There are many tools and techniques available to facilitate the transformation process. The model also reflects a constant concern with *system improvement. Outputs* consist of products and services and may even be information, such as that provided by a consulting organization.

FIGURE 20-1 Operations management system



The last part of the model shows that operations are influenced by *external factors*, such as safety regulations or fair labor practices. Since the external environment is discussed elsewhere in this book (especially in Chapter 2 and Part 2), it will not be expanded on here; the important point is that operations management must be an open system interacting with its surroundings.

The operations management model (Figure 20-1) serves as a framework for the discussions that follow. There is a close relationship between this model and the one introduced in Chapter 1 (Figure 1-6), since this operations model may be regarded as a subsystem of a total management system. Examples of operations systems with inputs, transformation (sometimes also called process), and outputs are presented in Table 20-1.

TABLE 20.1 Examples of operations systems

Inputs	Transformation	Outputs
• Plant, factory machines, people, materials	Assembling bicycles	Completed bicycles
• Students with limited knowledge, skills, and attitudes	Lectures, cases, experiential exercises, term papers	Students with enhanced knowledge, skills, and attitudes
• Client problem	Consulting: data collection and analysis, evaluation of alternatives, selection of an alternative, recommendation	Consultant's report recommending course of action

Planning Operations

The objectives, premises, and strategies of an enterprise (discussed in Part 2) determine the search for and the selection of a product or service as its output. In this discussion, the production of physical products is emphasized, but the concepts can also be applied to the provision of services. After an end product has been selected, the specifications are determined and the technological feasibility of producing it is considered. The design of an operations system requires decisions concerning the location of facilities, the process to be used, the quantity to be produced, and the quality of the product.

Special interests in a product decision

One of the basic decisions an enterprise makes is selecting a product or products it intends to produce and market. This requires gathering product ideas that will satisfy the needs of customers and contribute to the goals of the enterprise while being consistent with the strategy of the firm. In a product decision, the various interests of functional managers must be considered. The production manager may want a product that can be produced without difficulty, at a reasonable cost, and with long production runs. Engineers may share many of these aims, but they are often looking for engineering sophistication rather than ways of producing the product at a reasonable cost. The sales or marketing manager's interest is likely to be the needs of customers, and his or her aim is to increase the sales of products through ready availability and competitive prices. Moreover, the sales manager may want to offer a broad product line without considering

engineering, production, transportation, and warehousing costs and the problems involved. The finance manager's concerns are likely to be costs and profits, high return on investment, and low financial risks. The divergent interests of these functionally oriented managers and professionals influence what products will be produced and marketed, but it is the general manager who has to integrate the various interests and balance revenues with costs, profits with risks, and long-term with short-term growth.

Product and production design[3]

The design of a product and its production requires a number of activities. The following steps have often been suggested:

1. Create product ideas by examining consumer needs and screening the various alternatives.
2. Select the product on the basis of various considerations, including data from market and economic analyses, and make a general feasibility study.
3. Prepare a preliminary design by evaluating various alternatives, taking into consideration reliability, quality, and maintenance requirements.
4. Reach a final decision by developing, testing, and simulating the processes to see if they work.
5. Decide whether the enterprise's current facilities are adequate or if new or modified facilities are required.
6. Select the process for producing the product, and consider the technology and the methods available.
7. After the product is designed, prepare the layout of the facilities to be used, plan the system of production, and schedule the various tasks that must be done.

Systems design

In producing a product, several basic kinds of production layouts can be considered. One alternative is to arrange the layout according to the sequence of *production or assembly* of the product. For example, a truck assembly line may be arranged such that first the preassembled front and rear axles are attached to the frame, followed by the installation of the steering, the engine, and the transmission. Then the brake lines and electrical cables are connected, and other parts are assembled and painted. Finally, the truck is road-tested.

A second alternative is to lay out the production system according to the *process* employed. In a hospital, for example, specific steps are likely to be followed: admission of the patient, treatment (which usually involves specific subprocesses), billing for service, and discharge. This may be followed by post-hospitalization treatment.

In a third kind (sometimes called *fixed position* layout), the product stays in one place for assembly. This layout is used for the assembly of extremely large and bulky items, such as printing presses, large strip-mining machines, and ships.

The fourth kind of layout is determined by the nature of the *project*. Building a bridge or tunnel is normally a one-time project designed to fit specific geographic requirements.

In the fifth kind, the layout is designed to facilitate the *sale* of products. In a supermarket, basic food items, such as dairy products, are normally located away from the checkout counters. This causes customers to walk through the long aisles and, it is hoped, select other items on the way to the dairy section.

A sixth basic approach is to design the process so that it facilitates *storage or movement* of products. Storage space is costly, and an effective and efficient design can keep storage costs low. Also, to reach an item, it should not be necessary to move many other items.

Operating the System

After a product has been selected and the system for producing it has been designed and built, the next major step is to operate the system. This requires setting up an organization structure, staffing the positions, and training people. Managers are needed who can provide the supervision and leadership to carry out activities necessary to produce desired products or provide services. Other activities such as purchasing and maintaining the inventory are also required in operating the system. The aim is to obtain the best productivity ratio within a time period with due consideration for quality.

Controlling Operations with Emphasis on Information Systems

Controlling operations, as in any other case of managerial control, requires setting performance criteria, measuring performance against them, and taking actions to correct undesirable deviations. Thus, one can control production, product quality and reliability levels, inventory levels, and

work-force performance. A number of tools and techniques have been developed to do this. Because their application extends beyond operations or production, they have been discussed earlier. Some, however, are important to operations; examined here is the role of information systems in operations control.

Information systems, which have been available for several years, integrate information on virtually an instantaneous basis, thereby reducing considerably the delays that usually impede effective control. With the development of computer hardware and software, it is now possible for virtually any measurable data to be reported as events occur. Systems are available for quickly and systematically collecting data bearing on total operation, for keeping these data readily available, and for reporting without delay the status of any of a large number of projects at any instant. They are thus primarily information systems designed to provide effective planning and control.



How an Information System Facilitates Operations

Applied widely now to purchasing, storage, manufacturing, and shipping, information systems may operate through dispatch stations and input centers located throughout a plant. At the dispatch centers, events are recorded as they occur, and the information is dispatched immediately to a computer. For example, when a worker finishes an assigned task on the assembly of a product, the work-order time card is put into a transactor, which electrically transmits to a computer the information that item X has passed through a certain process; has accumulated *y* hours of labor, and may or may not be on schedule, as well as other pertinent data. The input centers are equipped to originate information needed for a production plan automatically from programmed instructions, purchase orders, shop orders, and other authorizations. These data are fed into a computer and compared against plans, which are used as standards against which actual operations can be compared.

In addition to providing fast entry, comparison, and retrieval of information, such an integrated operations control system furnishes needed information for planning programs in such areas as purchasing, production, and inventory control. Moreover, it permits almost instantaneous comparison of results with plans, pinpointing where they differ and providing a regular (daily or more often, if needed) system of reports on deviations from plans, such as items that are behind schedule or costs that are running above budget.

Other planning, control, and information systems have been developed to reflect quickly the interaction between production and distribution operations and such key financial measures as cost, profit, and cash flow. Companies with real-time computer models can give operating managers virtually instant analysis of such what-if questions as the effects of reducing or raising output, the impact of a decline in demand, and the sensitivity of the system to labor-cost increases, price changes, and new equipment additions. To be sure, system models, simulating actual operations and their impact on financial factors, are primarily planning tools; but so are most control techniques. By making possible exceptionally quick responses to the many what-if questions of operating managers, system models can greatly reduce the time elapsed in correcting for deviations from plans and can materially improve control.

These and other systems that use the technology of fast computation clearly promise to hasten the day when planning of all the areas of production can be more precise and controlling more effective. The drawback is not cost; rather, it is the failure of managers to spend time and mental effort conceptualizing the system and its relationships or to see that someone else in the organization does so. Nevertheless, as pointed out in Chapter 18, fast information availability can never provide true real-time control of the time delay in any feedback system. Only a feedforward approach can overcome these delays.

Tools and Techniques for Improving Productivity

There are many tools and techniques available for improving manufacturing and service operations. They include inventory planning and control, the just-in-time inventory system, outsourcing, operations research, value engineering, work simplification, quality circles, total quality management, lean manufacturing, computer-aided design, and computer-aided manufacturing.

Inventory Planning and Control

In the history of operations research, perhaps more attention has been directed to inventory control than to any other practical area of operations. The essential systems relationships can be seen as a little "black box," as depicted in Figure 20-2.

In mathematical form, these conceptual relationships are expressed by the equation

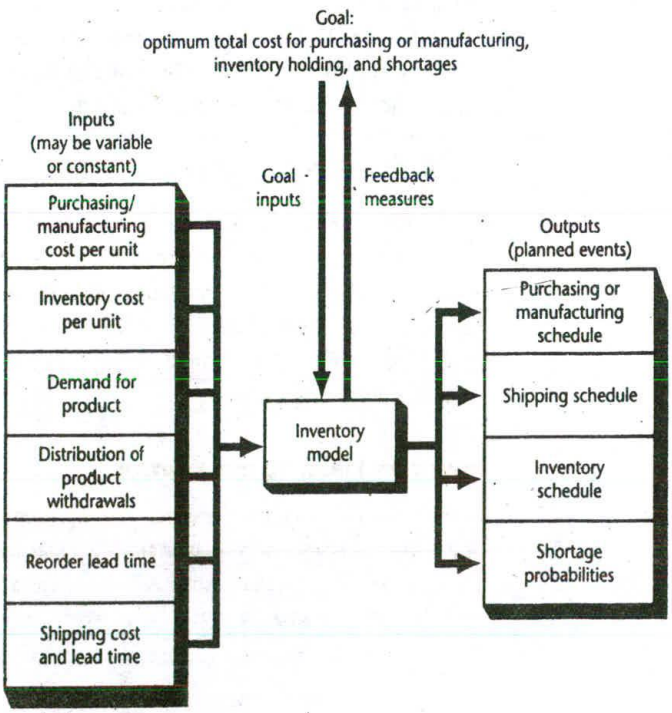
$$Q_e = \sqrt{\frac{2DS}{H}}$$

where Q_e = economic order quantity
D = demand per year
S = setup costs
H = inventory-holding (carrying) cost per item per year

The model in Figure 20-2 illustrates several things. It forces consideration of the goals desired and of the need for placing values on outputs and inputs. It also furnishes a manager with the basis for plans and with standards by which to measure performance. However, with all its advantages, this is a subsystem and does not incorporate other subsystems, such as production planning, distribution planning, and sales planning.

The **economic order quantity (EOQ) approach** to determining inventory levels has been used by firms for many years. It works reasonably

FIGURE 20-2 Inventory control model



well for finding order quantities when demand is predictable and fairly constant throughout the year (i.e., there are no seasonable patterns). However, for determining the inventory levels of parts and materials used for some production processes, it does not work well. For example, poor quality of parts may increase the demand for these production inputs. Thus, demand is likely to be intermittent, resulting in inventory shortages at some times and excesses at other times. Firms determining inventory levels in these manufacturing settings have found that inventory control approaches such as material requirement planning and *kanban* (just-in-time) systems perform better than EOQ.

Just-in-Time Inventory System

Just-in-time inventory system The supplier delivers the components and parts to the production line only when needed and "just in time" to be assembled.

One reason for Japan's high manufacturing productivity is the cost reduction it achieves through its **just-in-time inventory method**. In this system, the supplier delivers the components and parts to the production line only when needed and "just in time" to be assembled. Other names for this or very similar methods are **zero inventory** and **stockless production**.

For this method to work, a number of requirements must be fulfilled: First, the quality of the parts must be very high; a defective part could hold up the assembly line. Second, there must be dependable relationships and smooth cooperation with suppliers. Third, the suppliers ideally should be located near the company, with dependable transportation available.

Outsourcing

Outsourcing The contracting of production and operations to outside vendors that have expertise in specific areas.

www.nike.com

One recent trend in the United States and Europe is **outsourcing**. This means that production and operations are contracted to outside vendors that have expertise in specific areas. The aim may be to reduce costs by saving on personnel benefits, to reduce personnel, or to be able to reassign employees to other tasks that are more important. Thus, outsourcing is an important tool for expanding a company and for maintaining a competitive position. It enables a firm to focus on its core competencies and let outside companies do what they can do best. For example, Nike, Inc., the large supplier of athletic shoes, uses outsourcing for all of its shoe production, keeping only the production of the sophisticated Nike Air system.[4] It also outsources advertising. By focusing on what it can do best, Nike has accomplished an extraordinary growth rate.

Other reasons for outsourcing include gaining access to the best sources available worldwide, sharing of risks between the firm and its suppliers,

allocating capital to key success factors, outsourcing functions that are difficult to manage, or lacking the capability to carry out certain tasks.

Outsourcing may also serve as a strategic weapon. General Motors produces almost two-thirds of its parts in-house compared to Chrysler, which "insources" only about one-third of its parts. This gives Chrysler a competitive advantage because General Motors' in-house labor costs are substantially higher than suppliers'. Kodak found it more effective to outsource the day-to-day operation of its fleet of 10,000 vehicles. Similarly, Procter & Gamble benefited from outsourcing its fleet operation, thus lowering its costs and improving the productivity of its sales force. Another function that may be outsourced is property management. Johnson Controls, for example, provides operation and maintenance services of buildings. The Presbyterian Medical Center in Philadelphia selected a single source for managing various tasks, including its food service, security, environmental services, central processing, transportation, maintenance, and engineering functions. Even Apple Computer has outsourced its system and network engineering as well as its telecommunication and help-desk services to a Canadian company. Outsourcing parts of the retailers' information system helped Britain's Woolworth's department store to reduce costs and gain skills.

It has been suggested that, before deciding on outsourcing, a business-practice reengineering* study should be conducted. The findings of this analysis may indicate which tasks are best suited for being continued within the company and which should be contracted out.

International Perspective

Will the Outsourcing Craze Last?[5]

Outsourcing is a growth industry. Du Pont contracts out its training and development, Continental Airlines engages TeleTech to handle seat reservation, and General Motors fights with its union over outsourcing its brake production. Outsourcing has become a cost-cutting approach of many firms, yet it sometimes does not meet its expectations. Consultants often promise 20 to 40 percent savings, but the average savings are about 9 percent.

www.ge.com

There is a downside to outsourcing. Problems are often not reported. General Electric's introduction of a new washing machine was delayed because of the firm contracted to produce key components. Also, a company may be locked into a contract and may become too dependent on contractors. With the pressure on cutting costs, however, outsourcing may continue to be a viable alternative for firms.

* See the discussion of reengineering in Chapter 7.

www.vw.com

Insourcing—taking back work that was previously outsourced—takes place at Volkswagen in Germany, where the unions are strong. Volkswagen agreed to lay off fewer workers in exchange for greater flexibility. Moreover, its workers won the bid for the production of power-steering systems and axles, beating outside bidders. Volkswagen's trend toward a platform strategy (producing many models with the same parts) results in economies of scale, making insourcing more likely.

Operations Research

Operations research The application of scientific methods to the study of alternatives in a problem situation, with a view to obtaining a quantitative basis for arriving at a best solution.

There are almost as many definitions of operations research as there are writers on the subject. For the purposes of this discussion, the most acceptable definition is that **operations research** is the application of scientific methods to the study of alternatives in a problem situation, with a view to obtaining a quantitative basis for arriving at a best solution. Thus, the emphasis is on scientific method, on the use of quantitative data, on goals, and on the determination of the best means of reaching the goals. In other words, operations research might be called "quantitative common sense."

Value Engineering

Value engineering The process of analyzing the operations of the product or service, estimating the value of each operation, and attempting to improve that operation by trying to keep costs low at each step or part.

A product can be improved and its costs lowered through **value engineering**, which consists of analyzing the operations of the product or service, estimating the value of each operation, and attempting to improve that operation by trying to keep costs low at each step or part. The following specific steps are suggested:

1. Divide the product into parts and operations.
2. Identify the costs for each part and operation.
3. Identify the relative value of the contribution of each part to the final unit or product.
4. Find a new approach for those items that appear to have a high cost and low value.

Work Simplification

Work simplification The process of obtaining workers' participation in simplifying their work.

Work methods can also be improved through **work simplification**, which is the process of obtaining the participation of workers in simplifying their work. Training sessions are conducted to teach concepts and principles of techniques such as time and motion studies, work-flow analyses, and the layout of the work situation.

Quality Circles

Quality circle A group of people from the same organizational area who meet regularly to solve problems they experience at work.

A quality control circle, or simply **quality circle** (QC), is a group of people from the same organizational area who meet regularly to solve problems they experience at work. Members are trained in solving problems, in applying statistical quality control, and in working in groups. Usually a facilitator works with each group, which normally consists of 6 to 12 members. The QCs may meet four hours a month. Although QC members may receive recognition, they usually do not receive monetary rewards.

International Perspective

Quality Circles in Japan

For some time now, Japanese products have been well received. To a great extent, this has been due to the quality of the products, but this has not always been the case. In fact, in the 1950s and 1960s, many products made in Japan had the image of poor quality.

In order to compete in the world market, Japanese firms had to improve the quality of their products. The campaign to improve quality was initiated by regulatory action taken by the Japanese government. Shortly after World War II, the Japanese, realizing that their economic success depended on increasing exports, encouraged their government to set up a system of regulations mandating that all exporters submit to a government agency a sample of each product to be exported and that they meet demanding requirements for quality before receiving a permit to export.

The legislative drive for quality was supported by various management techniques encouraging or requiring product quality. One of the interesting techniques is QC, now in widespread use in Japan. At first, the focus was on the analysis of quality problems, but now other problems are also dealt with, such as cost reduction, workshop facilities improvement, safety, employee morale, pollution control, and employee education.

QCs evolved from suggestion programs. In both approaches, workers participate in solving work-related problems. Although in suggestion programs the problems are usually quite specific, those dealt with by QCs are often more complex and require the involvement of several team members. The team consists primarily of rank-and-file workers and sometimes supervisors too. So-called efficiency experts are usually excluded from the team.

It is interesting to note that while the concept of quality control originated in the United States, the Japanese appear to have perfected it.

More recently, American firms have "rediscovered" the importance of quality, as shown by advertisements for Chrysler and Ford automobiles. At any rate, there is no reason to doubt that QCs can be used by companies in the United States and other countries, which are now faced with a competitive situation in a world market that demands quality products.



Managing Quality for Success

Managing for quality requires leadership and hard work, and continuous effort has paid off in many companies. BMW's chief executive attributes the company's success to tailoring the cars to the needs and desires of individual car buyers, which in turn is made possible by German craftsmanship. Procter & Gamble uses quality management concepts to prevent pollution. Motorola's aim is to provide total customer satisfaction by bringing quality to the six-sigma level, which means to have not more than 3.4 defects per million components. Quality management also works in the service industry. At Nissan's Infiniti dealerships, people are trained to treat customers as honored guests. Quality is even used in the public sector. The Internal Revenue Service in Utah and state governments in Arkansas, Minnesota, and Oregon are trying to implement quality concepts in their operations. The approaches to improving quality and customer satisfaction vary—and so do the theories on which quality efforts are based. Some of the approaches advocated by quality proponents seem conflicting, creating a kind of a jungle.

Total Quality Management[6]

Total quality management Long-term commitment to continuous quality improvement, throughout the organization and with the active participation of all members at all levels, to meet and exceed customer expectations.

One popular approach to improving quality is called **total quality management** (TQM). However, this term has various meanings. In general, TQM involves the organization's long-term commitment to the continuous improvement of quality, throughout the organization and with the active participation of all members at all levels, to meet and exceed customer expectations. This top-management-driven philosophy is considered a way of organizational life. In a sense, TQM is simply effective management.

Although the specific programs may vary, they usually require a careful analysis of customer needs, an assessment of the degree to which these needs are currently met, and a plan to fill the possible gap between the current and the desired situation. The success of this quality improvement approach often needs the cooperation of suppliers. Furthermore, to make the TQM program effective, top managers must be involved. They must

provide a vision, reinforce values emphasizing quality, set quality goals, and deploy resources for the quality program. It is obvious that TQM demands a free flow of information—vertically, horizontally, and diagonally.

Training and development is very important for developing skills and for learning how to use tools and techniques such as statistical quality control. This continual effort for improving quality requires an environment that can be called a learning organization (see Chapter 13). Any quality improvement effort needs not only the support but also the involvement of management, from the top to the bottom, as well as nonmanagerial employees. People need to be empowered to initiate and implement the necessary changes. In the modern, interlocking organization, teamwork often becomes a prerequisite for an effective and efficient operation.

The quality improvement efforts need to be continuously monitored through ongoing data collection, evaluation, feedback, and improvement programs. TQM is not a one-time effort; instead, it is a continual, long-term endeavor that needs to be recognized, reinforced, and rewarded.

When done effectively, TQM should result in greater customer satisfaction, fewer defects and less waste, increased total productivity, reduced costs and improved profitability, and an environment in which quality has high priority.

A concern for quality should not be restricted to business. Principles of quality improvement also apply to government. The mayor of Madison, Wisconsin, demonstrated how quality programs can be implemented in city government. The first test came in the motor equipment division. After the initial success, a formal quality program was started citywide. What is surprising is that resistance to the program came not from unions or from the city council but from middle-level bureaucrats, who saw their power being eroded by the reduction in departmental barriers and by greater teamwork.

Quality management is of global concern. Therefore, the topics of the contributions by quality gurus, the Malcolm Baldrige National Quality Award, ISO 9000, and the European model for total quality management were discussed in Chapter 3 on global management.

Lean Manufacturing[7]

A study at the Massachusetts Institute of Technology that compared American, Japanese, and European car manufacturers showed that the

Japanese gained a competitive advantage from the use of fewer workers, a shorter development time, lower inventories, fewer suppliers, less production space, and less investment to produce more models. The Japanese also had much shorter delivery time and were more productive than Americans and Europeans.

Some of the differences between traditional mass production and lean production managerial practices are listed in Table 20-2.

It should be pointed out that, since the study was conducted, U.S. and European automobile manufacturers have adopted many of the lean production concepts and have become more productive. Lean thinking has even spread to nonautomotive companies. Wal-Mart, a U.S. retail store, installed a just-in-time delivery system that works by letting suppliers connect to its computerized ordering system. Thus, suppliers can anticipate demands for their products. Pratt & Whitney, a U.S. aerospace firm, rearranged its work flow and thereby reduced its stock level by 70 percent and its unit costs by 20 percent.

Computer-aided Techniques

Product design and manufacturing have been changing greatly in recent years, largely because of the application of computer technology. Computer-aided design (CAD) and computer-aided manufacturing (CAM) are part of the cornerstones of the factory of the future.

CAD/CAM help engineers design products much more quickly than they could with the traditional paper-and-pencil approach. This will become increasingly important, since product life cycles are getting shorter. Capturing the market quickly is crucial in the very competitive environment. Moreover, firms can respond more rapidly to the requests

TABLE 20-2 Mass production versus lean production managerial practices

Mass production	Lean production
• Sporadic and inconsistent improvements	• Continuous improvements (*kaizen*) with strategic breakthroughs
• Satisfied with "good enough"	• Aiming at zero defects
• High inventory acceptable	• Just-in-time inventory system
• "Me" management with emphasis on individual performance	• "We," or team, management
• Worker considered the cause of poor quality	• Responsibility for problems rests on everyone, especially management

of customers with specific requirements. The ultimate aim of many companies is computer-integrated manufacturing.

International Perspective

Merging the Production Systems of Daimler and Chrysler: A Mission Possible?[8]

An important aim of merging Daimler with Chrysler was to obtain synergy, with resulting cost savings. However, it took quite some time to integrate the production systems, with Chrysler building more than three million cars a year primarily using mass production compared with Mercedes's one million cars designed for upscale customers. Chrysler emphasized the "push" approach, building cars for immediate delivery; whereas Mercedes practiced the "pull" system, building cars after orders are received, resulting in lower inventory costs but also in waiting lists ranging from four months to up to two years for certain models. The integration of the two companies took some time before the American and German engineers began trusting each other and sharing important information.

After a period of adjustment, however, the joint efforts are bearing fruit. Here are examples of how synergies have been achieved. Chrysler engineers took the Mercedes E-Class apart, studied it carefully, and adopted useful concepts. A similar process was employed by German engineers studying Chrysler's 300M model. The renowned NAG automatic gearbox, which is installed in most Mercedes cars, will be used in the next generation of Jeep Grand Cherokees and so may be a modified diesel engine. Chrysler is learning from Mercedes and vice versa. The new DaimlerChrysler is betting that the new collaboration will be the key to success in the very competitive market.

Supply Chain and Value Chain Management[9]

Supply chain management focuses on the sequence of getting raw materials and subassemblies through the manufacturing process economically.

The terms supply chain and value chain management are sometimes used interchangeably. However, *Industry Week* points out that **supply chain management** focuses on the sequence of getting raw materials and subassemblies through the manufacturing process in an economical manner. **Value chain management**, on the other hand, has a broader meaning and involves analyzing every step in the process, ranging from the handling of raw materials to servicing end users, providing them with the greatest value at the lowest cost. Therefore, some suggest that supply chain management focuses more on the internal process with an emphasis

Value chain management involves analyzing every step in the process, ranging from the handling of raw materials to servicing end users, providing them with the greatest value at the lowest cost.

on efficient flow of resources, such as materials, while value chain management has similar aims with an additional concern for the external environment, such as the customer.

Professor Michael Porter popularized the **value chain process model**, which includes the primary activities of inbound logistics, operations, outbound logistics, marketing/sales, and service. The process is supported by the enterprise infrastructure, the management of human resources, technology, and procurement. Porter's model illustrates that value chain analysis has a broader orientation than supply chain management.

The **value chain process model** includes the primary activities of inbound logistics, operations, outbound logistics, marketing/sales, and service, with the process supported by the enterprise infrastructure, human resource management, technology, and procurement.

The goal of value chain management is to create a seamless chain of activities from the supplier, through the manufacturer, to the customer to meet and exceed his or her expectations. The process requires that all managerial functions of planning, organizing, staffing, leading, and controlling be carried out effectively and efficiently in a collaborative manner. In addition, technology is used to facilitate the entire process. The previous chapter on the various aspects of information technology discussed how this can be done. Value chain management may require a thorough analysis of the organizational process using reengineering concepts, which were discussed in Chapter 7. Still another way of improving the value chain (especially for manufacturing) is to study and apply the operations management model shown in Figure 20-1.

Summary

Productivity is a major concern of managers. It implies measurement, an essential step in the control process. The productivity measurement of skill workers is generally easier than that of knowledge workers such as managers. Yet managerial productivity is very important, especially for organizations operating in a competitive environment.

Production management refers to those activities necessary to manufacture products; it may also include purchasing, warehousing, transportation, and other operations. Operations management has a similar meaning, referring to activities necessary to produce and deliver a service as well as a physical product. Quality measurement in the information age requires including factors other than reliability, such as the information infrastructure and the services of software suppliers.

The operations management system model includes inputs, the transformation process, outputs, and the feedback system. Selecting a product or service to produce requires consideration of customer needs,

organizational goals, and the various interests of the functional managers of the enterprise. Planning and designing a product and its production involves several activities. Companies can choose from at least six kinds of production layouts catering for different production or operation needs. In order to operate the system, the managerial functions of organizing, staffing, and leading must be carried out effectively. Controlling operations requires an information system often supported by computers.

A variety of tools and techniques are available for making operations more productive, including inventory planning and control, the just-in-time inventory system, outsourcing, operations research, value engineering, work simplification, quality circles, total quality management, lean manufacturing, and a variety of computer-aided approaches. The concepts of supply chain management and value chain management are similar. However, the latter is more comprehensive and emphasizes the end user of the product or service.

KEY IDEAS AND CONCEPTS FOR REVIEW

Productivity problems and measurement
Production management
Operations management
Quality in the information age
Operations management system
Steps in product and production design
Production layouts
Inventory planning and control
Just-in-time inventory system
Outsourcing
Operations research
Value engineering
Work simplification
Quality circle
Total quality management
Lean manufacturing
Computer-aided design
Computer-aided manufacturing
Supply chain management
Value chain management
Value chain process model

FOR DISCUSSION

1. How would you measure the productivity of managers and other knowledge workers? Explain in detail.
2. Why is the field of production and operations management good to use as a case example of planning and control techniques? Why do you think this area was favored for analysis and productivity improvement by the pioneers in the field of management?
3. Distinguish between the planning and control techniques that are usually found only in production and operations management and those that are found useful in all areas of management. Why is there a distinction?

4. Explain the nature of and reasons for each step usually found in the development of a production and operations management program.
5. There are many typical layouts used in the design of a production program. Which one is ordinarily used for the manufacture of automobiles? Why?
6. Real-time information can be widely used in the area of production, but this does not solve the problem of control. Why?
7. What tools generally found in operations research have been widely used in production and operations management? Do they have anything in common? If so, what is it?
8. Why do you believe that quality control circles have been used so much in Japan?

EXERCISES/ACTION STEPS

1. Draw the layout of your apartment or house, and indicate the pathways you take while doing your typical daily chores. Show any rearrangements you could make that would increase your effectiveness and personal productivity.
2. Interview several managers in a local company and ask how they measure the quality of their operations.

INTERNET RESEARCH

1. Toyota was the first to adopt the just-in-time (JIT) system. Dell applied the virtual network to JIT. Search the Internet for the term "just in time." Find out how JIT is used by enterprises.
2. Search the Internet for the term "total quality management." How is the approach used by organizations? Present your findings to the class.

International

Case Lampert & Sons Company

John Lampert, president of Lampert & Sons Company, a small manufacturing firm producing electrical appliances, was an entrepreneur with a technical background. He recently moved into a new house, and his wife asked him to install some spotlights to accent various areas in the house, such as the bookshelves, a sculpture, and certain items in a wall unit.

At the local lighting stores, the lamps that might fit the purpose cost far more than Mr. Lampert was willing to pay. He felt that there was a real need for a low-cost, attractive spotlight or clamp-on lamp. He discussed his idea with a business colleague, who raised a number of questions, such as the following:

- Is there really a need for such a product?
- What should such a lamp look like?
- How or where should it be produced (e.g., in his plant in the United States or abroad, such as in South Korea, Hong Kong, or Taiwan)?

- What arrangements would have to be made if the lamp were to be produced by Lampert & Sons?
- What kind of distribution channel (or channels) should be used to sell the product?
- How would he maintain the quality if the price of the lamp were to be kept low?

After this discussion, Mr. Lampert realized that he really had not thought through his idea and could not satisfactorily answer several of the questions.

Questions

1. If you were a small-business consultant, how would you answer the questions Mr. Lampert's colleague raised?
2. What other actions would you recommend for making the decision to design the product, to set up a production system, and to control the operation, especially the quality?
3. What decision-making tools and techniques could assist you in making these decisions?

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9. Michael E. Porter, *Competitive Advantage: Creating and Sustaining Superior Performance* (New York: Free Press, 1985), especially chap. 2. See also *Industry Week*'s value chain Web site, *www.iwvaluechain.com*; SAP's supply chain Web site, *www.sap.com/solutions*; *www.isr.gov.au/valuechains/index.htm*; and Stanford Global Supply Chain Management Forum, *www.stanford.edu/group/scforum*, accessed June 29, 2002.

Part -6 closing

Global Controlling and Global Challenges

Like the closing sections in parts 1 to 5, this part closing is about the global environment. In this part, the focus is on controlling. First, controlling practices in Japan, the United States, and China are discussed. Second, the impact of the forces in the external environment on the managerial functions of planning, organizing, staffing, leading, and controlling are discussed. In other words, the future of management is projected. Finally, the global car industry case presents Toyota's global production strategy.

Controlling Practices in Japan, the United States, and China[1]

In the view of Western managers, controlling involves setting standards, measuring performance, and correcting undesirable deviations. But to the Japanese, this process is less direct, as shown in Table C6-1.

TABLE C6-1 Comparison of Japanese, U.S., and Chinese controlling

Japanese	American	Chinese*
• Control by peers	• Control by superior	• Control by group leader (superior)
• Control focus on group performance	• Control focus on individual performance	• Primary control focus on groups, partly on individuals
• Avoidance of fixing blame on individuals to save face of employees	• Practice of fixing blame on individuals	• Tendency to save face and avoid blaming individuals
• Extensive use of quality control circles	• Limited use of quality control circles	• Limited use of quality control circles
• Extensive use of total quality control	• Increasing use of total quality control	• Little information on the use of total quality control

* As practiced by state-owned enterprises.

Controlling in Japan

As noted in the discussion of decision making, the group—its dynamics and its pressures—has a profound impact on the managerial process in Japan. In an office without dividing walls, people are well aware of the performance of their peers. Moreover, managers are a part of the work group rather than being separated from subordinates by an office door. Often the measurement of individual performance is not against specific verifiable objectives; instead, emphasis is placed on group performance. Also, the Japanese culture of "saving face" would be incongruent with fixing the blame for deviations from plans on individuals. Control emphasizes process, not numbers. The Japanese are well known for their concern with quality. However, in the 1950s and 1960s, Japanese products had an image of shoddy quality. This image has changed, and good quality is now one of the characteristics associated with Japanese products. This is due in part to the success of quality control, which requires grass-roots involvement with very active participation in quality control circles.

Total quality control (TQC) requires workers to identify quality problems and report them. This may require, for example, stopping the production line so that corrective actions can be taken. Employees must take responsibility for quality, and they must be willing to work as a team to solve quality problems. The TQC approach is used extensively in Japan.

Controlling in the United States

Control in the United States often means measuring performance against preestablished precise standards. Management by objectives, widely practiced in this country, requires the setting of verifiable objectives against which individual performance is measured. This way the superior can trace deviations to specific individuals, and this frequently results in fixing blame. In an attempt to maximize individual results, group performance may suffer. We all can think of examples in which the self-interest of individuals was placed before group or organizational interest.

The use of quality control programs is not new. Hughes Aircraft Company, for example, had such programs for a long time under the names zero defects and value engineering. Many of these programs were developed in this country and later adopted by the Japanese. Although TQC originated in the United States, it was perfected in Japan and resulted in a Japanese productivity advantage. However, since the 1990s, the productivity gap between Japanese and U.S. companies has been narrowing because many U.S. companies started to use TQC concepts to improve quality and productivity.

Controlling in China

In China, group leaders usually exercise control. The control focus is primarily on the group, but there is also individual responsibility. Factory managers, for example, are expected to meet their yearly quota. Thus, Chinese control practices are a mixture of U.S. and Japanese managerial

practices. In identifying deviations from standards, there is a tendency to let the persons responsible for subperformance save face, as practiced by the Japanese. There is some use of quality circles, but it is not a common practice. China was not known for quality products, but now many Western companies operate there and they want quality products that can compete in the global market. But not sufficient data are available at this time to assess the extent of use of TQC in China.

Conclusion: Managerial Practices in Different Countries

The comparison of planning, organizing, staffing, leading, and controlling practices in Japan, the United States, and China makes it clear that the *application* of the principles and concepts of managing differs in these countries. It is also clear that managers with a global orientation will learn about management as it is practiced not only in their own country but also in other places in the world. Chinese managers will look at both Japanese and U.S. managerial practices and compare them with their own past experiences. Some practices from the United States and Japan may be transferable, but others may not. The environment, especially sociocultural factors, does influence practice,[2] but its impact may have been overstated.



The Future of Global Management

No one can predict the future with certainty. Yet there are trends in the environment that may influence the practice of the managerial functions of planning, organizing, staffing, leading, and controlling.

The external environment may be categorized as technological, economic, political and legal, and social, ethical, and ecological, as shown in the future of global management matrix in Figure C6-1. The figure highlights selected key trends in the external environment and the projected impact on key tasks grouped according to the managerial functions. We will discuss selected aspects with the focus on the changes in the technological environment.

We live in a knowledge society in which information technology impacts on most aspects of our lives. Even people in developing countries now have access to the Internet at relatively low costs. The whole world is interconnected. Information technology facilitates intranet (for communication within the organization) as well as extranet (for communicating with others outside the enterprise) communications. This connectivity makes e-business and m-business (business conducted using mobile communications) possible, which in turn impacts on all managerial functions.

For example, information technology aids scenario and contingency *planning* (Part 2 in this book). In strategic planning, many alternatives can be developed and evaluated rapidly because of computing power and the wealth of information available and readily accessible. In fact, there

FIGURE C6-1 The future of global management matrix

Environment / Managerial function	Technological	Economic	Political/Legal	Social/Ethical/Ecological
	• Widespread use of IT • Emergence of knowledge society • Easy access to information at low costs • Widespread and global e-commerce	• Economic blocs such as EU and NAFTA reduce internal regional barriers but create external ones • U.S. labor unions' stance shifts from free trade to protectionism to protect jobs • Borderless society • Development of pension plans that represent stakeholders' interests	• Expansion of EU via admittance of new members, mainly from Eastern Europe • Increased protectionism because of declined employment in manufacturing and services (due to, e.g., outsourcing to India)	• Emergence of knowledge workers • People healthier and living longer • Shifts in demographics: low birth rates and increased life expectancies result in "graying" population in developed countries • Greater affluence in developing countries, but also wider wealth disparity • Global "greening" concerns
Planning e.g., setting objectives, strategic planning, decision making	• IT aids scenario planning • Wealth of information helps decision making (but possible information overload) • Consumer access to product and service information allows comparisons with implications for marketing strategies, thus focus on customer needs and service required • Cross-national alliances, joint ventures, cooperative agreements (e.g., between industry and universities), and mergers facilitated, thus global strategies required	• Globalization of strategic management • Scanning for opportunities and threats globally, not only at home • Increased global competition • Borderless society provides threats and opportunities	• Greater wealth in Eastern European countries provides opportunities for developed countries • More powerful EU can become threat to USA • Strategies needed for coping with nontariff barriers	• Opportunity for targeting products at the youth in developing countries • More marketing focus on older population • Strategies must consider ecological impact of products and services (e.g., recycling)
Organizing e.g., organization structure, authority relationships, decentralization	• Organizations become change agents • New organizational forms (e.g., outsourcing, online operation) • Outsourcing requires disintegration of organization structure and restructuring • Knowledge work promotes nonhierarchical structures • Knowledge workers may become shareholders • From organization structures based on products and services to alliances based on strategic considerations • Manufacturers join to form purchasing cooperatives (as General Motors, Ford, and DaimlerChrysler have done) • Suppliers run and controlled by manufacturers, who direct and advise	• Emergence of transnational companies • Forming of cross-national alliances and mergers requires restructuring	• Need for establishing structures that resolve conflict of interest between countries within power blocs and for developing policies to compete in other regional blocs	• Great potential for upward mobility in society and organizations, partly because of impact of knowledge society • Older people as part-timers or consultants with advisory authority

Staffing e.g., appraisal, change management, management development	• Specialized technical knowledge needed • Greater mobility of knowledge workers in changing jobs • Information enhances knowledge workers' upward mobility • Specialized knowledge workers as consultants or contractors in temporary or part-time employment • Outsourcing of human resource management to specialist firms at home and abroad • Use of older, semi-retired professionals as consultants • Continual training and retraining to keep abreast of new technologies • Development of new measurements for evaluating and rewarding knowledge workers	• Possible growth of labor unions in various countries • Multicultural work force • Need for culturally sensitive personnel with understanding of international macroeconomics	• Political–legal implications posed by multicultural work force • September 11, 2001, attacks on USA make it more difficult to obtain student and work visas, thus hampering staffing of critical positions • Developed countries need immigrant workers, yet immigration may be limited	• Knowledge workers, as key human resources, require good formal education and continual reeducation • Raised retirement age requires organizations to integrate older with younger workers • Need to integrate immigrants into work force • Greater role of women at workplace
Leading e.g., motivation, leadership, communication, teamwork	• Information availability gives power to knowledge workers and consumers • Knowledge workers demand higher-order needs satisfaction (recognition, self-actualization, responsibility, participation) • Electronic communication technology aids teamwork • Lower communication costs	• Need for political leadership to balance interests of countries within regional blocs • Ways to integrate developed with developing countries required • Greater affluence requires new ways to motivate workers	• Potential communication barriers arising from use of different languages • Increased use of English in global business, political, and social interactions	• Top management has to balance interests of various stakeholders (investors, employees, governments, community, etc.) • More women in leadership positions • Top managers more engaged in ecological policies • Challenge in integrating older with younger workers
Controlling e.g., control techniques, production, IT, productivity	• Ease of control, but possibly overcontrol • IT facilitates detection and correction of deviations from plans • IT facilitates productivity measurement at low costs • Internet enables worldwide selling • Internet facilitates shift from autonomous ownership to partnerships (e.g., purchasing cooperatives) • Use of Internet more for outside scanning, not only for internal operation	• Controls for transnational companies needed (e.g., tax policy) • Reaching customers globally through Internet • Potential for higher productivity	• Controls for firms within enlarged EU required	• Growing awareness of environmental controls (e.g., measurement of performance against key environmental drivers, use of environmental accounting)

EU: European Union; IT: information technology; NAFTA: North American Free Trade Agreement.

Sources: Peter Drucker, "The Next Society," *The Economist*, November 3, 2001, Insert pp. 3–20; Asia-Pacific Decision Sciences Institute "Decision Making at the Speed of Light: What Is Amiss?" Conference, Bangkok, July 24–27, 2002; Richard N. Cooper and Richard Layard (eds.), *What the Future Holds: Insights from Social Science* (Cambridge, MA: MIT Press, 2002); J. Scott Armstrong (ed.), *Principles of Forecasting: A Handbook for Researchers and Practitioners* (Boston, MA: Kluwer, 2001); John T. Landry, "A Future Perfect: The Essentials of Globalization," *Harvard Business Review*, May 2000, p. 192; Karl Albrecht, *Corporate Radar: Tracking the Forces That Are Shaping Your Business* (New York: AMACOM, 2000).

is so much information that it leads to information overload, as discussed earlier. The ease of communication facilitates the global trend of mergers, such as the cross-national merger of the German Daimler-Benz and the American Chrysler.

Similarly, technological developments promote new *organizational* forms (Part 3), such as outsourcing of production and services to contractors and suppliers. Knowledge work and the accessibility of common databases to various levels in the organization promote nonhierarchical structures.

Information technology also influences the managerial function of *staffing* (Part 4). The demand for knowledge workers rises, thereby enhancing not only their upward mobility in the organizational hierarchy but also their mobility between organizations, which in turn promote frequent organizational changes. In addition, specialized knowledge workers may become consultants or contractors in short-term or part-time employment in organizations. Human resource activities may also be outsourced to companies specializing in this area. The rapid changes in information technology demand continual training to keep up, and the appraisal and compensation of knowledge workers may require new and creative approaches.

Developments in information technology also impact on the various aspects of *leading* (Part 5). Specifically, power relationships shift in favor of knowledge workers as well as customers. Teamwork is facilitated by electronic communication technology, such as e-mail, intranets, the Internet, and wireless means. Motivating well-educated knowledge workers may need to be by providing recognition, opportunities for participation, and self-actualization. In general, communication costs can be reduced through the application of the new technologies.

Finally, the managerial function of *controlling* (Part 6) is greatly helped by information technology. Deviations from standards can be detected instantly, and consequently corrective actions can be taken earlier. Similarly, productivity can be measured at low costs, thus encouraging its improvement. The Internet makes worldwide buying and selling possible through electronic transactions, and it allows car makers General Motors, Ford, and DaimlerChrysler to engage in purchasing cooperatives. The Internet also easily links the enterprise with its external environment.



Toyota's Global Production Strategy[3]

Toyota Motor Corporation is one of the largest car makers in the world. Although headquartered in Toyota City, about 150 miles west of Tokyo, it has production or assembly facilities in many parts of the world. The company is known for its effective and efficient approach to production management, its quality products, and its outstanding labor relations.

The Toyota production system (TPS) integrates craft with mass production, and it is now emulated by its competitors. The system aims at producing high-quality cars at low costs, accomplished in part by having parts delivered to the production line "just in time" to avoid the high inventory costs of the traditional assembly operation. It is sometimes called "just-in-case"

inventory system, referring to the practice of storing additional parts just in case a part is defective or is needed because of unforeseen circumstances. The effectiveness of TPS is aided by close relationships with suppliers and by continuous improvement, teamwork, decentralized decision making, and a motivated work force. Vehicles are designed with customers in mind, who can order cars according to their needs. Even after the car is delivered, customers are kept happy by good customer service.

Toyota uses several ways to improve production. Workers are trained in several kinds of skills so that they can operate several machines. Electrical signs, called andon boards, show daily production figures and problems on the assembly line. They also can indicate whether overtime may be necessary. Quality is achieved through the zero defects system. Workers are trained to trace any error to its source. If a production problem occurs on the assembly line, workers pull a cord to draw attention to the problem and request assistance, or to stop the line altogether.

The company developed a unique relationship with its suppliers, who deliver parts daily (often several times a day) to the production line. Suppliers are often responsible for a whole system, such as the brakes, seats, or the electrical system. To make the supplier relationship effective, Toyota people have to be very familiar with the operation of the supplier, often by having representatives at the supplier's site for assistance. Toyota also provides loans or makes equity investment in the operations of its suppliers. The result is long-term cooperative relationships.

One of Toyota's successful strategies was the introduction of the luxury Lexus model. Partly in response to U.S. pressure to limit Japanese car sales in the United States, Toyota focused on high-value luxury cars using BMW and Mercedes as benchmarks. Lexus was also aimed at customers of American luxury cars such as Cadillac and Lincoln. In developing the Lexus, Toyota purchased cars made by Mercedes, BMW, and Jaguar and tested them thoroughly. Then it developed 11 performance goals to improve on the results of those tests. In order to be price-competitive, Toyota invested in automation to reduce labor costs. Great attention was given to high quality standards. The development time was relatively short for the Lexus. However, some critics suggested that it was a luxury model based on the Toyota Camry platform. The initial low price for the luxury car was subsequently hiked several times.

The success of the Japanese operation has been extended overseas. One such example is New United Motor Manufacturing, Inc. (NUMMI) in Fremont near San Francisco. In 1984, Toyota and General Motors (GM) agreed on a 50–50 joint venture. Up to that time, this GM plant was one of the least productive. After the joint venture, it became one of the best GM plants. Critical to the success of the joint venture was good labor–management relations based on trust and respect for each other's point of view. The new arrangement called for the elimination of multiple job categories, extensive use of teams, the use of quality circles, indoctrination, and training. Many of the employees were sent to Japan for additional training. The plant was also changed through rearrangement of the assembly line, replacement of old equipment, employment of the just-in-time inventory system, and enabling workers to stop the assembly line should a problem arises. The relationship with suppliers was also changed from adversarial to cooperative.

Another Toyota plant was opened in Georgetown, Kentucky, in 1988. Great efforts were made in selecting employees, involving tests and simulations to assess not only technical skills but also personal and leadership abilities. Emphasis was also placed on teamwork at the plant. The company's expansion in the U.S. market was not restricted to vehicle production. The Calty Design Center in California developed the Celica model and the Previa minivan especially designed for U.S. consumers. Design and research were done at the technical center in Torrance, California.

Toyota also has many other overseas operations. In Europe too, there were restrictions on Japanese car imports, especially in France and Italy.* To overcome these restrictions, Toyota built a plant in Britain, which is a member of the European Union. In 2001, Toyota and the French Peugeot Citroen announced plans to invest 1.3 billion euros to build a plant for producing a small, entry-level car by 2005. Of the 300,000 cars to be produced annually, 100,000 will be sold as Toyotas and 200,000 as Peugeots or Citroens. Profitability will be the challenge for the joint venture because of the slim profit margins for small cars. Cost reduction will be critical for its success. Toyota's contribution to the planned venture is the experience of producing five million cars annually. Peugeot Citroen has the advantage of having a strong brand image in the region as well as a good understanding of the local market. Moreover, the French company has expertise in making supermini cars. But sometimes it is not possible to engage in a joint venture or to set up a company-owned plant. This is the case in some Asian countries, especially in South Korea. Consequently, Toyota acquired minority interests in Korean companies.

Questions

1. Why has Toyota been successful?
2. What are the strategies for gaining entrance into foreign countries?
3. What should Toyota do to be successful in Asian countries that restrict imports?

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* See the global car industry case in Part 1 closing: The Car Market in the New Europe.