The Evolution of Management Theory

APPENDIX A

Management theory concerning appropriate management practices has evolved in modern times. The so-called classical management theories emerged around the start of the twentieth century. These include scientific management, which focuses on matching people and tasks to maximize efficiency, and administrative management, which focuses on identifying the principles that will lead to the creation of the most efficient system of organization and management. Behavioural management theories, developed both before and after the Second World War, focus on how managers should lead and control their workforces to increase performance. Management science theory, developed during the Second World War, has become more important as researchers have developed rigorous analytical and quantitative techniques to help managers measure and control organizational performance. Finally, theories were developed during the 1960s and 1970s to help explain how the external environment affects the way organizations and managers operate.

Scientific Management Theory

The evolution of modern management began in the closing decades of the nineteenth century, after the Industrial Revolution had swept through Europe, Canada, and the United States. Small workshops run by skilled workers who produced hand-manufactured products (a system called crafts-style production) were replaced by large factories. In these factories, hundreds or even thousands of unskilled or semi-skilled employees controlled the sophisticated machines that made products. See Figure A.1.

Many of the managers and supervisors had only technical knowledge and were unprepared for the social problems that occur when people work together in large groups (as in a factory or shop system). Managers began to search for new ways to manage their organizations' resources, and soon they began to focus on how to increase the efficiency of the employee–task mix.

Job Specialization and the Division of Labour

The famous Scottish economist Adam Smith was one of the first to look at the effects of different manufacturing systems.[1] He compared the relative performances of two different manufacturing methods. The first was similar to crafts-style production, in which each employee was responsible for all of the 18 tasks involved in producing a pin. The other had each employee performing only one or a few of the 18 tasks that go into making a completed pin.

Smith found that factories in which employees specialized in only one or a few tasks had greater performance than factories in which each employee performed all 18 pin-making tasks. In fact, Smith found that 10 employees specializing in

The Adam Smith Institute
www.adamsmith.org

FIGURE A.1 | The Evolution of Management Theory
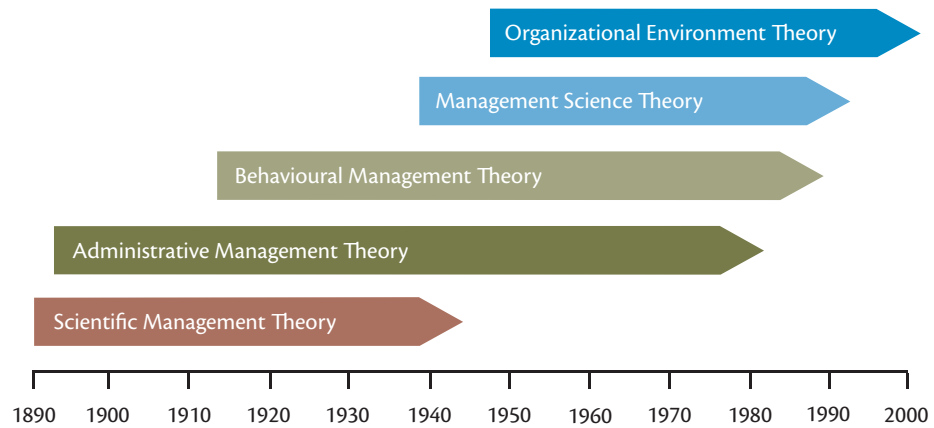
a particular task could, between them, make 48 000 pins a day, whereas those employees who performed all the tasks could make only a few thousand at most.[2] Smith reasoned that this difference in performance occurred because the employees who specialized became much more skilled at their specific tasks, and, as a group, were thus able to produce a product faster than the group of employees in which everyone had to perform many tasks. Smith concluded that increasing the level of **job specialization**—the process by which a division of labour occurs as different employees specialize in different tasks over time—increases efficiency and leads to higher organizational performance.[3]

Based on Adam Smith's observations, early management practitioners and theorists focused on how managers should organize and control the work process to maximize the advantages of job specialization and the division of labour.

F.W. Taylor and Scientific Management

Frederick W. Taylor (1856–1915) is best known for defining the techniques of **scientific management**, the systematic study of relationships between people and tasks for the purpose of redesigning the work process to increase efficiency. Taylor believed that the production process would become more efficient if the amount of time and effort that each employee spent to produce a unit of output (a finished good or service) could be reduced. He noted that increased specialization and the division of labour could increase efficiency. Taylor believed that the way to create the most efficient division of labour could best be determined by means of scientific management techniques rather than intuitive or informal rule-of-thumb knowledge. On the basis of his experiments and observations as a manufacturing manager in a variety of settings, he developed four principles to increase efficiency in the workplace:[4]

- Principle 1. *Study the way workers perform their tasks, gather all the informal job knowledge that workers possess, and experiment with ways of improving the way tasks are performed.*

- Principle 2. *Codify the new methods of performing tasks into written rules and standard operating procedures.*

- Principle 3. *Carefully select workers so that they possess skills and abilities that match the needs of the task, and train them to perform the task according to the established rules and procedures.*

- Principle 4. *Establish a fair or acceptable level of performance for a task, and then develop a pay system that provides a reward for performance above the acceptable level.*

job specialization
The process by which a division of labour occurs as different employees specialize in different tasks over time.

scientific management
The systematic study of relationships between people and tasks for the purpose of redesigning the work process to increase efficiency.

The F.W. Taylor Project
attila.stevens-tech.edu/~rdowns/

By 1910, Taylor's system of scientific management had become known and, in many instances, faithfully and fully practised.[5] However, managers in many organizations chose to use the new principles of scientific management selectively. This decision ultimately resulted in problems. For example, some managers using scientific management saw increases in performance, but rather than sharing performance gains with employees through bonuses as Taylor had advocated, they simply increased the amount of work that each employee was expected to do. Thus, employees found they were required to do more work for the same pay. Employees also learned that increases in performance often resulted in layoffs because fewer employees were needed. In addition, the specialized, simplified jobs were often monotonous and repetitive, and many employees became dissatisfied with their jobs.

Scientific management brought many employees more hardship than gain and left them with a distrust of managers who did not seem to care about their well-being.[6] These dissatisfied employees resisted attempts to use the new scientific management techniques and at times even withheld their job knowledge from managers to protect their jobs and pay.

Taylor's work has had an enduring effect on the management of production systems. Managers in every organization, whether it produces goods or services, now carefully analyze the basic tasks that must be performed and try to create work systems that will allow their organizations to operate most efficiently.

The Gilbreths

Two prominent followers of Taylor were Frank Gilbreth (1868–1924) and Lillian Gilbreth (1878–1972), who refined Taylor's analysis of work movements and made many contributions to time-and-motion study.[7] Their aims were to (1) break up a particular task into individual actions and analyze each step needed to perform the task, (2) find better ways to perform each step, and (3) reorganize each of the steps so that the action as a whole could be performed more efficiently—at less cost in time and effort.

The Gilbreth Network
gilbrethnetwork.
tripod.com

The Gilbreths often filmed an employee performing a particular task and then separated the task actions, frame by frame, into their component movements. Their goal was to maximize the efficiency with which each individual task was performed so that gains across tasks would add up to enormous savings of time and effort.

In workshops and factories, the work of the Gilbreths, Taylor, and many others had a major effect on the practice of management. In comparison with the old crafts-style system, jobs in the new system were more repetitive, boring, and monotonous as a result of the application of scientific management principles. Employees became more dissatisfied. Frequently, the management of work settings became a game between employees and managers: Managers tried to introduce work practices to increase performance, and employees tried to hide the true potential efficiency of the work setting in order to protect their own well-being.[8]

Administrative Management Theory

Side by side with scientific managers studying the person–task mix to increase efficiency, other researchers were focusing on **administrative management**—the study of creating an organizational structure that leads to high efficiency and effectiveness. Organizational structure is the system of task and authority relationships that control how employees use resources to achieve the organization's goals. Two of the most influential views regarding the creation of efficient systems of organizational administration were developed in Europe. Max Weber, a German professor

administrative management
The study of how to create an organizational structure that leads to high efficiency and effectiveness.

of sociology, developed one theory. Henri Fayol, the French manager, developed the other.

The Theory of Bureaucracy

Max Weber (1864–1920) wrote his work at the start of the twentieth century, when Germany was undergoing its Industrial Revolution.[9] To help Germany manage its growing industrial enterprises at a time when it was striving to become a world power, Weber developed the principles of **bureaucracy**—a formal system of organization and administration designed to ensure efficiency and effectiveness.

- Principle 1. *In a bureaucracy, a manager's formal authority derives from the position he or she holds in the organization.*

  In a bureaucratic system of administration, obedience is owed to a manager, not because of any personal qualities that he or she might possess—such as personality, wealth, or social status—but because the manager occupies a position that is associated with a certain level of authority and responsibility.[10]

- Principle 2. *In a bureaucracy, people should occupy positions because of their performance, not because of their social standing or personal contacts.*

  This principle was not always followed in Weber's time and is often ignored today. Some organizations and industries are still affected by social networks in which personal contacts and relations, not job-related skills, influence hiring and promotional decisions.

- Principle 3. *The extent of each position's formal authority and task responsibilities, and its relationship to other positions in an organization, should be clearly specified.*

  When the tasks and **authority** associated with various positions in the organization are clearly specified, managers and employees know what is expected of them and what to expect from each other. Moreover, an organization can hold all its employees strictly accountable for their actions when each person is completely familiar with his or her responsibilities.

- Principle 4. *For authority to be exercised effectively in an organization, positions should be arranged hierarchically. This helps employees know whom to report to and who reports to them.*[11]

  Managers must create an organizational hierarchy of authority that makes it clear (a) who reports to whom and (b) to whom managers and employees should go if conflicts or problems arise. This principle is especially important in the Armed Forces, Canadian Security Intelligence Service (CSIS), Royal Canadian Mounted Police (RCMP), and other organizations that deal with sensitive issues where there could be major repercussions.

- Principle 5. *Managers must create a well-defined system of rules, standard operating procedures (SOPs), and norms so that they can effectively control behaviour within an organization.*

  Rules, SOPs, and norms provide behavioural guidelines that improve the performance of a bureaucratic system because they specify the best ways to accomplish organizational tasks. **Rules** are formal written instructions that specify actions to be taken under different situations to achieve specific goals. **SOPs** are specific sets of written instructions on how to perform a certain aspect of a task. **Norms** are unwritten rules and informal codes of conduct on how to act in particular situations. Companies such as McDonald's and Wal-Mart have developed extensive rules and

bureaucracy
A formal system of organization and administration designed to ensure efficiency and effectiveness.

authority
The power to hold people accountable for their actions and to make decisions concerning the use of organizational resources.

rules
Formal written instructions that specify actions to be taken under different circumstances to achieve specific goals.

standard operating procedures (SOPs)
Specific sets of written instructions about how to perform a certain aspect of a task.

norms
Unwritten rules and informal codes of conduct that prescribe how people should act in particular situations.

procedures to specify the types of behaviours that are required of their employees, such as, "Always greet the customer with a smile."

Weber believed that organizations that implement all five principles will establish a bureaucratic system that will improve organizational performance. The specifications of positions and the use of rules and SOPs to regulate how tasks are performed make it easier for managers to organize and control the work of subordinates. Similarly, fair and equitable selection and promotion systems improve managers' feelings of security, reduce stress, and encourage organizational members to act ethically and further promote the interests of the organization.[12]

If bureaucracies are not managed well, however, many problems can result. Sometimes, managers allow rules and SOPs—"bureaucratic red tape"—to become so cumbersome that decision making becomes slow and inefficient and organizations are unable to change. When managers rely too much on rules to solve problems and not enough on their own skills and judgment, their behaviour becomes inflexible. A key challenge for managers is to use bureaucratic principles to benefit, rather than harm, an organization.

Fayol's Principles of Management

Working at the same time as Weber but independently of him, Frenchman Henri Fayol (1841–1925), the CEO of Comambault Mining, identified 14 principles (summarized in Table A.1) that he believed to be essential to increasing the efficiency of the management process.[13] Some of the principles that Fayol outlined have faded from contemporary management practices, but most have endured.

The principles that Fayol and Weber set forth still provide a clear and appropriate set of guidelines that managers can use to create a work setting that makes efficient and effective use of organizational resources. These principles remain the foundation of modern management theory; recent researchers have refined or developed them to suit modern conditions. For example, Weber's and Fayol's concerns for equity and for establishing appropriate links between performance and reward are central themes in contemporary theories of motivation and leadership.

TABLE A.1 | *Fayol's 14 Principles of Management*

Division of Labour   Job specialization and the division of labour should increase efficiency, especially if managers take steps to lessen employees' boredom.

Authority and Responsibility   Managers have the right to give orders and the power to exhort subordinates for obedience.

Unity of Command   An employee should receive orders from only one superior.

Line of Authority   The length of the chain of command that extends from the top to the bottom of an organization should be limited.

Centralization   Authority should not be concentrated at the top of the chain of command.

Unity of Direction   The organization should have a single plan of action to guide managers and employees.

Equity   All organizational members are entitled to be treated with justice and respect.

Order   The arrangement of organizational positions should maximize organizational efficiency and provide employees with satisfying career opportunities.

Initiative   Managers should allow employees to be innovative and creative.

Discipline   Managers need to create a workforce that strives to achieve organizational goals.

Remuneration of Personnel   The system that managers use to reward employees should be equitable for both employees and the organization.

Stability of Tenure of Personnel   Long-term employees develop skills that can improve organizational efficiency.

Subordination of Individual Interests to the Common Interest   Employees should understand how their performance affects the performance of the whole organization.

Esprit de Corps   Managers should encourage the development of shared feelings of comradeship, enthusiasm, or devotion to a common cause.

Behavioural Management Theory

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The **behavioural management** theorists writing in the first half of the twentieth century all chose a theme that focused on how managers should personally behave in order to motivate employees and encourage them to perform at high levels and be committed to the achievement of organizational goals.

The Work of Mary Parker Follett

If F.W. Taylor is considered to be the father of management thought, Mary Parker Follett (1868–1933) serves as its mother.[14] Much of her writing about management and about the way managers should behave toward employees was a response to her concern that Taylor was ignoring the human side of organization. Follett also proposed that knowledge and expertise, and not managers' formal authority deriving from their position in the hierarchy, should decide who would lead at any particular moment. She believed, as do many management theorists today, that power is fluid and should flow to the person who can best help the organization achieve its goals. Follett took a horizontal view of power and authority, in contrast to Fayol, who saw the formal line of authority and vertical chain of command as being most essential to effective management. Follett's behavioural approach to management was radical for its time.

The Hawthorne Studies and Human Relations

Hawthorne Studies
www.wikipedia.org/wiki/
Hawthorne_studies

Probably because of its radical nature, Follett's work went unappreciated by managers and researchers until quite recently. Instead, researchers continued to follow in the footsteps of Taylor and the Gilbreths. One focus was on how efficiency might be increased through improving various characteristics of the work setting, such as job specialization or the kinds of tools employees used. One series of studies was conducted from 1924 to 1932 at the Hawthorne Works of the Western Electric Company.[15] This research, now known as the Hawthorne studies, began as an attempt to investigate how characteristics of the work setting—specifically the level of lighting or illumination—affect employee fatigue and performance. The researchers conducted an experiment in which they systematically measured employee productivity at various levels of illumination.

One of the main implications of the Hawthorne studies was that the behaviour of managers and employees in the work setting is as important in explaining the level of performance as the technical aspects of the task. Managers must understand the workings of the **informal organization**, the system of behavioural rules and norms that emerge in a group, when they try to manage or change behaviour in organizations. Many studies have found that as time passes, groups often develop elaborate procedures and norms that bond members together, allowing unified action either to cooperate with management in order to raise performance or to restrict output and undermine organizational goals.[16] The Hawthorne studies demonstrated the importance of understanding how the feelings, thoughts, and behaviour of work-group members and managers affect performance. It was becoming increasingly clear to researchers that understanding behaviour in organizations is a complex process that is critical to increasing performance.[17] Indeed, the increasing interest in the area of management known as **organizational behaviour**—the study of the factors that have an impact on how individuals and groups respond to and act in organizations—dates from these early studies.

Theory X and Theory Y

Several studies after the Second World War revealed how assumptions about employees' attitudes and behaviour affect managers' behaviour. Perhaps the most influential approach was developed by Douglas McGregor. He proposed that two different sets of assumptions about work attitudes and behaviours dominate the way managers think and affect how they behave in organizations. McGregor named these two contrasting sets of assumptions *Theory X* and *Theory Y*.[18]

According to the assumptions of **Theory X**, the average employee is lazy, dislikes work, and will try to do as little as possible. Moreover, employees have little ambition and wish to avoid responsibility. Thus, the manager's task is to counteract employees' natural tendencies to avoid work. To keep employees' performance at a high level, the manager must supervise them closely and control their behaviour by means of rewards and punishments.

Theory Y assumes that employees are not inherently lazy, do not naturally dislike work, and, if given the opportunity, will do what is good for the organization. According to Theory Y, the characteristics of the work setting determine whether employees consider work to be a source of satisfaction or punishment; and managers do not need to control employees' behaviour closely in order to make them perform at a high level because employees will exercise self-control when they are committed to organizational goals. It is the manager's task to create a work setting that encourages commitment to organizational goals and provides opportunities for employees to be imaginative and to exercise initiative and self-direction.

Douglas McGregor
www.lib.uwo.ca/busines/
dougmcgregor.html

Theory X
Negative assumptions about employees that lead to the conclusion that a manager's task is to supervise them closely and control their behaviour.

Theory Y
Positive assumptions about employees that lead to the conclusion that a manager's task is to create a work setting that encourages commitment to organizational goals and provides opportunities for imagination, initiative, and self-direction.

Management Science Theory

Management science theory is a contemporary approach to management that focuses on the use of rigorous quantitative techniques to help managers make maximum use of organizational resources to produce goods and services. In essence, management science theory is a contemporary extension of scientific management. There are many branches of management science, each of which deals with a specific set of concerns:

management science theory
An approach to management that uses rigorous quantitative techniques to help managers make full use of organizational resources.

- *Quantitative management* uses mathematical techniques—such as linear and non-linear programming, modelling, simulation, queuing theory, and chaos theory—to help managers decide, for example, how much inventory to hold at different times of the year, where to build a new factory, and how best to invest an organization's financial capital.

- *Operations management (or operations research)* provides managers with a set of techniques that they can use to analyze any aspect of an organization's production system to increase efficiency.

- *Total quality management (TQM)* focuses on analyzing an organization's input, conversion, and output activities to increase product quality.[19]

- *Management information systems (MIS)* help managers design information systems that provide information about events occurring inside the organization as well as in its external environment—information that is vital for effective decision making.

All these subfields of management science provide tools and techniques that managers can use to help improve the quality of their decision making and increase efficiency and effectiveness.

Organizational Environment Theory

An important milestone in the history of management thought occurred when researchers went beyond the study of how managers can influence behaviour within organizations to consider how managers control the organization's relationship with its external environment, or **organizational environment**—the set of forces and conditions that operate beyond an organization's boundaries but affect a manager's ability to acquire and use resources. Resources in the organizational environment include the raw materials and skilled people that an organization needs to produce goods and services, as well as the support of groups—such as customers who buy these goods and services—that provide the organization with financial resources. The importance of studying the environment became clear after the development of open-systems theory and contingency theory during the 1960s.

The Open-Systems View

One of the most influential views of how an organization is affected by its external environment was developed by Daniel Katz, Robert Kahn, and James Thompson in the 1960s.[20] These theorists viewed the organization as an **open system**—a system that takes in resources from its external environment and converts or transforms them into goods and services that are then sent back to that environment, where they are bought by customers.

The system is said to be "open" because the organization draws from and interacts with the external environment in order to survive; in other words, the organization is open to its environment. A **closed system**, in contrast, is a self-contained system that is not affected by changes that occur in its external environment. Organizations that operate as closed systems, that ignore the external environment, and that fail to acquire inputs are likely to experience **entropy**, the tendency of a system to dissolve and disintegrate because it loses the ability to control itself.

Researchers using the open-systems view are interested in how the various parts of a system work together to promote efficiency and effectiveness. Systems theorists like to argue that "the parts are more than the sum of the whole"; they mean that an organization performs at a higher level when its departments work together rather than separately. **Synergy**, the performance gains that result when individuals and departments coordinate their actions, is possible only in an organized system. The recent interest in using teams comprising people from different departments reflects systems theorists' interest in designing organizational systems to create synergy and thus increase efficiency and effectiveness.

Contingency Theory

Another milestone in management theory was the development of **contingency theory** in the 1960s by Tom Burns and G.M. Stalker in the United Kingdom and Paul Lawrence and Jay Lorsch in the United States.[21] Recognizing that organizations need to acquire valuable resources, the crucial message of contingency theory is that there is no one best way to organize: The organizational structures and the control systems that managers choose depend on—and are contingent on—the characteristics of the external environment in which the organization operates.

An important characteristic of the external environment that affects an organization's ability to obtain resources is the degree to which the environment is changing. Changes in the organizational environment include: changes in technology, which can lead to the creation of new products (such as compact discs) and result in the disappearance of existing products (such as eight-track tapes); the entry of new

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organizational environment
The set of forces and conditions that operate beyond an organization's boundaries but affect a manager's ability to acquire and use resources.

open system
A system that takes in resources from its external environment and converts them into goods and services that are then sent back to that environment for purchase by customers.

closed system
A system that is self-contained and thus not affected by changes that occur in its external environment.

entropy
The tendency of a system to dissolve and disintegrate because it loses the ability to control itself.

synergy
Performance gains that result when individuals and departments coordinate their actions.

contingency theory
The idea that managers' choice of organizational structures and control systems depends on—and is contingent on—the characteristics of the external environment in which the organization operates.

competitors (such as foreign organizations that compete for available resources); and unstable economic conditions. In general, the more quickly the organizational environment is changing, the greater are the problems associated with gaining access to resources and the greater is the manager's need to find ways to coordinate the activities of people in different departments in order to respond to the environment quickly and effectively.

The basic idea behind contingency theory—that there is no one best way to design or lead an organization—has been incorporated into other areas of management theory, including leadership theories.

Key Terms

administrative management, p. 435

authority, p. 436

behavioural management, p. 438

bureaucracy, p. 436

closed system, p. 440

contingency theory, p. 440

entropy, p. 440

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