

4

SIGNIFICANT PRINCIPLES

It is very difficult to have an all encompassing definition of management which covers all its characteristics. Management is a vital function concerned with all aspects of the working of an enterprise. Management has been defined in a number of ways. Prof. Haimann has interpreted the term “management” in three distinct aspects:

- (a) Management as a field of study or a subject.
- (b) Management as a team or class of people or a noun.
- (c) Management as a process.

Management as a field of study or a subject refers to the principles and practices of management. It entails all the principles and practices as a knowledge and its application in its entirety. This approach, however, fails to give the correct nature of management. Management as a team or class of people refers to the group of managerial personnel of an enterprise functioning in their supervisory capacity. However, who are the managers and what are the activities that should be treated as managerial, are hard to identify, unless some

yardsticks are prescribed. This becomes more difficult specially when those performing managerial activities have different titles in one organisation as well as in different organisations.

Management as a process refers to different processes or steps of management—right from planning to organising, staffing, supervising and controlling. Management in this context has been defined as the process of getting things done by and in cooperation with others. There are many definitions of management. They emphasize one or the other important aspect of management activity. According to Koontz, “Management is the art of getting things done with people and through informally organised groups. It is the art of creating an environment in which people can perform as individuals and yet cooperate towards attainment of group goals. It is the art of removing blocks for such a performance, a way of optimising efficiency in reaching goals.” According to Dalton E. McFarland, “Management is the fundamental integrating and operating mechanism underlying organised effort.”

According to George R. Terry, “Management is a distinct process ... performed to determine and accomplish stated objectives by the use of human beings and other resources.”

According to Harold Koontz and Cyrill O’Donnel, “Management is the creation and maintenance of an internal environment in an enterprise where individuals, working together in groups can perform efficiently and effectively towards the attainment of group goals.” According to W. Jack Duncan, “Management consists of all organisational activities that involve goal formation and accomplishment, performance, appraisal and the development of an operating philosophy that ensures the organisation’s survival within the social system.”

According to Kimball and Kimball, “Management may be defined as the art of applying the economic principles that underline the control of men and material in the enterprise under consideration.”

According to Brech, "Management may be defined as a social process entailing responsibility for the effective planning and regulation of the operations of an enterprise, such responsibility involves (a) the installation and maintenance of proper procedures to ensure adherence to plans, and (b) the guidance, integration and supervision of the personnel comprising the enterprise and carrying out its operations."

There is no universally acceptable definition of management; so much so that Brech has stated, "Exactly what the term means is not always clear and not always agreed." Common to all above definitions is the connection of management to organisational goals. It evaluates the effectiveness of goals accomplished and devises methods for achieving those tasks which are compatible with the demands of the society within which it operates. The most widely accepted meaning of the term "management" is that management is a process by which responsible persons (e.g., managers or executives) in an organisation get things done through the efforts of other persons in group activities. Before summing it up it is essential to quote the definition of management given by the American Management Association. It reads, "Management is guiding human and physical resources into dynamic organisation units which attain their objectives to the satisfaction of those served and with a high degree of morale and sense of attainment on the part of those rendering services."

DEFINITION AND THEORY

Management is a group activity. Management is to coordinate the actions and reactions of individuals. Management has some defined goals before it to achieve. Goals are set considering the actions and reactions of individuals.

Management also evaluates the effectiveness of goal accomplishments.

Managers are expected to use the resources available to

them as efficiently as possible to guide the survival of an organisation in the competitive world. The ability to forecast and adopt to change are also important components of management for organisational survival.

Action is the creed of management. Policies and programmes are implemented by management.

PRINCIPAL CHARACTERS

Following are certain features which illustrate the wide breadth of scope of management.

Management is a universal process which is applied in all types of institutions—social, religious, commercial, political, etc. Every organisation and institution whose object is to achieve its objectives and goals through group efforts, needs planning, coordination, direction and control, i.e., management. The essence of management is the integration of human and physical resources in a manner that it leads to effective performance. Managers apply knowledge, experience and principles for getting the results. Management seeks to harmonise the individual goals with organisational goals.

Management is a dynamic function of business organisations. Its functions change from time to time depending upon the circumstances of the business, i.e., changes in economic, social, political, technological and human conditions. Management adjusts itself to the changing atmosphere—making suitable forecasts and changes in the policies.

Management is a social process as it primarily deals with emotional/dynamic and sensitive human beings. The major achievement is to win their confidence and cooperation. Thus, making it difficult to precisely define the principles of management. Management principles are constantly influenced by social traditions, customs and regulations.

Managerial ability is distinctly different from technical ability.

Management is the art of getting things done through people. It implies that under given set of constraints or problem boundaries how positive results can emerge, by taking well defined actions.

Management has to deal with heterogeneous resources. Their performance depends upon the proper knowledge and skill of various disciplines. Management has grown as a body of discipline taking the help of so many social sciences like— Anthropology, Sociology, Psychology’ etc. Due to this, management is also known as a "Behavioural Science."

Management is a science because it has an organised body of knowledge which is based on facts and certain universal truths. It is an art because certain skills, essential for good management, are unique to individuals. So many times managers act on instinct. It is also about interactions which cannot be laid down in black and white.

Managerial ability is an intangible force; it is a social skill which cannot be seen with the eyes but it is evidenced by the quality and level of an organisation.

VARIOUS DIMENSIONS

All the managers have to perform certain functions in an organisation to get the things moving. But there is never complete agreement among experts on what functions should be included in the management process. However, Koontz and O'Donnell's classification of management functions is best of all and is widely accepted. According to them, "functions of management are planning, organising, staffing, directing and controlling."

Planning is an indispensable function of management determining the objectives to be achieved and the course of action to be followed to achieve them. It is a mental process requiring the use of intellectual faculties, foresight and sound judgement. Planning virtually pervades the entire gamut of managerial activity. This function is performed by managers at

all levels. The managers at the top level in an organisation devote more time on planning as compared to the managers at the lower levels. Planning includes:

- (i) determination of objectives,
- (ii) forecasting,
- (iii) search of alternative courses of action and their evaluation,
- (iv) drawing policies and procedures, and
- (v) budgeting.

Planning is a prerequisite of doing anything. Planning is a pervasive, continuous and never ending activity. It leads to more effective and faster achievements in any organisation and enhances the ability of the organisation to adopt to future eventualities.

Organising involves identification and grouping the activities to be performed and dividing them among the individuals and creating authority and responsibility relationships among them. The process of organising involves the following steps:

- (i) Determination of objectives;
- (ii) Division of activities;
- (iii) Fitting individuals to specific jobs; and
- (iv) Developing relationship in terms of authorities and responsibilities.

Organising can be viewed as a bridge connecting the conceptual ideas developed in creating and planning to the specific means for accomplishing these ideas. Organising contributes to the efficiency of an organisation.

The staffing function has assumed great importance these days because of rapid advancement of technology, increasing size of organisations and complicated behaviour of human beings. The managerial function of staffing includes manning the organisational structure through proper and effective selection

process, appraisal and the development of personnel to fill the roles designed into the structure.

The staffing function involves:

- (i) Proper recruitment and selection of the people;
- (ii) Fixing remuneration;
- (iii) Training and developing selected people to discharge organisation a function; and
- (iv) Appraisal of personnel.

Every manager is continuously engaged in performing the staffing function. Although some elementary functions like keeping inventory, of personnel, advertising for jobs, calling candidates etc. are assigned to Personnel Department. The manage: performs the duties of job analysis, job description, appraisal of performance, etc. In short, the staffing function can be viewed as an all pervasive function of management

Directing is that part of the management process which actuates the organisation members to work efficiently and effectively for the attainment of organisational objectives. Planning, organising and staffing are merely preparations of the work, the work actually starts when managers start performing the direct functions. Direction is the interpersonnel aspect of management which deals directly with influencing, guiding, supervising and motivating the subordinates for the accomplishment of the pre-determined objectives.

According to Joseph Massie, "Directing concerns the total manner in which a manager influences the actions of subordinates. It is the final action of a manager in getting others to act after all the preparations have been completed." It consists of four subfunctions:

It is the process of passing information and understanding from one person to another. A successful manager should develop an effective

system of communication so that he may issue instructions and receive the reactions of the subordinates and motivate them.

It is the process by which a manager guides and influences the work of his subordinates.

Motivation means inspiring the subordinates to zealously work towards accomplishment and achievement of organisational goods and objectives.

Managers have to personally watch, direct and control the performance of subordinates. In doing this they have to plan the work—give them directions and instructions, guide them and exercise leadership.

Controlling is visualising that actual performance is guided towards expected performance. It is the measurement and appraisal of the activities performed by the subordinates in order to make sure that the objectives and the plans devised to attain them are being accomplished. Controlling involves following:

- (i) fixing appropriate standards,
- (ii) measurement of actual performance,
- (iii) comparing actual and planned performance,
- (iv) finding variances between the two and reasons for the variance, and
- (v) taking corrective actions.

Control keeps a check on other functions for ensuring successful functioning management. The most notable feature is that it is forward-looking. A manager cannot control the past but can avoid mistakes in the future by taking actions in the light of past experiences.

The above functions may give an impression that these sections are independent compartments. Management is a continuous process involving the interaction of all functions and

departments. These functions are being performed simultaneously and repeatedly. The purpose of separating the functions of management is to ensure that sufficient attention will be paid to each of them. The functions of management are universal. A manager has to perform these functions in the organisation, whatever the level of the manager or the objective of the organisation. Some people raise the question which management function is more important than others. The importance of the functions will vary from task to task but they are all important and necessary in accomplishing any organisational goal.

PHYSICAL ASPECTS

The most dependable view regarding the nature of management is that management is science and art, both. Both art and science are not naturally exclusive fields of endeavour but are complementary to each other.

Science is the systematised body of knowledge pertaining to a particular field of enquiry. Such systematised body of knowledge contains, concepts, theories experimentation and principles which are universal and true. According to Chester L. Bernard, "Science explains the phenomenon, the events, the past situations and that their aim is not to produce specific events effects or situations but explanations that we call knowledge. The various concepts and principles of science are developed on the basis of observation and experiments."

Now, let us see whether management can satisfy the tests which we have listed above for science. Management has a systematised body of knowledge pertaining to its field and the various concepts, principles and techniques have been developed through deductive and inductive reasoning. For example, in the area of designing an effective organisation structure, there are a number of principles which serve as guidelines for delegating authority. The unity of command, the consistency of authority

and responsibility are some of the important principles which help to decide proper delegation of authority. In the field of management, some of the important techniques related to budgeting, cost-accounting, planning and control are part of a management theory. These techniques are there to help the manager to plan and execute the activities and goods effectively.

But management is not so exact a science as other physical sciences like Physics, Chemistry, etc. The main reason is that it deals with the people and it is very difficult to predict their behaviour accurately. Since it is a social process, it falls in the area of Social Sciences.

Management is a behavioural science. Its theories and principles are situation bound because of which their applicability does not necessarily have the same results every time. That is why Ernest Dale has called management a “soft science” which does not have hard and fast rules.

Art is about bringing out the desired results through the application of skill. It is concerned with the application of knowledge and skills.

Management is one of the most creative art forms, as it requires a vast knowledge and certain innovating, initiating, implementing and integrating skills in relation to goals, resources, techniques and results. As an art, management calls for a corpus of abilities, intuition and judgement and a continuous practice of management theories and principles.

Management is an art because:

- (i) The process of management does involve the use of know-how and skills.
- (ii) The process of management is directed towards the accomplishment of concrete results.
- (iii) Like any other art, management is creative in the sense that management creates new situations needed for further improvement.

- (iv) Management is personalised—every man in this profession has his individual approach and technique in solving problems. The success of managerial task is related with personality of the men, character and knowledge.

Thus, we can conclude that management is both a science and an art.

VARIOUS PHASES

Management is a manifold activity. It is carried on at different levels of the organisational structure. The stages in the organisation where a particular type of function starts is called a level of management. Thus, the term “Levels of Management” refers to a line of demarcation between various managerial positions in an organisation. The number of managers depends upon the size of the business and work-force. There is a limit to the number of subordinates a person can supervise. The number of levels of management increases when the size of the business and work-force increases. Levels of management are increased so as to achieve effective supervision.

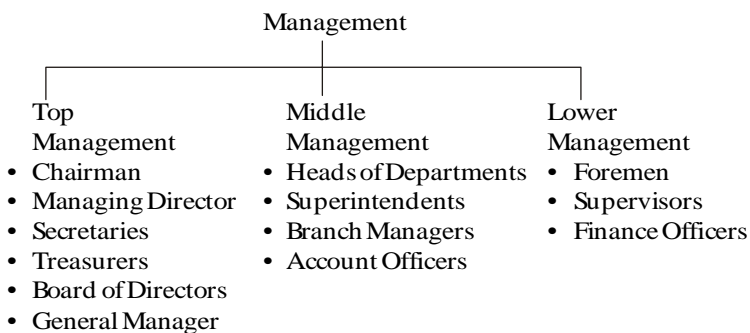
In most of the organisations, there are generally three levels of management: (i) Top management. (ii) Middle management. (iii) Lower management.

In any organisation top management is the ultimate source of authority. It establishes goals and policies for the enterprise and devotes more time on the planning and coordinating functions. It approves the decisions of the middle level management and includes Board of Directors, Managing Director, General Manager, Secretaries and Treasurers, etc.

It generally consists of heads of functional departments viz., production manager, sales manager, office superintendent, chief cashier, branch managers, etc. They receive orders and instructions from top management and get the things done through lower level management. They are responsible to the

top management for the functioning of their departments. They devote more time on the organisation and motivation functions of management.

It is the lowest level of management and thus has a direct contact with the workers. It includes supervisors, foreman, accounts officers, sales officers, etc. It is directly concerned with the control and performance of the operative employees. Lower level managers guide and direct the workers under the instructions from middle level managers. They devote more time on the supervision of the workers and are responsible for building high morale among workers. The three levels of management may be put as under:



Common Conditions : Management and administration are generally taken to mean as one and the same and are often used interchangeably. But there has been a controversy because of these two terms. There are following three views on the subject of distinction between administration and management:

The Differentiation : Oliver Sheldon was the first person to make a distinction between management and administration. According to him, "Administration is the function in industry concerned with the determination of the corporate policy, the coordination of finance, production and distribution whereas Management is the function concerned with the execution of policy within the limits setup by administration." Thus, administration is formulation of policies and is a determinative

function while management is execution of policies and is an executive function. Florance and Tead also support this, in their view, "Administration involves the overall setting of major objectives determination of policies, identifying of general purposes laying down broad programmes, major objectives etc. while management is the active direction of human efforts with a view to getting this done."

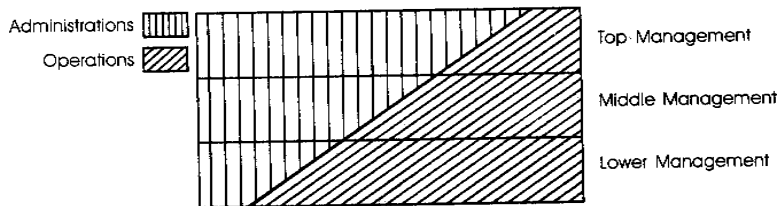
Common Items : According to Kimball and Kimball "Management is a generic term with wide functions including administration, which is a narrow function." According to Brech, "Management is a social process entailing responsibility for the effective and economical planning and regulation of the operation of an enterprise in fulfilment of a given purpose of task." "Administration is that part of management which is concerned with the installation and carrying out of the procedures by which the programme is laid down and communicated, and the progress of activities is regulated and checked against plans." Thus, first and second viewpoints are exactly opposite to one another.

Unrecognisable : Other authors like Fayol, Newman Williams, do not make any distinction between these two terms. This viewpoint is gaining popularity these days. It is very difficult to clearly demarcate managerial and administrative functions, as the same set of persons perform both these functions. We do not have two sets of people to discharge administrative and operative management functions. Therefore, there is no difference between the two.

In order to avoid any controversy, we can classify management into: (a) administrative management, and (b) operative management. Administrative management is primarily concerned with laying down policies and determining goals whereas operative management is concerned with implementation of the policies for the achievement of goals. But both these functions are performed by the same set of people, according to Spriegal and Lansburgh, "At the higher levels, the

managerial authority is concerned more with administrative management and less with operations.” As shown in Figure below every manager spends a part of his time in performing administrative management functions and the remaining time on operative management functions.

Thus, administration and management are considered to be one and the same.



Resolution of management vs. administration

The emerging trend of separation of management from ownership and increasing professionalisation of management has led to a debate as to whether management is a profession like doctors, advocates, nurses, accountants, etc. Profession can be defined as an occupation for which specialised skills are required, it is not only meant for self-satisfaction but are used for the larger interests of the society, and the success of these skills is not measured in terms of money alone. According to McFarland, “A profession is a source of livelihood, based on substantial body of knowledge and its formed acquisition the test of success in the service is not the profit earned thereon.” A profession has following five characteristics.

There exists a rapid, expanding body of knowledge underlying the management field. For being a successful manager one has to be alert and study this set of knowledge. A systematic body of knowledge that can be used for professional development has evolved during the last six decades. However, the concept of management is still evolving and new principles are being established continuously.

An individual can enter in a profession only after possessing

certain knowledge and skills through formal training. To impart management education there are many formal institutes in the world. In India, there are various institutions and universities running management programmes.

A representative body of professional is needed to regulate and develop the professional activities. Many countries have Management Associations. In India too there is an All India Management Association. These associations manage and coordinate researches and interests of management profession in management areas. For every profession, some ethical standards are provided and every professional individual is expected to maintain conformity with these standard. There is a lack of universally accepted formal ethical standards, their duty is to protect the interests of all parties—owners, suppliers, consumers, government, etc. In this respect, they are expected to maintain code of conduct.

Professionals in management require money to satisfy their needs. However, their success is not measured only in terms of money which they receive by way of rendering their services but by the contribution they make for the welfare of the society. The management's contribution by way of integrating various resources into productive units is very important for the stability of society.

From the above discussion, it is clear that management has some professional characteristics fully, while others exist partially. Management is a comparatively new field of knowledge and has been developed as a result of rapid industrialisation. It is increasingly being treated as a profession because of the need for acquiring the management skills to solve the complex problems of the organisations. Professional status for management should not be viewed as a matter of definition. The basic elements of professionalisation are important, irrespective of whether they lead to professional status. So we can conclude that management is a profession.

The professionalism implies that specialised knowledge will come into existence. Institutions will grow to provide the required specialised knowledge and skill. Consultancy institutions will come into limelight to look into the needs of the profession and also to make the profession serviceable. Such organisation try to coordinate the activities of sister organisations in order to derive advantage of the existence of such organisations.

The most important implication of professionalism is the preparation of a code of conduct. This sets morals and ethics for the professionals. It helps in the ethical approach to the problems.

Management, after being professionalised, has become socially responsible. This has helped the management acquire a new role in the business world. Management as a profession plays a role of creator in an economy, particularly when it is in the developing stage.

In old times, scale of production was small and there was no economic life. Hence, the role of management was not well-established. But with the advent of industrial revolution, scale of production became very large and there arose various types of complexities in the field of production, distribution and exchange.

There was an urgent and immediate need for effective coordination of human and non-human resources. It required management. The increasing size of business organisations, complex problems of business and advancement of modern technology has resulted in the recognition of management as an important factor of production. Management has achieved an importance today.

Management has the integrating force in all kinds of organised activity. It is not unique to business organisations but common to all kinds of social organisations. Although, organisations other than business do not speak of management, they all need management. It is a specific organ for all kinds of organisations,

since they all need to utilise their limited resources most efficiently and effectively for the achievement of their purpose. It is the most vital force in the successful performance of all kinds of organised social activities. However, management has been associated more with business and economic activities. Management has made it possible to organise economic activity in giant organisations like the Steel Authority of India, Life Insurance Corporation, Air-India, Indian Railways, etc.

The factors, leading to the increase in the importance of management are listed below:

- (i) To ensure effective utilisation of the available resources.
- (ii) To solve the increasing complex problems of business.
- (iii) To cope with the research and development.
- (iv) To handle large-scale operations.
- (v) To coordinate between different levels of work performance in enterprise.
- (vi) To meet the problems of competition.
- (vii) To inter-link traditional and modern technique of work completion.
- (viii) To help the nation in social welfare.

All policy decisions are taken by management. Management keeps itself in touch with the current environment and supplies foresight to the enterprise. It helps in forecasting what is going to happen in the future, which will influence the working of the enterprise. The role of management has increased because of the separation of ownership from management regarding corporate (company) enterprise and growth of capital intensive techniques of production. An efficient management can lead a business towards growth and propensity.

It provides leadership to the business and helps in achieving its objectives. Management is concerned with planning, executing and reviewing. In short, management involves scientific thinking,

deciding, thoughtful organisation, direction and control to ensure better results. Efficient management is equally important at the national level. According to Peter Drucker, "Management is the crucial factor in economic and social development." The development of accounting is virtually dependent upon the quality of management. A capital investment and import of technical know-how and equipment will not succeed if these resources are managed properly. Thus, efficient management is a key to the growth of the economy of any country.

In this chapter we have presented various definitions, concepts, functions, component and levels of management. It also highlighted management as a profession. The important functions of management, viz., planning, organising, staffing, directing and controlling were discussed at great length. The view that management is both science and art was expounded. The various levels of management, such as Top, middle and lower were defined. The distinction between administration and management was presented with concluding remarks that management consists of both administrative and operative aspects.

ADMINISTRATIVE SYSTEM

Taylor and the early systematic management theorists confronted a plethora of detail. In the machine tool industry of the 1890s especially, increasing complexity and specialization required more managers, and thus more coordination among them to coordinate the firm as a whole. High-volume production made difficulties still more extreme. The problems were overwhelmingly managerial, rather than technical. What was needed was some systematic procedure for coordinating and monitoring, and, not inconsequentially, for abstracting the task of management from the details of job performance.

Until an appropriate level of abstraction was defined, the problems of coordination were insoluble. In both the performance

and the management of routine jobs, some means of transcending the particular individual was necessary. Until this means was found, industrial complexity was limited to what the individual could comprehend, remember, organize, perform, or control.

The possibilities for organizational synergy were thereby similarly limited. Organizations needed methods of impounding and retaining the insights of individuals. Some means of replicating acceptable procedures persistently, predictably, and independently of the original discoverers, was necessary.

CONTROLLED ADMINISTRATION

Systematic management techniques, from Taylor's excruciatingly detailed instructions on oiling a machine to Church's accounting systems, were the means to these ends. Taylor sought explicitly to record and codify in order to render the organization less dependent on the memory, good will, or physical presence of any particular employee. Equally, he sought to avoid the necessity of repeated rediscovery of efficient procedures by each worker. Just such a codification of concrete details of task performance is a reasonable description of one sort of "organizational memory." Without resorting to reification, it is apparent that such a mechanism retains the knowledge of how to perform the task.

Perhaps more important still, such a recording makes the knowledge accessible to others beyond the original discoverer, eliminating the need to rediscover. Since the task is specified the recording permits supervision of the task to proceed on a different level, by exceptions. Instructions create expectations and demands: this is the way to do it, not some other way; do this, don't spend time experimenting to possibly, fortuitously discover the proper way. Within limits, written instructions create a shared frame of reference and a shared experience—albeit vicarious, for others than the discoverer—of a proper way to accomplish the task.

Once the task itself is specified and can be replicated, managerial attention can shift to a different level of abstraction, treating this particular task and its performance as “given.” On one level, this kind of simple replicability is evidence of organizational learning. Successful actions or behaviours can be specified and thus reiterated over time.

This is the lower-level, routine learning that March and Simon or Cyert and March were willing to admit: a stored repertoire of successful sequences of action. By permitting the organization to transcend the particular discoverer of the knowledge, and by making it accessible to others, such programmes allow for the synergy (on a rudimentary level at least) are characteristic of organizations.

The programme or instructions specify required actions and, implicitly, the means of their coordination. Managerial attention can be freed from the need to coordinate here, and can look instead to coordinating among such sets of specified behaviours. These lower-level learning programmes are so commonplace and pervasive that we frequently dismiss them as trivial, or ignore them altogether. However, they are the essential foundation for the development of higher-level systems.

The lower-level programmes create a means of synergy, the shared frame of reference which preserves knowledge. They also create a way of retaining and communicating learning beyond the individual who discovers it, making possible further refinement and more inclusive coordination. And, not incidentally, they substantially improve performance by eliminating the need to rediscover every time what has been learned before. This was Taylor’s insight.

Taylor’s contributions went beyond the simple recording of procedure, however. In his distinction between planning and performance, he built upon the codification of routine tasks and for the first time made possible the large-scale coordination of

details—planning and policy-level thinking, above and beyond the details of the task itself. The initial steps are critical; without them, the manager and the organization remain in undated in details of the task, and abstraction is impossible for sheer want of information-processing capacity. This would not obscure the qualitative difference between the details of the task, and a focus on coordination of them.

Taylor tended to focus on the coordination of the tasks of a single workman, or on the relationship among tasks in a single work-flow at most. Nevertheless, instructions on how to coordinate such a group of activities is a step higher, a logical level above the elements themselves. To confuse the two is an error in logical typing, equivalent to confusing the map with the territory, the name with the thing, the receipt with the meal. Thus the “specialty” of records clerks who generate instructions is not the task itself, but a body of knowledge about many tasks. The frame of reference of the clerk transcends the frame of reference of any individual worker whose task is specified. Conceptually, this represents a clear shift to a level of logical abstraction superior to that of the task itself—that is, a more inclusive level.

The clerk’s perspective includes many tasks, and the technology for codifying them. In generating new sets of instructions, for instance, such questions as, “Does the sequence of actions performed by this worker mesh smoothly with others’ actions?” and “Should Worker A notify Worker C when A’s task is complete?” illustrate the logical distinction between the level of the task, and thinking about its specification. Another way of drawing the distinction is to note that the clerk’s task includes specifying boundary-spanning communications or interfaces which relate self-contained segments; any individual worker need be concerned only with activities within the specification.

The division of labor, specialization, and subdivision of the

task encouraging detailed knowledge of a portion of the task in the individual worker, necessarily splits off coordination from performance. This is differentiation by another name. The reintegration necessary for efficient performance is provided by a higher frame of reference, that is, one inclusive enough to contain all the specialized elements.

Taylor's methodology provided the means of implementing the specialized knowledge he dissevered, of coordinating it, monitoring it, and assuring that performance was adequate. By specifying the details, management could insure replication of the best practices on the shop floor. By setting up roles and standards, management could be abstracted because the knowledge embodied in standards was accessible to the worker. Since the knowledge was accessible, its ordinary application could be delegated and management could concentrate on exceptions.

The procedures and rules for relating various tasks—rudimentary codification of the management task—insured that here too, certain patterns were replicated, independent of their fortuitous rediscovery by each individual. It was no longer necessary to rediscover a right way; one had already been specified.

This left management free to concentrate on exceptions, coordination, and new tasks. The details of management were specified; some were delegated (to functional foremen; although Taylor's system was never fully implemented successfully many of the same tasks are separated into different staff jobs today); and a shared frame of reference was specified, guiding performance, perception and interpretation.

Church's further development of thinking about the management task generalized the insights that Taylor had applied to technical details. The accounting methods Church developed provided the means for abstracting management by making possible the description and monitoring of performance in diverse

areas or products. The focus is upon how the details of the management task itself fit together; and, on a lower level, how the details of the managed task fit together.

The “five great organic functions” of managerial work that Church identified are abstractions about the task of management, approaches to organizing the performance of tasks.

General Motors and Du Pont offer higher-level analogues to the split Taylor proposed between the performance of a task and its planning and coordination. While there are clearly limits to the usefulness of the distinction, nevertheless it is critical to the management of complex activities, especially when they are combined (as in the modern complex organization of diverse task specialities, products, or areas).

Taylor’s schematic systematized task details, focused management on coordination, and, by abstraction, freed up management to undertake the overarching tasks of planning and policy. In an analogous fashion, the extensive and sophisticated control systems of General Motors and Du Pont made feasible decentralized management in a complex organization.

They thereby also made possible for the first time concerted coordination (that is synergy) and true policy for such organizations. So long as management is overwhelmed by the details of task performance, planning and policy will not occur. March and Simon describe this phenomenon, a Gresham’s Law of Planning: routine activities drive out long-range, non-routine activities. In this context, the absence of long-range planning “that makes a difference” is comprehensible, and with it the purely reactive stance of organizations Cyert and March found.

That is, until what is routine is systematized and performance replicable without extensive management attention, management attention will necessarily focus on the routine. By the time of Du Pont and General Motors, the specification of task had

moved from codifying workers' routine activities to codifying managers' routine activities.

It is through administrative systems that planning and policy are made possible, because the systems capture knowledge about the task, and, at the General Motors and Du Pont Levels, about the logically more inclusive matter of coordinating tasks.

The return on assets concepts of Donaldson Brown, the forecasting methods, the systematic relation of demand, production, inventories, and appropriations all represent a methodology for managing, a directed way of thinking that translates a level upwards in a hierarchy of logic and inclusiveness from the single-factory, single-firm management concepts of Taylor and Church. Moreover, any manager who has been exposed to these methods has been trained in an administrative mechanism that explicitly guides perceptions and interpretation.

In this, as in Taylor's concrete specifications of a machinist's task, a shared frame of reference is created. The firm is no longer dependent upon the rediscovery of these relations, every time, by each new manager. Instead, the knowledge of Donaldson Brown, Pierre du Pont, John Raskob, or Alfred P. Sloan, Jr., is codified and preserved. It is thereby made accessible to others, for both replication and further development.

These administrative systems create a shared pattern of thought, with focus explicitly shifted to the pattern, rather than the specific content. They thus condition the analyses and decision premises of the actors. Specified kinds of thinking are identified. By creating a shared frame of reference, with explicitly directed perceptions—"The relation of finished goods inventory to customer demand should not exceed thus-and-such a ratio when scheduling production", for instance—such systems generalize knowledge far beyond its original discoverer or discovery situation. It should be emphasized here that the kind of knowledge generalized is qualitatively, logically different from

the kind of knowledge codified in Taylor's machine-oiling instructions. The focus is on paths or patterns of thought and kinds of thinking, rather than on specific actions.

These systems, in generalizing the insights they codify, also make them accessible to change and refinement. It is no longer necessary for the procedures of a firm to be the work of a single mind. The systems, as Sloan's comments make clear, measure results, leaving the details of task performance to others. Because management need pay attention only to these monitors, patterns among them and over time assume more importance. True management by exception, and true policy direction are now possible, solely because management is no longer wholly immersed in the details of the task itself.

Having been guided into replicating the patterns of thought for connecting, say, production and inventory, it is now possible to add the refinements of forecasting demand, and of revising the forecasts or adjusting them in the light of general economic conditions and actual demand.

Thus the original relationship, once comprehended, can be changed and shaped, transcended and surpassed. The development of flexible, rather than rote, responses to changing situations grew out of the new attention to the coordinative task made possible only because abstraction focused attention on anomalies in patterns. The systemic relationship among quantitative measures of performance and environmental indicators—substantially abstracted, be it noted, from details of task performance—is what permits control at this level.

Taylor was concerned primarily with individual tasks, or with a single work flow; Church, with the ongoing business of the firm as a whole, and with the relationships of individuals' tasks within that framework, with the coordination of the factory. Du Pont and General Mortors are still more general, abstract and logically inclusive, in that their methods of management relate diverse products typically produced by many factories. For Du

Pont, applying accounting methods meant adapting the practices of the steel and traction industries to explosives manufacture, and later to chemicals.

For General Motors, the task was adequately systematizing related but distinct products. More importantly for both firms the task was generalizing patterns of thought that would permit decentralization. In both cases, the clear distinction between details of task performance and the coordination of those details, on the one hand, and the overarching coordinative task of relating many tasks (products, divisions, factories) was institutionalized not just in organization structure, but in the administrative systems that controlled information flow and guided critical decision making and analysis.

The administrative systems capture the knowledge of how to think about this diversity, how to relate information about it (clearly an abstraction from the things themselves), how to coordinate and manage effectively. The shared frame of reference that is created is more inclusive, and therefore logically superior, to single-firm, single-factory frames of reference. By focusing attention on the abstractions, the systems encourage both replication of established patterns of thought—as relating inventory and production, for instance—and their refinement, keying in economic conditions or actual demand.

The chief accomplishment at Du Pont and General Motors was in systematizing the ongoing business of the large, complex, multidivisional firm. At Texas Instruments, the main task was (and is) of an altogether different nature. The highly changeful environment of modern electronics requires a new set of administrative systems designed to decentralize not only the performance of a routine task in a somewhat turbulent environment, but the decentralization of innovation itself, and with it the fundamental data-gathering of the policy process.

Texas Instruments provides a capsule history of the

development of management theory repeated in brief compass. The PCC System institutionalized and insisted upon a fundamental balance in the ongoing business.

This might be called the basic task of the firm, systematized in ways that Church would find familiar. Coordinated management of the task required adequate controls, proper attention to the essential elements of product and customer and to the fit between them. With the number of different products and markets, this brought TI to the level of General Motors and Du Pont in the evolution of its management systems.

The OST System is qualitatively different, and constitutes a further distinct logical shift. It is concerned with a higher logical level. Rather than coordinating multiple routine tasks, the OST is focused on generating new tasks which may eventually themselves become routing. Equally as important, it is concerned with generalizing a shared frame of reference, a means of acquiring new knowledge. As a system, the OST generalizes a procedure for acquiring the requisite new knowledge, creating a shared pattern of thought *regarding innovation* in much the same way that Du Pont or General Motors created shared frames of reference about ongoing business.

The OST specifies how to proceed, monitor, and evaluate. In so doing, the OST makes it possible for Texas Instruments to acquire not only new products, but new paradigms or identities. Thus TI is not just a geophysical exploration company, but also a military instruments supplier; not just a geophysics and military instruments company, but also an electronics firm, and so on. Recent forays into consumer goods (calculators and watches) are indicative of a major capacity for change.

Hierarchical Learning : In *Steps to an Ecology of Mind*, Gregory Bateson notes that learning, as a communication process, must be subject to the laws of cybernetics. He proceeds to make use of Russell's Theory of Logical Types in a behavioural science context. Thus the concepts of hierarchy, distinctions

between logical classes or types, and their importance in guiding analysis suggest new ways of looking at learning phenomena. In particular, accurate class distinctions are essential for a meaningful discussion of learning.

Bateson suggests that there are different types of learning, which may be arranged in a developmental hierarchy of progressively more inclusive frames of reference with systematic relationships between levels. Such a hierarchy highlights important distinctions among the administrative systems described above, retaining awareness of their similarities as shared frames of reference accessible to others. Such a hierarchy illuminates these administrative systems as varieties of codified learning.

Taking Bateson a step closer to organizations, Fenwick defines a hierarchy of learning activities in an organization without, however, defining what “knowledge” or “learning” might be in an extra-individual context. Recasting these concepts in the light of the kinds of distinctions necessary to define organizational learning, we can take into account accessibility to others, preservation of knowledge, and a shared frame of reference. Thus we can:

1. Record the specifics of basic tasks;
2. Record the specifics of new tasks, and routinize them when they recur;
3. Generate approaches to analyzing and recording new tasks;
4. Extract the general principles of tasks, going beyond simple replication to efficiency, and possibly to generalized application of the new principles and efficiencies;
5. Develop programmes for approaching new task areas, different from what has been routinized;
6. Evolve training programmes to teach new approaches;

7. Shape or change the organization's mission or paradigm;
and
8. Develop approaches for repeated or ongoing paradigm
change.

What is the utility of defining so exhaustive a hierarchy? The distinctions facilitate a more precise discussion of organizational learning (as opposed to individual learning), and of organizational learning (as opposed to "mere adaptation"). Each level distinguishes a more far-reaching and thoroughgoing kind of change, with wider impact and longer-range consequences. Finally, this is a developmental sequence. Later levels rest upon the conceptual foundation of earlier levels, as the historical context provided by early chapters emphasizes. Until the managerial technology of Taylor and Church had been developed, the coordination sought by Du Pont and General Motors was impossible.

As Bateson points out, the Theory of Logical Types implies that in such a hierarchy each level constitutes a "meta-communication," that is, a communication "about" the next lower level and inclusive of all elements in it. This is particularly important in the organizational context, where the epistemology of moving from "subjective knowledge" to "objective knowledge"—the hinge between individual and organizational knowledge—turns upon just such a communication phenomenon.

A shared frame of reference, relating lower-level elements and guiding their interpretation in order that similar stimuli result in similar results, is dependent in the organizational setting, upon some objective or shared knowledge. That is, it is dependent upon true communication, the sharing of a common frame of reference. This obviously goes beyond simple exchange of noise to shared understanding.

The meta-communication, in other words, provides a common frame of reference within which a common understanding can be expected. This may, particularly in the

complex organization, be complicated by diversity of interest or speciality, or by organization size or geographic dispersion, for instance. Organizational learning, despite these complications, must be a communication phenomenon. Only through communication does individual insight become accessible to others, and thereby transcend its discoverer, making possible synergy.

A hierarchy of types such as the one suggested provides a means of focusing attention on distinctions between levels, or, in the case of organizations, between systems. What matters is not that there are eight levels here, rather than the three individual-learning levels Bateson defines : "What is important is the developmental nature of the sequence, and the assistance that these distinctions provide, helping to distinguish definitively between rote response in an organizational setting (even a complex rote response) and something more sophisticated.

More important still, in delineating the distinction, the hierarchy suggests implicitly the criteria by which "learning" in organizations might be judged, the vocabulary with which such phenomena might be discussed, and the likely direction for systems evolution". On this basis, the already-established data base (Taylor, Church, Du Pont and General Motors, and Texas Instruments) shall be used to make the concept of organizational learning more clear.

Hierarchical Applicability : The lower reaches of the hierarchy set out here concern the areas of Taylor's work. While learning to perform any task is learning to perform a "new" task for the first time, the distinction gains importance in an organizational setting. Thus a basic task may be defined as one for which a programme already exists. This is the kind of "knowledge" of "learning" that Cyert and March are willing to countenance in organizations.

Taylor's contributions include both specification of particular

knowledge (how to oil a machine) and ways to learn new tasks (ways for the organization to record and thereby retain new knowledge, fitting it into its system). The ideas of time and motion study, of noting elemental movements and aggregating them, of adequate description constitute a frame of reference, accessible to others, which specifies how to acquire and preserve new knowledge and expedite its transmission to others.

It is important to underline again the difference between individual and organizational learning. Clearly an individual can approach a task in a variety of ways. What Taylor has outlined is a way to record and transmit organized individual perceptions, making them both accessible to others and independent of the original observer. It is via the specified, shared frame of reference Taylor designates that these perceptions are removed from the subjective to the objective world.

Knowledge so recorded and codified is no longer the preserve of the individual. And anyone following Taylor's procedures has gone through a series of guided observations whose recorded output is just such an "objective" record, comprehensible to others trained in the method. Hence the organization is no longer dependent wholly on serendipity or individual talent to create an approach to acquiring new knowledge; one has been specified. These rules provided a limited example of rules for learning. Taylor's metal-cutting experiments and Church's "organic functions" as well are logically superior, because they are more inclusive than the simple recording of observations.

The overarching framework is a set of guides for interpretation and for relating many specific tasks. Their focus is extracting general principles and attaining efficiencies. General Motors and Du Pont are to be considered here too, as specifying general principles (abstractions) and noting efficient relationships among elements. Only through abstraction is more general coordination possible. Only through a shared frame of reference, generalized beyond the original discoverer, is such coordination

feasible; and with it, something that can meaningfully be described as “organizational” learning.

The upper reaches of this hierarchy, beyond level three, concern just the types of “learning rules” that Cyert and March exclude from their consideration. Bateson’s much less detailed hierarchy was intended for discussions of individual learning; but the same distinctions—with some adaptation to take into account the need for communication and extra-individual accessibility—are useful for a discussion of organizational learning.

By considering the hierarchy in its logical sense, the problem of “structure” versus “process” becomes clearer, for example. For any level, the given level is “process,” subject to change according to the fixed rules specified by levels above. The levels above are, therefore, “structure,” and are the “learning rules” that Cyert and March exclude.

The advantage of such a hierarchy is that it permits and encourages a richer view of the learning phenomena, and thus provides a more powerful model for considering them. The levels provide ranges of inclusiveness within which to assess the impact or pervasiveness of change. We can choose temporarily to see a certain level as structure, without wholly ignoring the possibility of change there, or in higher levels still, over a longer time frame.

Similarly, higher levels correspond to corporate goals; shared frames of reference of far-reaching consequence, changeable only with major effort and over extensive time-horizons. Indeed, such flexibility would seem critical in dealing with learning, which must be a change phenomenon, longitudinal in its development.

Thus, while the “learning rules” may change only slowly over time, they are, nonetheless, only relatively fixed. The matter of organization or patterning or arrangement is critical here in specifying rules and their application. The higher levels of the

hierarchy are changeable, given the proper focus and time span. They are not excluded nor seen as wholly fixed. It is this distinction that allows a meaningful discussion of morphogenesis, for “change of shape” or re-structuring must also be a long-term developmental phenomenon.

Similarly too, in the largest sense, change of mission or paradigm is change of “shape,” and can be explicitly included here. Such changes as these require an even longer time horizon and an even more inclusive frame of reference. Buckley’s question recurs: “The basic problem is the same: how do interacting personalities and groups define, assess, interpret, and act on the situation?” In light of the foregoing discussion, the question can now be answered, in part at least, by means of the shared frames of reference created by administrative systems and the ‘learning rules’ they impound. It matters little that the initial insight was an individual’s; the codification and communication of that insight, and its translation into a shared frame of reference transcend this origin by communicating the knowledge and preserving it.

Taylor and Church, in providing methods for systematizing or routinizing ongoing business, illustrate level two: routinizing already-learned procedures so that success in what was once a “new” task can be replicated. Replicability, predictability, and thus increased control over the myriad details of concrete task performance were central to one aspect of the work of the systematic management thinkers.

Another aspect, that of efficiency and general principles (clearly visible in the writings of both Taylor and Church) is of a higher logical level. The distinction is important, because it determines the criteria on which the procedure is to be judged. Simple replication might well be fortuitous; it certainly smacks of the Black Box with wired-in connections. It is not evidence of “learning” in any meaningful sense. Generating approaches to new tasks is different. A format for approaching new tasks

by making possible the continued acquisition of new knowledge repeats a process, rather than its content.

It generalizes principles or relationships among elements, guiding thinking. This goes well beyond replication of content. Extracting general principles and generalizing efficiency methods would seem clear evidence of learning, rather than mere iteration. Built into a system in Taylor's work-simplification methods, or Church's management systems, they would be evidence of organizational learning, because they would be accessible far beyond the discoverer. Similarly, the Du Pont and General Motors management information systems and the controls upon which they rest generalize and communicate principles and relationships which are applied to the business of the corporation as a whole (including to new products) to gain efficiencies. Thus, for instance, reducing the cash tied up in divisional bank accounts by arranging for the speedy transfer of funds was a general application of the principle of increasing return by increasing turnover of inventories—including "inventories" of cash.