MLISc -02

MANAGEMENT OF INFORMATION SYSTEMS AND CENTRES

Dr B R AMBEDKAR OPEN UNIVERSITY

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COURSE-02: MANAGEMENT OF INFORMATION SYSTEMS AND CENTRES

The course 'Management of Information Systems and Centres' conforms to the syllabus of the Master of Library and Information Science (MLISc) offered by Dr B R Ambedkar Open University. As you have done BLISc you are already familiar with the structure of the programmes, and the course material developed by the open universities. For the sake of convenience, the syllabus is divided into blocks, each of which comprises a number of units. Each Unit generally covers a specific area of the subject. The Units are prepared by specialists in accordance with the format so designed to enable you to read and understand them without much difficulty. Each Unit begins with the contents list and a statement of its aims and objectives, followed by an introduction to the content of the Unit. The content of the Units are divided into sub-themes and are numbered up to three levels for easy reference. Each Unit ends up with Let Us Sum Up, Assignments, References, Recommended Books, Assignments and Model Examination Questions.

Management is an age old phenomenon. However, its importance has been greatly dramatised in recent times. Management is considered as a basic and significant process to guide an organisation to achieve its objectives effectively. In recent times the Management Science has grown and developed into a complex and interdisciplinary field with contributions from a variety of disciplines such as psychology, behavioural sciences, operations research and systems theory, statistics, economics and technology. This complexity has given rise to different approaches to the study of management science.

Libraries and Information Centres (LICs) are also organisations, to which the principles and practices of scientific management are equally applicable. The LICs are service-oriented organisations. These have certain characteristic features and functions which differentiate them from other types of organisations, especially from profit-oriented organisations. However, the LICs are slowly changing their basic philosophy and turning towards earning bodies. The librarian or information scientist should possess sound knowledge of managing their documentary, financial and human resources. The course aims to provide theoretical and practical insight into the various problems of managing traditional libraries as well as information systems and centres.

The specific objectives of the Course are

- to introduce the concept of management, its nature and functions; principles of management; schools of management and the application of management concepts to libraries and information centres.
- to provide an overview of the organisational principles and describe the organisational structure of libraries.
- to familiarise the learners with the concept of systems study and its application to LICs.
- to introduce the concept of management information systems (MIS) and to familiarise you with the methods of evaluating information systems and services.

- to discuss the management of documentary, financial and human resources in LICs.

- to provide a general awareness about the management of change and planning for change in the context of changing environment of libraries especially with the introduction of technology.

Your University hopes that the course material will help you to get yourself acquainted with the contents of Course-01: Information, Communication and Society. The Counselling-Cum-Contact sessions provided at your Study Centre will help you to get clarification of your doubts.

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BLOCK - I : THEORIES OF MANAGEMENT

Today's libraries and information centres are increasingly becoming more and more complex. The complexity of these organisations forces us to understand the principles and theories of modern management and put them into practice. The application of these scientific theories will help us to increase the efficiency of LICs. This Block deals with the principles and theories of management.

Unit-1 presents the nature and functions of management in the context of LICs.

Unit-2 deals with diffrent Schools of Management Thought. It enumerates various approaches to these theories and explains briefly about each school. The unit also explains the theories of management propounded by various management scientists, namely, Weber, Taylor, Fayol, Maslow and McGregor.

Unit-3 provides an overview of the Principles of organisation. Organisational structure depicted in organisational charts shows the authority and responsibility relationships between various functions in the organisation by showing who reports to whom. This is directly related to the attainment of the objectives of an organisation.

Unit-4 deals with Leadership and Decision Making. Leadership is an important managerial function. It is a means of influencing the organisational groups in its efforts towards goal setting and goal achievement. The theories of leadership, namely, trait theory, *laissez-faire,* democratic approach, management grid, etc explain how different managers adopt their styles.

Unit-5 provides an overview of planning process with special emphasis on the factors, types and steps involved in the planning of information systems and services. Planning assumes a considerable importance in recent times due to changes in the libraries and information environment. Planning helps in identifying programmes, and prioritisation of resource allocation to achieve specialised goals of LICs.

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UNIT - 1: NATURE AND PURPOSE OF MANAGEMENT

Structure

1.0 AIMS AND OBJECTIVES

The unit aims to introduce the nature, scope and purpose of management in general and the application of management principles and techniques to the systematic management of libraries and information centres, in particular.

After studying this unit you should be able to

- explain the basic concepts in Management
- define management and describe its nature, purpose and scope
- explain that managerial functions are the essence of management process
- distinguish various managerial levels
- discuss the various methods of decision-making and its application to LICs.

1.1 INTRODUCTION

Every organisation or an enterprise is established with certain purposes, goals and objectives. These organisations do have a reason to exist. To enable them to achieve the goals some programmes or methods are identified and implemented. The organisations also need resources such as men, material, money, machinery, information to successfully achieve the goals or objectives. The available resources are used economically and optimally. Skills, knowledge and techniques are necessary to make optimum utilisation of these resources in order to achieve the stated objectives. Management is a combination of all the above, i.e., allocating the resources as inputs in order to achieve the objectives (output) by using managerial functions such as planning, organisation, directing etc. There is also need for plans to make the organisations more effective. The knowledge of skills, management concepts, theories and principles are essential to successfully manage any organisation including the library.

1.2 CONCEPT OF MANAGEMENT

In an organization or an enterprise all kinds of resources are available - material, human and technological. These resources must be exploited in a manner that brings optimum results in terms of input -> output functions.

In bringing out the optimum use of the available resources a catalytic role is played by people who are known as "Managers". The managers are leaders who are responsible to achieve the goals. The knowledge and the skills they use in performing such a role are broadly referred to as the field of Management. These managers are leaders who are responsible for achieving the goals. The knowledge of skills, management concepts, theories and principles are essential for the managers to successfully manage any organisation, including the library. For this purpose, effective coordination of human efforts and non-human resources are brought about with a view to optimize the output of an organization.

Management is the brain of an organization. Management is a process involving planning activity and policy making. It also helps in predicting what is going to happen (current environment and the foresight to the enterprise). Peter Drucker rightly pointed out that management is a multipurpose organisation that manages a business, manages managers and manages worker and work.

Management is the primary force with in the organization which tends to lead towards achievement of goals/organizational objectives. It can also be stated that the objectives are the basis for management.

The management also provides dynamic leadership that combines the productive but passive resources into fruitful outputs. It contributes in obtaining the maximum results with minimum resources.

Management is concerned with planning, execution and reviewing of activities/processes to achieve the stated objectives by coordinating the resources.

The knowledge of management concepts, theories and principles, including the basic skills are necessary to manage any and every organisation including the library. Different organisational settings need different approaches and hence, the features and functions of organisations are also important.

1.3 DEFINITIONS

There are several definitions to the term 'Management'. Different authors tried their best to define the term. Let us examine the definitions of most prominent Management Scientists.

i) Harold Koontz

Harold Koontz defined "Management as the art of getting things done through others and with people in formally organized groups".

Getting things done means achieving the objectives or goals successfully. Further, employees as a mere means to accomplish certain ends. It is also an art of creating an environment in which people can perform as individuals and cooperate towards the attainment of group goals.

ii) James Stoner

According to James Stoner "management is the process of planning, organising, leading and controlling efforts of organisational members and using all other organisational resources to achieve the stated organisational goals"

This definition includes three components, viz, (1) process, (2) resources and (3) objectives. It is doing things systematically by utilizing resources to achieve the stated objectives. It includes a coordination of all the three components.

In this context, process means systematic way of doing things. The functions can be studied in brief.

Planning includes both short range and long range plans. This function mainly involves in thinking of the goals and actions in advance based on some plan and logic. To plan there is a need for knowledge, skills and experience in the concerned field. Of course planning includes forecasting. There is interrelationship between the goals and actions that contribute in achieving the goals.

Organising is mainly coordinating the resources including human and material resources. The integration and coordination of the work will result in effective management. To do all this, there is a need for sound organisational structure.

Leading and directing basically involves stimulating and motivating the personnel. The managers direct or influence the subordinates in order to perform their tasks.

Controlling supports in putting the plans in right direction, wherein it assumes performing towards the goals.

All these processes involve the use of all the resources to enable the organisation to achieve the objectives.

iii) Sherlekar

Sherlekar defined management as a distinct process of allocating inputs in an organisation(human and economic resources) by typical management functions (planning/ organising/ directing/ controlling) for the purpose of achieving the objectives, viz., output of goods and services desired by its customers.

This definition identifies three components, namely, resources (inputs), goods and services (output) and management functions. The inputs/resources have to be used to get the desired output with the help of managerial functions. The desired output, in other words, is achieving the objectives. Management functions play an important role in converting or processing the available inputs into desired output.

iv) Henry Fayol

Henry Fayol who was considered to be the Father of Management School, has defined as follows : to manage is to forecast, to plan, to organize, to command, to coordinate, and to control".

This definition elaborates the components of management, namely, planning, organising, commanding, etc.

v) Peter Drucker

Peter Drucker defined management as a multipurpose organisation that manages a business, manages manager and manages worker and work. The management has to balance and harmonise three major functions of the business.

vi) Koontz and O'Donnel

Koontz and O'Donnel have defined management as the creation and maintenance of internal environment in an enterprise where individuals, working together in groups, can perform efficiently and effectively towards attainment of goals.

1.4 MANAGEMENT - ITS NATURE AND CHARACTERISTICS

The study of management has become more than the means or methods to accomplish the given tasks. In the following sections we will discuss about the nature and characteristics of management.

1.4.1 Nature

The concept of management has broadened in scope with the introduction of new perspectives by different fields of study. An efficient team of managers can lead a business or an organization towards growth and prosperity. Efficient management is equally important for the growth of organisations in particular, which ultimately helps in growth and development of national economy and development of the country.

The management is the directing and controlling agency which requires collective efforts to realise desired goals/objectives.

The term Management is frequently used to denote a group of managerial personnel who perform the functions like planning, organizing, staffing, directing and controlling for the accomplishment of certain goals. People join their hands to attain the goals. If no people, there is no organisation and no success. Left themselves in organisation, it results in chaos. Therfore, it can be constructed that the management is a group activity and the success depends upon the team spirit and coordination, understaning and cooperation among the group members. It motivates the people to use all the resources economically and optimally to achieve the objectives. It supports integration of efforts and provides new ideas and vision to the group. It brings the human and material resources together and provides a direction to the efforts of the group in achieving the goals.

Management is both an art and science as it involves knowledge, skills, techniques and principles. It is considered as science as it has developed certain principles, generalizations based on facts and data. Further, reasoning is used to interpret the data having more or less universal application. It possesses all the characteristics of a recognized profession.

* An organised and systematic body of knowledge
* Need for having knowledge and skill through established institutions
* Need of honesty and integrity in practice of the art and science of management
* Growing emphasis on the ethical conduct of management personnel.

1.4.2 Characteristics of Management

The important characteristics of management are:

* It is dynamic
* It is an integrative process
* It is a multi-disciplinary effort
* It has a universal application
* It is essentially activity-based, not a person-based or group-based
* It makes things happen
* It is multivariable, multimotivated, multilevel and multidimensional
* It is purpose oriented
* It is an outstanding means for exerting real impact on human life.
* It requires technical skills, interpersonal skills (human relations skill), and conceptual skills
* It is aided by the computer
* It is adoptive to changing conditions
* Its policies are probabilistic.

1.5 FUNCTIONS AND LEVELS OF MANAGEMENT

The functions of management are discussed by different scholars by studying different organizations from different angles.

Luther Gullick gave a classification of seven functions to management and he coined the word "POSDCORB" to describe the functions of management.

P - Planning
O - Organising
D - Directing
S - Staffing
Co - Coordinating
R - Reporting
B - Budgeting

These management functions have been grouped by different management scientists in diffent ways.

The modern management experts have added a few more functions of management, such as goal setting, image building and formulation of environment.

However, it can be found that the terms may vary, but the activities/functions are part of either one or the other group.

1.5.1 Managerial Functions

The managerial functions are necessarily used in managing activities / programmes and operation. Every student of management is supposed to know in detail all these managerial functions. The functions are elaborated in the context of libraries in different chapters of this management course. However, some of the general functions are described here briefly.

i) Planning

Planning is an indispensable function of management. It follows the dictum "think before you act". Planning foresees the future and focuses attention on choosing a course of action to meet unforeseen and foreseen events or problems. The basic philosophy of planning is that one reaches where one wants to, if one knows in advance the path he should tread on. It is a mental process requiring the use of intellectual faculties, foresight and sound judgment. This planning is the systematic thinking about the ways and means for the accomplishment of pre-determined objectives.

The process of planning includes

* Determination of goals and objectives (both short term and long term)
* Forecasting

* Drawing up policies and programs
* Identify alternative courses of action and their evaluation
* Prepare actions, schedules and procedures based on plan
* Budgeting

Advance planning provides direction to managers and contributes in reaching the objectives. Proper planning is essential for all types of organizations to ensure utilization of human and non-human resources to achieve the desired targets.

ii) Organizing

Organising is the process of arranging and allocating work, authority and resources among organisational members to enable them to achieve the organisational goals. The managers must match an organisation's structure to its goals and resources. Hence the organisational structure refers to the way in which organisation's activities are divided, organised and coordinated. An organisational chart can be prepared for easy understanding of the structure. The organizational chart is a diagram of an organisation's structure showing the functions, departments or positions of the organisation and how they are related.

iii) Staffing

Staffing as managerial function primarily involves selection, placement, appraisal of personnel and manpower development efforts undertaken by an organization. Staffing is important and crucial for the success and existence of any system. Logically staffing is more complex than in usual practice. Availabilty of suitable persons contribute and support in achievement of organisational goals.

The responsibility for efficient planning and execution of staffing function rests upon every manager at all levels. The staffing function involves manning the organization at various levels through proper and effective selection, training, appraisal, and development of personnel to fill the roles designed into the structure. Every manager is continuously engaged in performing the staffing function. It is a pervasive function of management like other functions of management. As a part of this function, there is a need to have manpower planning, prepare job description and evaluation, and staff development.

iv) Leading

Leading involves motivation and directing of employees perform their tasks. The leader influences on the behaviour and attitude of the employees as well as helps and guides his employees. Leading also involves working with people, and creating proper atmosphere. With the leadership qualities, the manager becomes a model and a good friend. However, it is essential to remember that effective communication is essential for successful leading.

v) Controlling

The manager must be able to control the actions of the staff towards the achievement of stated objectives of the organisation. Every manager observes, supervises the actions and activities of the staff members. The manager must be sure that these actions are moving towards the stated goals by putting these actions on chosen track. Controlling of the organisational members' actions is one of the important function of the management, as it helps to achieve the goals. This function involves three elements: (a) Establishing the standards of performance, (b) Measuring current performance, and (c) Comparing the performance to the established standards.

1.5.2 Levels of Management

In an organization management levels exist because there is a limit to the number of persons a manager can supervise effectively. The levels refers to a line of demarcation between various managerial positions in the organization. Levels of management are increased so as to achieve effective supervision. It may complicate the communication problem and make coordination and control difficult so it is desirable to restrict the number of levels of management. In determining the levels the prime consideration should be given to the span of control and not vice-versa.

Generally, there are three levels of management in most of the organizations, namely, top management, middle management and lower level or first line management.

The managerial functions are performed by all managers regardless of their position in the managerial hierarchy of the organization.

i) Top Management

Top management is composed of small group of managers and they are responsible for overall management of an organisation. It is the ultimate authority and it establishes goals and policies for the enterprise. It devotes more on planning and coordinating functions. This level managers need conceptual skills to oversee the organisational programmes and make them successful. Top management approves the decisions of the middle level management, issues orders and instructions and lay down guide lines. In a library system, library committee is considered as top management. The library committee provides guidance and prepares the policy for the library.

ii) Middle Level Management

Middle level management consists of heads of functional departments. They are responsible to the top management for functioning of their departments. They denote more than the organization and motivation functions of management. The senior or upper middle level managers include heads of production, finance, marketing in business organizations and junior level managers include branch managers, heads of various sections come under lower middle level managers. The heads of various sections in a library, namely, acquisition, circulation, reference, etc hold the middle level position and are designated as deputy librarians and assistant librarians. They form the middle level management in our libraries. This level managers need more human skills in addition to technical and conceptual skills.

iii) Lower Level Management

Lower level managers are also called Supervisory Managers or First Line Managers because they are directly concerned with the control of the performance of the operative employees. This level includes supervisors, foreman, accounts officers, sales officers, etc. The library assistants in our libraries generally hold the control of the professionals and semi-professional employees to perform their duties such as binding, charging/discharging, photocopying, etc duties.

The manager has to play three different roles: a) Interpersonal role, b) Informational role, and c) Decisional role. In the first one he plays the role of leader and liaison officer between the management and the employees. The manager also monitors the information and disseminates it. The manager acts as an information channel between the top management and the employees.

There are a number of decisions to be made and with respect to resource allocation, negotiation, disturbance control, etc. The managers play multiple roles.

What Managers do ?

There are several responsibilities assigned to every manager. They have to play different roles and perform several activities. Some of the activities performed by them are

a) Managers work with the people (i.e. employees) and make all the possible contribution in achieving the objectives
b) Managers get the authority to complete the assigned responsibility and are also accountable
c) They act as mediators and make difficult decisions
d) They build good relationship with the people, and
e) They examine the problems and goals, and fix the tasks for every day/week
f) They think analytically, analyse the problems and tackle them with feasible solutions.

Looking into all the above points, we can estimate and understand the importance of a manager.

1.6 APPLICATION OF MANAGEMENT CONCEPTS TO LIBRARIES AND INFORMATION CENTRES

Managing a library or an Information Centre requires the same basic skills of management required for managing any other type of organization. People with sound knowledge of management concepts, theories, and principles can manage almost any organization regardless of its setting. In addition to basic management skills, formal training will be an added advantage. The training provides new ideas and exposure to several concepts. The skills are important inputs to successfully manage the LICs.

Libraries and Information Centres have a combination of features and functions that makes them unlike any other organization. One of the features of a library that distinguishes it from many other organizations is that it is a non-profit organization (NPO). The basic implications of this are

* The financial resources used to operate NPOs generally come from an annual allocation derived from outside the organization.

* Most NPOs are considered to be public rather than private.

The political conditions influence organisations, which mainly depend upon the grants from government. To manage LICs in critical situation, the need is for professionally competent manager, who can apply the management techniqes to achieve the stated goals. As stated earlier, like any organisation, library will be successful if the management skills ar used in day to day management of the LICs.

Need for Application of Modern Managerial Concepts:

The general management principles which have been traditionally followed in all types of organizations are seen in practice in library management. But the change in the society to which the libraries are serving, the knowledge explosion information handling and processing techniques, technological revolution, retrieval systems, the consideration of human elements in libraries, corporate and participative management approaches and systems approach to management have to be given a great emphasis in the modern day management of the libraries and information centres to cope up with the ever changing and demanding needs of society and clientele.

The concept of free services in libraries is a far cry and the managers have to promote the marketing of their resources and services with market analysis and market research techniques.

Fund raising and self sustainability for libraries to exist in future societies should become an indispensable phenomenon.

The staffing and appraisal programs, continuing education and training programs have to be a part of annual management programs of libraries.

Development of interpersonal relations of employers by applying modern motivational principles is the need of the hour.

Despite a great deal of discussion over the past few years about several types of management very few libraries have tried some of those approaches but with limited success.

Etzioni and others who have studied professionalism stressed that a full professional must be allowed autonomy of action based on a responsible conscience in order to perform effective professional work. Like many organizations today, libraries face a problem of staff confidence and trust. Staff views management decisions with suspicion and managers on the other hand, frequently feel that there is little or no staff loyalty to the institution.

Lack of (or poor) communication is the most frequently identified organizational problem in libraries even though communication is present - both written and oral, what is needed or wanted is not there. So development of communication channels, and techniques is highly essential for library management relating to work relationships, authority structure. Two elements have to be stressed in effective communication on : the job time and feedback.

Managers in all organizations are paid for the quality of decisions they make, which are crucial for overall functioning of the system. In fact the quality of decisions made, determine to a large extent, the effectiveness of a manager. Decision making is core of managerial activities. Real life problems are y complicated in nature. In an empirical situation, there is a large number of inherent facts and every potential course of action triggers off a chain reaction.

The modern methods like model building and quantitative techniques like operation research, statistical methods and programing techniques to solve the complexity of empirical problems should be given weightage.

Operations Research (OR) techniques provide a scientific method for executive departments for a quantitative basis for decisions regarding the operations under their control.

Network analysis is another solution for sequencing of the problems. The two techniques are,

* Programme Evaluation and Review Technique (PERT) and
* Critical Path Method (CPM).

They can be used as good control techniques which helps in monetary progress and in reducing time lag for completion of the projects in time.

1.7 LET US SUM UP

In this unit we have studied about the nature and purpose of management. Now let us recapitulate some of the important points.

* Management is the primary force or the brain of an organisation, through which the available resources are exploited to the optimum use.
* Management is both an art as well as a science. The manager utilises his personal skills and knowledge for problem solving and decision-making. As there is also a systematic body of knowledge composed of principles, laws, rules, etc. formulated after following the rigorous procedure of testing and application, management is also considered as a science.
* In most organisations, there are generally three levels of management: top, middle and lower levels.
* Library is a not-for-profit (NFP) organisation. To provide effective service, to achieve degree of standardisation and to make best use of resources for proper use of modern management techniques.

1.8 REFERENCES AND RECOMMENDED BOOKS

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1.9 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Define 'Management'. Explain its scope and purpose.

2) Distinguish between operative and managerial functions.

3) Name the three levels of management and briefly describe each level.

4) Why libraries and information centres need the application of modern managerial concepts ?

II. SHORT NOTES

a) POSDCORB

b) Important characteristics of management

UNIT - 2 : SCHOOLS OF MANAGEMENT THOUGHT

Structure

2.0 AIMS AND OBJECTIVES

The unit aims to introduce to you various schools of management thought and their application to the field of library and information science.

After studying the unit you should be able to

- explain the different schools of management thought
- elucidate the principles of scientific management
- explain the concepts in the theories of Max Weber, Taylor, Henry Fayol, Mayo, Maslow, Douglas, McGregor, Fredric Herzberg,
- apply some of the principles of scientific management in organizing and managing a modern library.

2.1 INTRODUCTION

The coordination of human and material resources has been a common concern ever since human beings started living in groups. Management took the form of the leadership which was essential to coordinate the efforts of group members in order to arrange the necessaries of life. Management as a systematic field of study is a product of early 20th century. However this does not mean that the period before this was void of managerial/ administrative concern.

Management has been of concern to organised society throughout the civilised history. The systematic study of this thought is mainly developed during this century. The management is applied to get the desired results. The study of management theories developed during the century will help in guiding the management decisios, act as a sources of new ideas and innovations, and to create awareness of the business environment.

2.2 CLASSIFICATION OF MANAGEMENT THEORIES

A systematic study of management thouht as a distinct branch of knowledge has begun in the 20th century. The management scientists have identified several schools of management thought and classified them in their own ways. Let us see some of these categorisations of management thouht.

Approach to management is based on the existing ideas. The word 'approach' is used as a 'generic lable' for ideas, concepts, philosophies, schools and styles. The authors or writers have used the terms such as school, style and philosophy in various ways. While discussing the same concept or approach the authors must have used different terms such as school or philosophy. Therefore, the students should not get confused with the words used at different places.

2.2.1 Various Schools of Management Thought

We may categorise the schools of management thought into three broad categories: i) Scientific schools, ii) Human relations school and iii) Decision theory schools. Some authors have also identified some sub-categories in each school.

i) **Scientific Management Schools:** Scientific management school seeks to determine scientifically the best method for performing any task and for selecting, training and motivating the workers. This approach was devised by Taylor, Gantt and Gilberths to increase productivity, which is possible by raising the efficiency of workers. The basic objective of scientific management is to carry out more work in an efficient manner. F.W. Taylor (US) has made outstanding contribution in this area and he is revered as the *Father of Scientific Management School.*

a) *Classical School* is also called as Traditional or Universalist School of Management. This school originated in France and Henri Fayol is regarded as the 'Father of Classical School'. The school considers management as a universal process. The school grew out of the need for finding the guidelines for managing an organisation.

b) *System School* is based on the works of Max Weber and Luther Gullick. Weber researched on the structure of authority and hierarchy in decision-making in organ isations. Gullick identified managerial functions and coined the acronym POSDCORB.

c) *Human Behaviour School* views the workers as human beings and lays emphasis on interpersonal relations. The underlying philosophy behind this school is that if management takes care of happiness of employees, then it would be possible to achieve increased production.

d) *Social System School* encourages employees to build up social groups in the work place and their participation in the management process. This encourages democratic style of functioning in organisations. Peter Drucker (of MBO) and Douglas McGregor (Theory X and Theory Y) and Abraham Maslow (Need Theory) are the proponents of this school.

e) *Decision Theory Schools* study the procedures of decision making in organisations and advocates for the use of available mathematical models and quantitative techniques.

2.2.2 Historical Periods of Management Thought

Edward Evans divided the development of management theory into four broad periods. They are (i) Pre-scientific Period (i.e., Pre-1880), (ii) Scientific Management Period (1880-1927), (iii) Human Relations Period (1927-1950) and (iv) Synthesis Period (1950-Present).

i) Pre-Scientific Period (Pre-1880)

The prescientific period could be depicted by long line of sweating slaves painfully dragging a lime stone block towards a pyramid and along with the slaves are "managers" cracking their whips. The word often coined for this period is "autocratic".

During this period, many remarkable facts of organization and joint human efforts to modify the environment were performed. Works such as Middle Eastern Ziggurats, Egyptian and Middle American Pyramids, the Great Wall of China and Persian roads and buildings attest this fact.

Three men born within a span of twenty years responded to three distinct challenges of the time.

I) **ROBERT OWEN (1771 - 1858)**: He became concerned about the evils and the inhumanity he saw in industrialization. He argued that by improving the conditions of employees lead to increased production and profits.

* He advocated devoting more attention to human being (whom he called as 'Vital Machine'), which could be improved if kept " neat and clean ", treated with "Kindness" and supplied with sufficient quantities of "necessities of life".

* He believed that manager's best investment was on workers. Therefore, they should play a role of reformer.

* He remains as a dominant figure in fighting for workers' rights.

* He reduced the working hours per day from 14 hours to $10\frac{1}{2}$ hours and refused to hire children under the age 10.

2) **CHARLES BABBAGE (1792 - 1871)**: Babbage was a Cambridge Professor and Mathematical genius.

* Charles Babbage tried to advance technology

* He was an early advocate of the division of labour. He also believed that each operation should be analysed to enable to isolate the skills involved in each operation. This enables to provide training in the areas required, which helps to reduce the training cost and improve the productivity

* He advocated that accurate data obtained from rigid investigation should be utilized in managing an enterprise

* He emphasised on work measurement, cost determination, and wage incentives

* He was best remembered as inventor of "analytical engine", which was the fore-runner of modern computers.

3) **CHARLES DUPIN (1784 - 1873)**: Dupin was a French Engineer.

* He was interested in management education rather than human beings or technology.

ii) Scientific Management Period (1880 -1927)

Unlike bureaucracy, scientific management was championed by practical men. The essential character of scientific management, often called task management, was a representation of second period of development in management thought. The industrial revolution, would be a montage of machines, assembly-line operators, gears turning, steam rising, and huge piles of goods. The keyword here is mechanistic. Most managerial concepts of this time emphasised organization aspects of work.

The work of F.W. Taylor, Frank and Lilian Gilbert, Henry Gnatt, are undoubtedly basic to the development of scientific management theory and practice. Taylor is thought to be the person who founded the scientific approach to management.

MAJOR CONTRIBUTIONS TO SCIENTIFIC MANAGEMENT THOUGHT

S.No.	SCHOOL OF THOUGHT	PERSON	CONTRIBUTIONS
1.	Scientific Management	F.W.Taylor	Shop Management (1903) Principles of Scientific Management (1911) Differential piece of work. Time and motion studies
		Henry Gantt	Task and bonus plan charting techniques
2.	Functional/Operational Management Theory	Henry Fayol	Administration Industrielle et Generale (1916)

iii) Human Relations Period (1927 - 1950)

The year 1920 is regarded as turning decade from the point of emergence of modern management thought as it reported change with regards to social attitudes; social alterations internationally, international human rights, replacement of political institutions. The sociologists and psychologists contributed to the development of management thought. This period laid heavy emphasis on interpersonal relations.

This period was against overemphasis on productivity as made during the scientific management period. Humanism was emphasized. Elton Mayo made a study on worker's fatigue and her contribution to management was socialogical perspective of the work situation. Her study at Western Eelectric, Haw thorne, Illinois, is a milestone in to management studies. Mayo was credited as Founder of 'Industrial' Sociology -Psychology and the human relations the ories of management.. During this period the psychology and the human relations theories of management. During this period the importance of group was recognised and these groups became the centre of workers social life. Further, brief rest periods or light lunch in the morning and afternoon have contributed in increased production.

iv) **Synthesis Period (1950 - Present)**

The complexity of organizations in the later half of the present century tended lead to think for more intricate strategies to deal with people and organisations. It became clear that no single organisational strategy will work for all times and for all people. Different strategies are needed to tackle different situations and different people. Management scientists with the help of behavioural scientists extended research beyond human relations field using mathematical models, statistics and computers. The research has also gained the support of specialists from the systems theory, operations research, and statistics. As the period is characterised with the efforts of interdisciplinary fields it is known as 'Synthesis Period'.

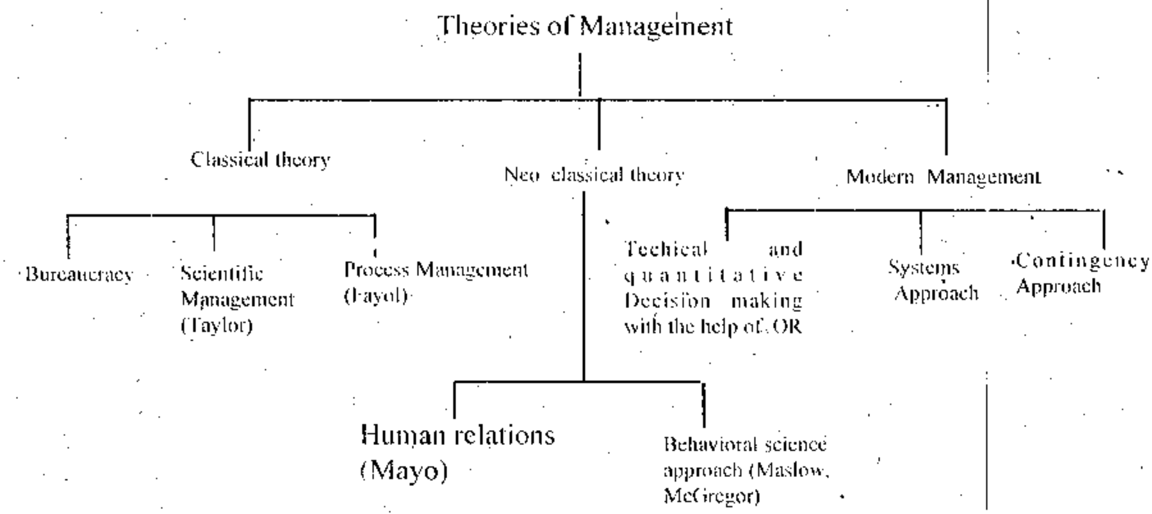
2.2.3 Classical, Neo-Classical and Modern Management Theories

The management theories are classified into three broad categories. They are classical, neo-classical and modern management theories. (Hitts *et al.*)

The Classical Management Theory is based on the ideas on management of organisation during the 1880s and 1920s. This school is often referred to as the *Traditional School of Management* as it evolved as a result of industrial revolution. It consists of three branches: scientific management, administration management and bureaucratic organisation. As you have already studied in Section 2.2.1 scientific management is concerned with application of principles and practices. F.W. Taylor is the architect of administrative management theory and presented his 14 principles of functional management. With the complexity and specialisation, organisations became bureaucratic organisations. Max Weber became a propounder with his principles of organising group efforts and procedures.

Neo-Classical Management Theory (1920s - 1950s) is based on the two important schools of management, namely, human relations school and behavioural schools. Elton Mayo has been considered as the 'Father of Human Relations Movement'. Mayo emphasised on the interpersonal relationships among the employees. The behavioural school is an extension of human relations school and it considers organisational humanism for managerial effectiveness.

As organisations became more complex, the need for modern management theories became essential. The later half of the 20th century has witnessed the development of many theories of management by management scientists, behavioural scientists and many with the interdisciplinary approach involving mathematical and statistical tools.



2.3 THEORIES OF SCIENTIFIC MANAGEMENT

So far you have studied the various schools of management and their classification. Behind these theories there exist work, experience and research of several practioners and academicians of management. Let us now study the various theories of scientific management propounded by various management scientists.

2.3.1 TAYLOR : *Scientific Management*

Scientific management is an approach formulated by F.W. Taylor (1856-1915) and others between 1890 and 1930, that sought to determine scientifically the best methods for performing any task and for selecting, training and motivating workers (Stoner and Freeman).

Taylor emphasised on the production and was able to clearly come out with solutions for increased production. His main contributions are

a) the concept of fair day work and

b) differential rate system.

Taylor observed the work area and analysed work methods, time involved in movements for the jobs. Each job was broken into components and identified the best method of doing each component. On the basis of time-and-motion studies, he difined a 'fair day's' work for a given task. 'Fair day' work may be used as to standardise the work output and production figures.

Differential rate system is a new system of payment, which was using incentive pay. The differential rate system is payment at one rate when they met the established standard but a higher rate when they surpass their normal/standard work. The standard work should be reasonable and acceptable to both manager and worker. He also introduced rest periods, reduced working hours from $10\frac{1}{2}$ to $8\frac{1}{2}$ hours.

In a library examples for time and motion studies are- pasting the lables, packets; photocopying; alphabetisation, filing etc. This is based on motion of hands, eyes and feet of an individual who is working on a particular activity at a location.

i) FRANK GILBRETH (1868 - 1924) and LILLIAN GILBRETH (1878 - 1972)

Gilbreth couple's contribution to scientific management is also phenomenal. Their main contributions are

a) *Fatigue and motion studies:* The most economical motions for each table were identified by using motion picture studies. With the help of such motions, fatigue was reduced (with the concept - every mition eliminated reduced fatigue) and performance was improved.

b) *Three position plan :* According to this plan a worker would do his/her work; prepares for next highest job and to win the successor. All these at the same time; which enables the worker to develop.

ii) HENRY GANTT (1861 - 1919)

Gantt's contribution to the concept of scientific management by introducing

a) Task and bouns plan, and
b) Gantt charts

Gantt introduced bonus, if the standard of assigned workload is finished. The supervisor will get bonus for each worker who completed their work and extra bonus if all the workers reach the standard.

Gantt introduced charts to record the workers' progress on individual bar charts. The Gantt charts are still in very much use. The most important concept is to rating the worker's work publicly.

The scientific management theories gave a good support for increased productivity.

2.3.2 HENRI FAYOL (1841 - 1925) : *Functional Management or Process Management*

Other cream of thought considered management from process or functional approach. This thought argues that all administrations perform certain types of functions like planning, organizing, controlling and so on. Management is seen as process of performing these functions. The theory holds that college presidents, chief executives of business firms, hospital administrations, administrators of religious organizations essentially do the same thing.

Henri Fayol is the first management scientist, who made an attempt to identify the principles and skills that underlie effective management. He believed that with proper methods of management based on forcasting it is easy to have effective results. Fayol felt that to learn management skills, it is possible with the comination of education and experience. Such combination gives solid background. It had been reasoned that every worker needs technical ability to background. It had been reasoned that every worker needs technical ability to carry out the function. Fayol's contribution to the management of complex organisations with the help of his guidelines is a milestone in management.

Fayol's six fundamental/ interrelated activities of organizations are :

1) Technical or production aspects. eg: cataloguing of books.

2) Commercial aspects (buying & selling, exchange of goods). eg: buying library material; selling information products/services

3) Financial (search for serving & efficient use of money).eg:allocation of financial resources.

4) Security (protecting/safety of employers' & property).eg: protection of library materials

5) Accounting (statistical record thinking). eg: Maintaining financial accounts and statistics.

6) Managemental activities (planning, organizing, and control). eg: essential to achieve the objectives.

ii) **Fayol's General Principles of Management**

Fayol stated the principles of management. These principles are flexible and have to be applied at different and changing circumstances. They are

1) **Division of Work** (or Specialization): best to assign workers to the jobs fairly limited in scope so that they can perform the work efficiently which leads to high productivity.

2) **Authority and Responsibility**: Authority should be delegated to complete the stated responsibility. These two should go together.

3) **Unity of Command**: An employer should receive orders from only one supervisor. Fayol observed that conflicts may arise, if instructions are received from more than one supervisor.

4) **Unity of Direction**: There should be only one plan some objectives and one person to supervise (one unit, one plan). Unity of command cannot exist without unity of direction. It is useful for designing and functioning of organisation, structure, creating departments.

5) **Subordination of Individual Interest to General Interest**: Fayol believed that individual should give priority to general interests over individual interests.

6) **Remuneration** : Must be fair and accurate which affords maximum satisfaction for both employee and employer.

7) **Centralization**: Fayol thought centralization of authority is desirable for overall control. Formulation of policy, general basic rules procedures ought to be centralised. Enough authority should be given to subordinates to do their jobs and retain the final responsibility with supervisor

8) **Lines of Command** : Any organization needs a formalized hierarchy which reflects the flow of authority and responsibility.

Scalar chain establishes the channels from top manager through which communication will pass. To save time and avoid distortion of messages, there would be short circuiting chain so as to allow quick communication and swift down.

9) **Order**: Relationship between various units must be established in a logical or rational manner so that work harmony between units is created.

10) **Equity**: Personnel should be treated equally and friendly.

11) **Stability of Tenure**: Employee should not be removed frequently. Frequent changes (or rotation) on different jobs will disturb the functional aspect of an organization

12) **Initiative**: Initiative should be encouraged at all levels. Subordinates should be asked to conceive and carryout their plans.

13) ***Esprit de Corps:*** (Unity is strength). Spirit of loyally and devotion which unites the members as a group. As the principles are not immunable to change they are to be used carefully and discretly. As to quote Fayol, "It is a matter of making how to make use of them, it is a difficult art reaming intelligence, experience, division and proportion"

2.3.3 ELTON MAYO: *Sociological Perspectives*

Mayo's contribution to management theory was a sociological perspective of the work situation. The results of Hawthorne and other studies convinced Mayo that the long held notion of the "rabble hypothesis" has to be rejected. According to which the workers were a dis-organised group of individuals, each of whom acted only out of self interest. If managers accept this hypothesis, they seek to appeal to that self-interest to increase production. Mayo's work, demonstrated the importance of the group and proved the fallacy of the rabble hypothesis.

Work groups frequently become the centre of a worker's social life, especially in urban society. In libraries, both the clerical and professional staff find much of their social life in some way connected with individuals from or related to their work environment. Thus when changes are projected for the work situation, a strong, sense of threat exists not only in terms of job security but also in terms of social security.

Elton Mayo was the most influential person. He belonged to a research scheme of Harvard Graduate School of Business Administration who undertook a long study of worker fatigue and productivity at Western Electric Hawthorne Industrial Plant. These studies are called 'Hawthorne Studies'.

Mayo introduced the concept of 'social man,' motivated by desire to form relationship with others.

He emphasized that brief rest periods would improve production. He was credited as the Founder of Industrial Sociology-Psychology and Human theories of management.

Mayo and his Associates have come to the following conclusions :

1) The amount of work to be done by a worker is not determined by physical capacity but by social norms.

2) Non-economic rewards and sanctions play a significant role in influencing the behaviour of the workers.

3) Generally workers do not act as individuals but as members of groups.

4) Informal leaders play an important role in setting and reinforcing group norms.

After these experiments it became widely accepted in management that the organisation is a social system and the human factor is an important element. Thus the content of management teaching and practice were completely changed.

Less attention was paid to engineering application of time and motion study; and more emphasis on interpersonal relations, leadership skills and human motivation.

Rewards of non-economic incentives motivate the employees. It becomes evident that human relations thought was not the ultimate answer for problems of management and so the search continued for an adequate theory and the critics of Hawthorne began to appear.

2.3.4 Maslow's *Hierarchy of Needs Theory*

One of the most widely mentioned theories of motivation is the hierarchies of needs theory put forth by Abraham Maslow. Maslow saw human needs in the form of a hierarchy, ascending from the lowest to the highest and he concluded that when one set of needs was satisfied, these needs ceases to be a motivator.

Basic human needs placed by Maslow in an ascending order of importance are shown in figure-

1) **Physiological Needs**: These are the basic needs for sustaining human life itself, such as food, water, shelter, sleep and sex. Maslow emphasized that until these needs are satisfied to the degree necessary to maintain life other needs will not motivate people.

2) **Security or Safety Needs**: These are the needs to be free of physical danger and the fear of loss of a job and property.

3) **Social Needs**: Since people are social beings, they need to belong and to be accepted by others. These needs include affection, love, respect from the social group.

4) **Esteem Needs**: According to Maslow, once people begin to satisfy their basic needs they tend to want to be held in esteem both by themselves and by others. This kind of need produces such satisfactions as power, prestige, status, self respect, recognition and appreciation.

5) **Need for Self-actualization**: Maslow regards this as the highest in his hierarchies. It is the desire to become what one is capable of becoming to maximize one's potential and to accomplish something. Individual accepts to be increased responsibility and develop creative talents.

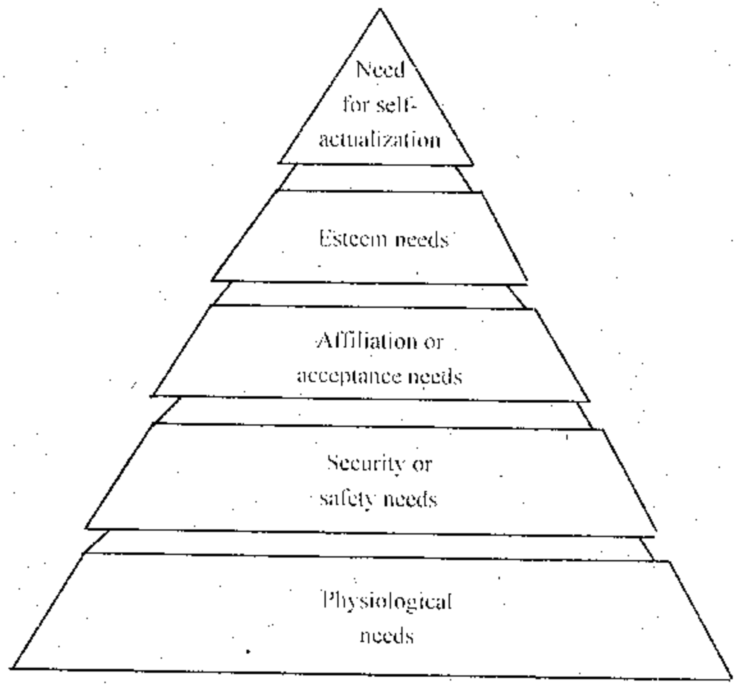


fig-1: **MASLOW'S *HIERARCHY OF NEEDS.***

2.3.5 McGregor's *Theory 'X' and Theory 'Y'*

Duglas Murray McGregor, in late the 1950s, formulated the classic theory X and theory Y. These theories are assumptions about human nature and motivation.

Theory X:

Theory X, is a traditional view of motivation. This states that employees must be motivated by force, money or praise as the work is distasteful. The assumptions are as follows:

1) An average human being dislikes work and will avoid, if possible,

2) Because of this inherent dislike of work. people have to be coerced or motivated with wages or show of compensation for the achievement of organizational goals;

3). An average human being prefers to be directed, little desire for responsibility, less ambitious, and wants security above all;

4) Motivation occurs only at physiological and security levels:

5) Most people must be closely controlled, often coerced, to achieve organizationaL objectives.

Theory Y

Theory Y assumes that people are inherently motivated to work and do a good job.

Theory Y assumes the following:

1) The expenditure of physical and mental effort in work is as natural as play or rest. The average human being does not inherently dislike work: depending upon controllable conditions, work may be a source of satisfaction (and will be voluntarily performed) or a source of punishment (and will be avoided if possible).

2) External control and the threat of punishment are not the only means for bringing about effort towards organizational objectives. Man will exercise self direction and self control in the service of those objectives to which he is committed

3) Commitment to objectives is a function of rewards associated with their achievement. The most significant of such rewards, e.g. satisfaction of ego and self actualization, needs can be direct products of effort directed towards organizational objectives

4) The average human being learns, under proper conditions, not only to accept but to seek responsibility. Avoidance of responsibility, a lack of ambition, an emphasis on security are generally consequences of experience, not an inherent human characteristic

5) The capacity to exercise a relatively high degree of creativity in the solution of organizational problems is widely, not narrowly distributed in a population

6) Under the conditions of modern industrial life the intellectual potentialities of the average human being are only partially utilized.

Theory X assumes that employees personal goals are totally incompatible with the organizational objectives. Authority is used as the instrument of command and control. Theory Y asserts that people have much to offer to an organization if only they can be persuaded to accept its objectives. The use of authority is thought to impede the development of this capability.

Theory X results in one way communication, supports minimum decentralisation and delegation. Theory Y supports two-way communication, with emphasis on delegation and self control and self responsibility. It also supports democratic management.

The basic difference between the two theories is that Theory X preludes the use of motivational techniques (because of its assumptions regarding human nature), while Theory Y opens the door to their use. Managers who accept theory X operate under supervised rigid structures, because they believe that this is the appropriate response to unreliable, irresponsible, and immature people. Managers operating under Theory Y do not usually try to structure the work environment too closely or supervise constantly. Instead, they try to control, thereby allowing them to assume more and more self control. Employees can receive the satisfaction of affiliation, esteem, and self actualization in this kind of environment.

2.3.6 Herzberg: *Motivation-Hygiene Approach*

Frederick Herzberg and his associates found out a two- factor theory of motivation. This theory enunciates that job satisfaction and job dissatisfaction arise from two separate sets of factors.

In one group, things as company policy supervision, working conditions, interpersonal relations, salary status, job security and personal life were found as motivators. Absence of these factors produce dissatisfaction.

In other words if they exist in the work environment in higher quality and quantity they yield no dissatisfaction. Their existence may not motivate in the sense of yielding satisfaction. However, their task of existence would result in dissatisfaction. These are constantly referred to as "Hygiene factors".

In the second group, Herzberg listed certain satisfiers and therefore called them as motivators, which are all related to job content. These include achievement, recognition, challenging work, advancement and growth in the job. Their existence will yield feelings of satisfaction or no satisfaction (and not dissatisfaction).

The first group of factors Herzberg called maintenance or hygiene factors. Their presence will not motivate people in an organization; yet they must be present otherwise dissatisfaction will arise. The second group has the potential of yielding a sense of satisfaction.

Job attitude affects the quntity of work. When people feel good about their jobs, the performance with creativity is likely to be improved. If they do not feel good the performance is likely to get affected.

2.4 APPLICATION OF MANAGEMENT THEORIES TO LICs

Libraries have been in existence from times immemorial. They have been changing fast to keep pace with developments in the society. A modern library is a complex organisation. Scientific management of libraries and information centres would bring efficiency. It is possible only through the application of principles and scientific/systematic methods. We need to study management theories in the context of library operations.

(1) Classification of management theories in relation to library management

Till recently there were no attempts made to examine the benefits of the application of management thought to the library management. Edward Evans has made an attempt on the classification of management theories in relation to library management. He identified three basic periods, namely, pre-1937, scientific (1937-1955) and human relations (1955-present) periods.

During the early periods (i.e., pre-1937) libraries were run with the traditional approaches. Libraries were characterised by relatively small collections without any application of scientific methods. Most of the libraries were blindly following either their own past practices or imitating the other libraries. Scientific period started after the second world war and the period has witnessed the growth of collections, staff and financial resources of the libraries. Costing techniques, use of mechanical equipment, studies on classification and cataloguing techniques, etc helped to bring the library management on the lines of scientific management. The human relations period has become a testimony for the application of democratic principles, participative management and involvement of employees in decision-making process. Still libraries need to adopt the systems theory, quantitative techniques, etc on full-scale in the management of libraries and information centres.

(2) Library management and POSDCORB

Luther Gullick has formulated seven functions, namely planning, organising, staffing, directing coordination, reporting and budgeting) of an organisation in an acronym - POSDCORB). The planning is the first and essential step in the effective and successful management of libraries. It provides not only a basic framework of objectives and strategies but also show systematic way to achieve the goals. Organisation stresses the need for cooperative activities of persons to achieve the objectives through a formal structure. Libraries have been organised into different departments, sections, units, etc. to facilitate the effective use of library materials and services.

Staffing is concerned with providing right type of persons to manage different sections/ jobs. Staffing is crucial for successful management of any organisation including libraries. The managerial functions such as directing and coordinating are very important and human behaviour. The library managers should possess ability and leadership qualities to motivate and coordinate the staff to work willingly towards attainment of library's objectives. Annual reports help libraries to maintain good public relations with administration, users, public, etc. Basically libraries are spending organisations. Budgeting helps in balancing of estimated revenue and expenditure in order to achieve set goals.

(3) Levels of management in libraries

Libraries adopt different levels of management, viz., top, middle and operational levels for using different management techniques. The top level is responsive for taking policy decisions, policy formulations, planning, control and evaluations. The middle level takes up the responsibility of execution of programmes, supervision, coordination, monitoring, etc. At the operational level daily/routine tasks are performed. Thus, an efficient management depends on sharing of responsibilities by all the three levels.

(4) Library as a system

General Systems Theory (GST) developed by Ludwig von Bertlanffy forms the widely accepted theoretical base of modern management. GST attempts to integrate knowledge from various sciences, namely, biological, physical and behavioural into a single system. As you know, system is a group of elements which are interlinked, interrelated and interdependent and together constitute a whole. The elements of the system are also linked to the outside environment. Considering the library as a system, various elements or variables such as staff members, reading materials and finances make up the elements of the library system. Various sub-systems such as acquisition, circulation, processing, reference, etc are the interdependent parts of a system.

(5) Librarian as Manager

Librarian as a manager assumes several roles. Henry Mintzberg has examined and categorised different roles played by a manager of an organisation. They are interpersonal figurehead, leader, liaison, informational monitor, disseminator, spokesperson, decisional entrepreneur, disturbance handler, resource allocator, and negotiator. These can be broadly grouped as interpersonal, informational and decisional roles. All these roles equally applicable to a librarian. However, major roles played by a library manager depends upon a number of factors operating inside and outside the library.

The role of the library manager is not just limited to the design of an internal environment but also take into consideration the external environment. He should possess skills to forecast the changes and prepare the library to face the anticipated changes. He should have innovative ideas and also encourage his subordinates towards innovative library services.

(6) S R Ranganathan's Contribution to Scientific Management of Libraries

As you have already studied that the scientific management involves the application of principles and methods to the problems of administration. Luther Gullick described the seven functions of management as POSDCORB, while Fayol formulated a set of 14 principles of general administration. Dr S R Ranganathan has categorised the functions of library management into eight groups. They are planning, job analysis, routine, elimination of waste, correlation, time schedule, forms and registers and files. Though these principles were formulated over half a century ago they are still relevant today in the management of a modern library.

2.5 LET US SUM UP

Let us recapitulate briefly what has been described so far in this unit.

* There are several schools of management thought. They are classified basically into three schools, namely scientific school, human relations school and decision theory school.

* The management thought is also classified according to historical periods, namely, prescientific (pre-1880), scientific management period (1880-1927), human relations period (1927-1950) and synthesis period (1950-present).

* The management theories are divided into classical, neo-classical and modern management theories. Classical theory views people as rational economic man, while the neo-classical theory has provided a social person view with the interpersonal relationships.

* The modern management theories propose the complex employee view, interdisciplinary approaches and use of quantitative methods and systems theory.

* There are several contributions to the theories of scientific management. The prominent contributors are Taylor (principles of scientific management), Fayol (functional

management), Mayo (sociological perspective), Maslow (hierarchy of needs theory), McGregor (Theory X and Theory Y) and Herzberg (Motivation-Hygiene approach).

* Application of scientific management would bring efficiency of services in the libraries.

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2.7 ASSIGNMENT

1) Critically examine the various schools of management in the context of library and information science.
2) Explain why we need schools of management thought in LICs.

2.8 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Name the various schools of management thought and briefly describe each school of management.
2) Explain the various historical periods of management thought.
3) What is the basis for dividing the management theories by Hitts *et al.*?
4) Modern management theories are essential for the present day organisation of complex nature. Discuss.
5) Discuss the management theories of Tayor and Fayol.
6) How do you apply the theories of scientific management in the management of LICs.

II. SHORT NOTES

a) Neoclassical school of management
b) Theory X and Theory Y
c) Hierarchy of needs theory
d) Maturity and Immaturity theory
e) Librarian as manager

UNIT - 3 : ORGANIZATIONAL THEORIES

Structure

3.0 AIMS AND OBJECTIVES

The unit aims to introduce you the various organisational theories.

After reading the unit you should be able to

- explain the principles of organizational theories
- describe the various types of organizational structures
- distinguish the line and staff system of an organization
- describe the functional system of an organization
- discuss group dynamics in an organisation
- explain the meaning of behavioural approach
- apply systems approach in organizing your library.

3.1 INTRODUCTION

Organization connotes different meanings to different people. For a psychologist organization means an attempt to explain, predict and influence behavior of individuals in an enterprise. Organization is also used to mean a group of people, structure of relation and a function of management.

According to Henry Fayol, "to organize is to provide an enterprise everything useful to its functioning - raw materials, tools, capital and personnel".

Organizing is an important function of management. It deals with establishing relationship between factors of production.It concerns itself with the internal relationships such as responsibilities of personnel arrangement, growing of machines and material control.

According to Barnard, "An organization comes into existence when there are a number of persons in communication and relationship to each other and are willing to contribute towards a common endeavor".

3.2 ORGANISATION - CHARACTERISTICS AND PRINCIPLES

Though the term organisation is used loosely, it is an important function of management. It provides a structure, a framework on which the management rests. In this section we will discuss the characteristics, steps involved, importance and principles of organisation.

3.2.1 Characteristics of Organization

i) Communication

ii) Cooperative efforts

iii) Common objectives

iv) Rules and regulations

Organizing is the basic function of management and it brings together human and non-human resources to form a manageable unit. Organization helps in planning, staffing, directing and controlling.

Organization is the backbone of management. Without efficient organization no management can perform its function smoothly. Sound organization can contribute to success of the enterprise by:

1) Facilitating the achievement of objectives

2) Facilitating optimum use of resources and techniques

3) Stimulating creativity and innovations

4) Facilitating growth & diversifications

5) Facilitating effective communications

6) Encourages cordial relations between management and the employees

3.2.2 Importance of organization

Organisation is a basic management function and hence it has always been important to us.

i) It brings in organisation structure
ii) It facilitates management
iii) It facilitates coordination
iv) It facilitates growth and diversification
v) It facilitates optimum use of technological innovations
vi) It ensures optimum use of human resources
vii) It provides training and development

3.2.3 Principles of Organisation

There are certain basic principles of an organisation which should always be observed. These principles are the guidelines for planing an efficient organizational structure.

1) *Consideration of objectives*

2) *Unity of functions:* There should be perfect harmony. Functions should be flexible enough to adjust growth expansion and variations

3) *Division of work and specialization*

4) *Definition of jobs*

5) *Scalar principle:* Clear lines of authority running from top to bottom

6) *Unity of command:* There should be only one line superior in one organization

7) *Balance of various factors:* Balance in formal structure of organization is factors having conflict like central ization or decentralization. Span of supervision, and lines of communication & authority allocated to differ ent departments.

8) *Flexibility*

9) *Continuity:* Change is the law of nature

10) *Delegation of authority:* Authority delegation should be commensurate with responsibility

11) Management by Exception: Organization structure should be designed so that managers are required to go through exceptional matters. Problems should be referred to higher authorities.

12) *Span of Control :* Span of control is the number of employees a manager directly supervises; use of managers time and their work load. Factors effecting span of control are - speed, change, complexity or representa tiveness of work, quality and availability.

13) *Organizational Development* (OD): OD is defined as "a planned process designed to improve organizational effectiveness and health through modifications in individual and group behavior, culture and system of organization using knowledge and technology of applied behavioral science" (Beach 1980).

The emphasis of OD is on the organization as a whole. Main observations are to improve effectiveness of the enterprise, in the face of growing techno- social, political, economic challenges and knowledge explosion. It may be useful to know ten principles of organisation as stated by Urwick.

3.2.4 Urwick's Ten Principles of Organisation

Ten principles of organisation were pronounced by the noted management scientist, Lyndall F Urwick. These are summarised and reproduced here.

1) *Principle of the Objective:* Every organisation and every part of it must be an expression of the purpose of the undertaking concerned.

2) *Principle of Specialisation*: The activities of every member or any organised group should be confined, as far as possible, to the performance of a single function.

3) *Principle of Coordination*: The purpose of organising per se, as distinguished from the purpose of the undertaking, is to facilitate coordination and unity of effort.

4) *Principle of Authority*: In every organised group, the supreme authority must rest somewhere. There should be a clear line of authority from the supreme authority to every individual in the group.

5) *Principle of Responsibility*: The responsibility of the superior for the acts of his subordinates is absolute.

6) *Principle of Definition*: The content of each position - the duties involved, the authority and responsibility contemplated, and the relationships with other positions should be clearly defined in writing and made available to all concerned.

7) *Principle of Correspondence*: For every position, the responsibility and authority should correspond.

8) *The Span of Control*: Every supervisor should supervise limited number of (not more than five or at the most six) direct subordinates whose work interlocks.

9) *Principle of Balance*: It is essential that the various units of an organisation should be kept in balance.

10) *Principle of Continuity*: Reorganisation is a continuous process in every undertaking specific provision should be made for it.

3.2.5 Organisation Theory

The organisation theory extends over a growing area of research in a variety of fields bearing an organisational behaviour, performance and group dynamics. The objective is to systematise the amorphous work of perplexing experience and bring more of scientific methods of observation, generalisation, testing and manipulation to bear on the theme of organisation behaviour and management by organisational systems.

3.3 ORGANIZATIONAL STRUCTURE

The structure of an organization is generally shown on an organizational chart or a job-task pyramid. Organizational structure shows the authority and responsibility relationships between various functions in the organization by showing who reports to whom and is directly related to the attainment of objectives. Organizational structure involves formal relations between organizational members. These relations may be of three types:

(1) Relations between supervisors and subordinates (line relations),
(2) Relations between specialists (staff) and line executives, and
(3) Lateral relations.

Development of organizational structure involves two things:

1) The functions which are to be performed : requires the determination of activities, the organization needs and division of these activities depending on specialization required; and

2) The form of structure : This requires the detailed study and applications of organizational principles.

Drucker pointed out three specific ways to find the kind of structure needed to attain the objectives of a specific enterprise. These are

* *Activities analysis:* Leads to Departmentalization.

* *Decision analysis:* What decisions are needed to attain the objectives. It leads to evolution of patterns of decisions.

* *Relations analysis:* With whom a manager who is incharge of an activity has to work. Such analysis helps to identify communication line and staff relation, which inturn will help in determining the structure of organization.

Structure defines the pattern of vertical flow of authority called line and the area over which the authority runs is known as span of organization.

Level 1	——	Librarian
Level 2	——	Deputy Librarian
Level 3	——	Assistant Librarian

An important component of any organization process is the creation of organisational structure. It represents the hierarchical arrangement of various positions in an enterprise, system or in a library. It helps in allocating authority and responsibility formally. The form of organizational structure depends up on the nature of activities of library, competence of personnel and the philosophy of management.

There are three basic types of organizational structure which are quite popular.

* Line Organization
* Line and Staff Organization
* Functional Organization

3.3.1 Line Organization

It is the simplest and the oldest organizational structure. As is implied, it has been referred to in management theory as a scalar organization. As it resembles the line of command in an army, it is also known as a military type of organization or scalar organization.

It represents a direct vertical relationship through which authority flows. The line of authority flows vertically downward from top to bottom throughout the organization. The quantum of authority is highest at the top and reduces at each successive level down the hierarchy. Every person in the organization is in the direct chain of command.

The line authority not only becomes the avenue of the operating personnel, but also provides the channel of communication, coordination and accountability in a library.

Advantages:

1) It is very simple to establish and easy for employees to understand

2) There is a clear cut identification of authority and responsibility

3) It facilitates the prompt decision making as there is definite authority at every level

4) It facilitates unity of command and confirms to the scalar principle of organization.

Disadvantages:

1) Concentration of authority at the top. If the top execu tive is not efficient and capable, the library will not be successful

2) With growth of the library, the librarian or the director of the library becomes overloaded with work.

3) Lack of proper communication from bottom upwards, due to concentration of authority at higher levels

4) Line organization is not suitable for big organizations (ie Big libraries and information centres, because many jobs create problems as they require specialization by the concerned person).

3.3.2 Line and Staff Organization

In line and staff organization, line authority moves down in the same manner as in line organization. In addition specialists are attached to line managers to advise them on important matters. The staff officers don't have any power of command in the organization as they are employed to provide advice to the line officers. In most organizations, the use of staff can be traced to the need for help in handling details, gathering data for decisions and offering advice on specific managerial problems, staff investigates and supplies information and recommendations to managers who make decisions. Several times specialists are appointed as line managers, who are likely to contribute much better with their knowledge and competence.

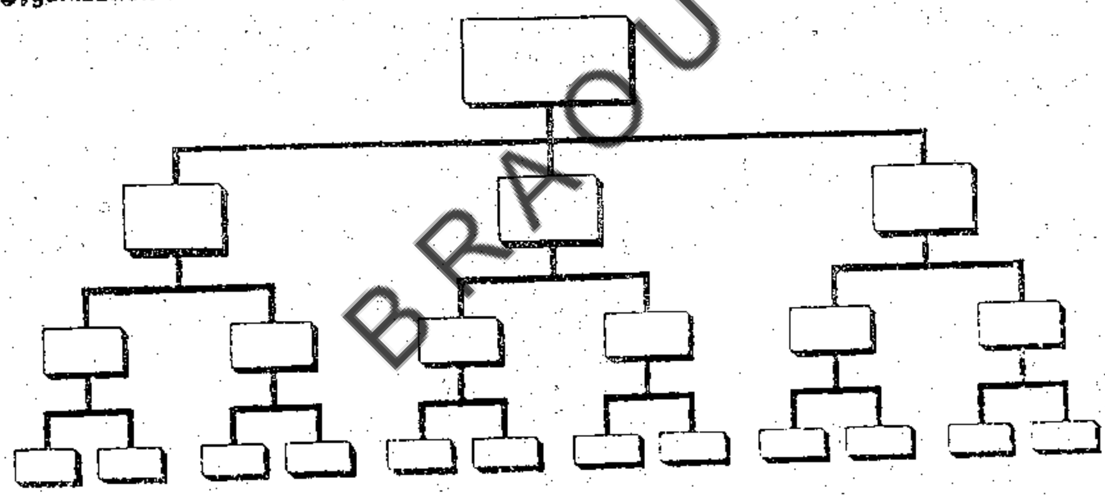
Advantages:

1) Line managers get the benefit of specialized knowledge of staff specialists at various levels

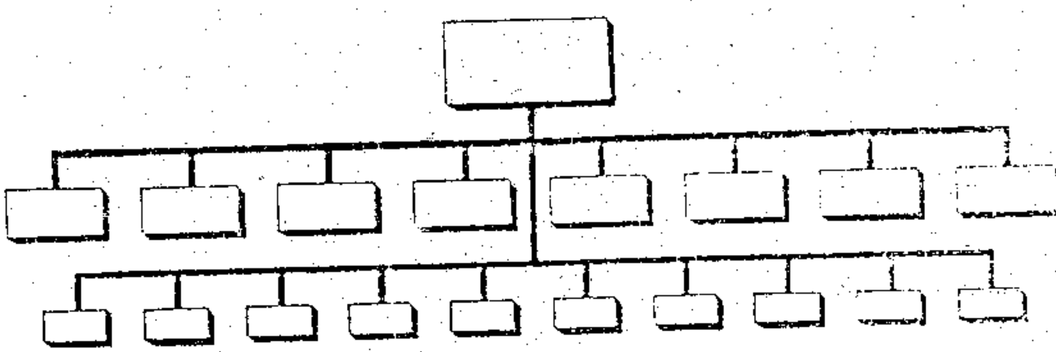
2) Staff specialists relieve the line managers from he botheration of concentrating on the special functions like account ing, selection, training and public relations etc.

3) Staff executives help line managers in taking better decisions

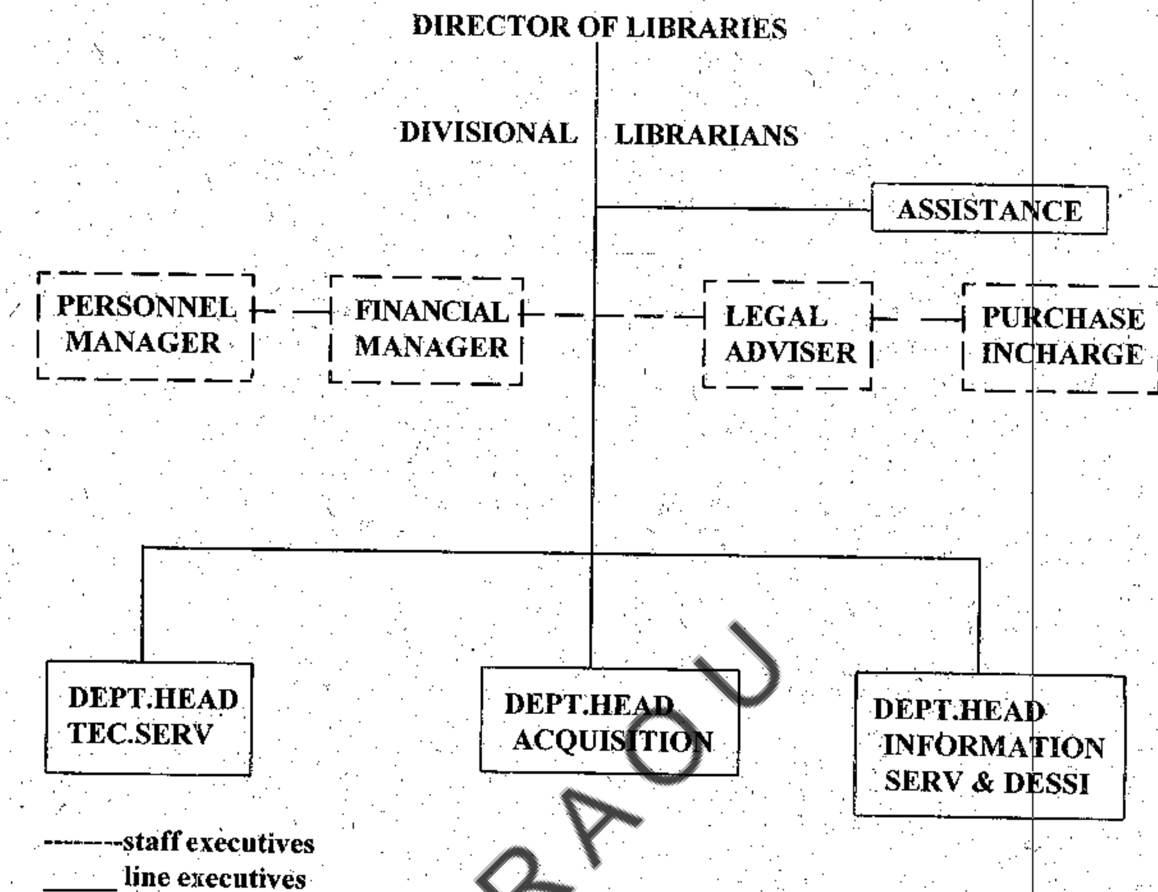
Organization with Narrow Spans



Organizations with Wide Spans



LINE AND STAFF ORGANIZATIONAL STRUCTURE



3.3.3 Models of Organisation Structure

The study of evolution of organizational structure in military, church, government and industries from early times to the present reveals four major forms:

i) Bureaucracy
ii) Departmentalization
iii) Project organization
iv) Matrix
v) Network Structure

i) Bureaucracy:

It is the earliest form of organisational structure. Governmental libraries mostly falling under this category.

Major features of bureaucratic structure are :

1) Control and supervision through hierarchy of positions vested with authority and responsibility.

2) Systematic division of work per competency and specia-lization.

3) Following of rules and regulations to ensure uniformity, coordination of efforts, continuity and staticity.

4) Interpersonal relationships to achieve unbiased execution.

Advantages: Bureaucratic structure encompasses some fundamental features like unity of command, authority, responsibility, limited span of control, etc.

Disadvantages: Bureaucratic structure of organisations often cause delay in the execution of tasks.

ii) **Departmentalization**:

Rational grouping of activities into divisions, groups or departments and sections. The diminishes lower down the line.

Departmentalization by Functions:

Function	Department
Activity	Technical processing
Location/Territory (Geographical)	Central, Regional, Branch
Customer/user	Children/blind person: weaker sections,special users
Subject	Science, Maths, Social Science, Arts, Commerce
Material	Maps, Reports, Software etc.
Process/equipment	Binding/Photographs/Video cassettes
Language	French, Hindi, Sanskrit, Telugu.

Library departmentation is often a combination of two or more features. For example, Reference Department (Function and source type)

iii) **Project Organisation**

General complexity of operations, numerous components, agencies with fixed time schedules of delivery, need a great deal of planing, research, coordination and control.

Since bureaucratic and departmentation type of organizational structures could not cope up with project management, a different type of organizational structure has evolved which cuts across the classical vertical organization by introducing horizontal and diagonal relationships. In this project, manager holds sole authority and responsibility for planning and completing the project.

Project organization of an ad-hoc type is occasionally found in libraries. Once the project is completed the structure becomes defunct, or merges with functional organizational structure of the host institute.

iv) **Matrix Organisational Structure**

Organization according to functions is common in all enterprises. When an enterprise is dealing with multiple products, organization on the basis of products or projects is a refined method. Such a structure when integrated with the functional organization result in Matrix Organization.

It can be extended to include marketing, geographic area, development etc., success of matrix organization depends on understanding, expectations and roles of various members of matrix system. It involves sharing of information and building up of mutual confidence.

DIRECTOR (INFO)

	MANAG SUB-ANALYSIS	**MANAG COMP.SER**	**MANAG MARKETING**
MANAG PROJ A			
MANAG PROJ B			

Fig- : Simple Matrix Organizational Structure

A true matrix organization is not commonly found in Libraries. The concept is being tried. Leicestershire Library and Information Services applied matrix organization during late 1970's. Now library activities are looked up as industrial/ commercial activities.

v) **Network Structure**

This has not received much attention in industrial management as they were monolithic, (a column or a pillar of single stone) and strictly adhere to principle of unity of command. Large international and multinational organization with a geographic spread of activities like airlines, hotel chains, are incorporating network structure.

Significance: They take the shape of cooperative framework for sharing resources, expertise and function, cost and standardizing processes. Network organizational structures are of special interest to Libraries.

Network Configuration: Star shaped, ring shaped, or distributed, hierarchical, or bus type. Configuration greatly influences information flow, pattern of communication, decision making, etc. For planning and managing organisational network, a network model may be used.

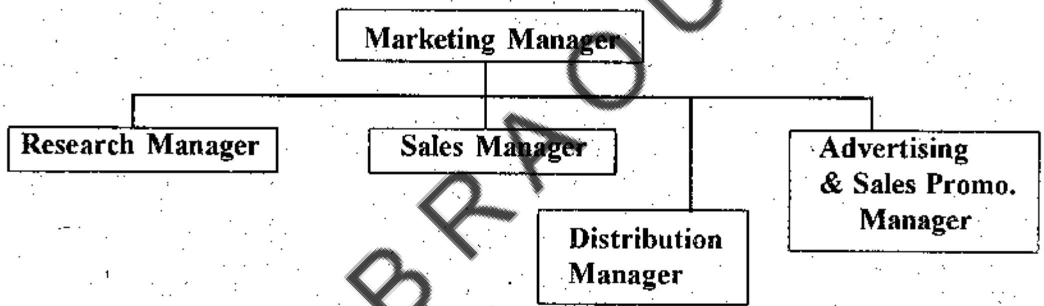
Operations research techniques, simulation techniques (making working of replicas or recreation of a situation machines), analytical solutions, graph theory and queuing theory are used for identification of solutions in a network environment.

In library and information centres network problems relate to a selection of a configuration. To use the models one has to isolate and define all the elements of a system and have avenues to data and relate the costs, requirements and channels. (Taylor 1972).

3.3.4 Functional System

Being the simplest type of organizational structure it is very much in vogue in several organisations. In this all similar activities are grouped under an executive who reports to the chief executive.

The functional system in a marketing set up can be shown as follows:



Advantages:

1) It promotes occupational specialization

2) It facilitates intra-departmental co-ordination

3) It economizes operation and creates possibility for adoption of a logical and comprehensible structure

4) It promotes excellence in performance in specialized areas

Demerits:

1) It may lead to excessive centralization
2) Decision making process is likely to be delayed

3.3.5 Group Dynamics

Group dynamics can be defined as the social process by which people interact face to face in small groups. It is concerned with the dynamic interaction of individuals in a face to face relationship. Group dynamics focuses on team work wherein the small member groups are constantly in touch with each other and effectively contribute their ideas to accomplish a task.

The group creates its own leaders who can effectively coordinate the group efforts towards the achievement of their objectives. It changes the formal role of participants. Group serves the purpose not only for themselves but for the organization as well; they provide norms of behaviour and teach new employees how to behave and work. Cooperation of more than one person is required to achieve its ends and groups facilitate this co-operation. Groups also provide an identity for the person at work -place to achieve a feeling of belongingness from which he can derive esteem, recognition and status.

i) Causes for Formation of Informal Groups:

The important factors for formation of informal groups in an organization are

(1) *Desire to socialize with others:* The need for social relationships with other human beings is most essential for all humans. A formal organization is rationally created for technological purposes, informal organization arises from man's quest for social relationship.

(2) *Common interest:* The employees have to confront similar work problems as they are working on similar jobs. Another implication is physical location of workers. Frequent face to face meetings and being in close proximity influence to form informal groups.

(3) *Sense of belongingness:* One can sense that he is part of an organization not only by identification but sharing experiences to colleagues is the most meaningful and potent sources of job satisfaction. Employers get more identified in smaller groups and enjoy higher morale.

(4) *Monotonous Job:* Introduction of specialization in modern enterprises has created the conditions under which workers have to become members of informal groups. Greater degree of specialization routinise the working and there is greater degree of monotony. The workers experience fatigue as they are unable to relate their jobs with final output. For the sake of job satisfaction they resort to informal interactions as an outlet.

(5) *Resistance to change:* Most dynamic organizations have a tendency to introduce changes in methods and routines at a faster rate than the individuals can adjust to them. The speed at which these changes are introduced can be materially altered by a determined work group.

ii) Utilization of Group Dynamics in Planned Change:

The ever changing interaction and adjustment in mutual perceptions and relationship among the members of groups are known as group dynamics. If group dynamics is realized and mobilized properly for introduction of change, results are likely to be favourable.

Kurt Lewin developed certain techniques during the course of his work in group dynamics. According to him, any situation in which a change is to be attempted is a quasi-state equilibrium of driving forces and restraining forces. All these forces reside in the group.

Lewin who propounded the theory emphasizes that it is usually easier to change individuals formed into a group than to change any one of them separately. As long as group standards are unchanged, the individual will resist changes more strongly. If the group standard itself is changed, the resistance which is due to the relation between individual and group standard is eliminated.

3.3.6 Behavioural Approach

Behavioural Scientists are concerned with systematic analysis of human behaviour. They are concerned with all relevant aspects of humans. The basic assumption of this approach is that there is order in the universe and this order is discovered through analysis. Behavioral scientists attempt to formulate generalizations based on this order from which predictions can be made.

The important characteristics of this approach are:

1) The data must be collected, analyzed and subjected to public testing by qualified individuals

2) Findings must be presented so that distribution between cause and effect is isolated.

3) Facts must be systematically related to one another with in a systematic frame work

4) Finding must always be open to further examination and question.

The Behavioural Sciences have provided managers with a more systematic understanding of one of the most critical factors in the process of management - the human element. It has enabled organization to formulate programs to more efficiently train workers and managers.

According to human relations perspective, people try to satisfy their needs in the order of priority. The more our needs for physical well being and security are satisfied, the more we feel the need to actualize our potential. The classical approach tends to recognize only the needs of lower priority- financial incentives, appeals to physical and on occasions security needs. The need for self actualization is however frustrated by standards, uniformity, specialization and over definition. The behaviourists have stressed the need for showing greater concern for people who are being organized.

This approach is an attitude rather than a set of principles of organization. It sounds a warning that human beings are not machines and so demand a different treatment. In the light of this one can emphasise that needs and values of people must be taken into consideration and integrated with the needs and values prescribed by the objectives of organization.

3.4 SYSTEMS APPROACH

A system can be considered to be a collection of people, objects, and activities, and group of things that operate at a level of complexity higher than the highest level that we think and understand. It includes both formal and informal structures. When we think of libraries and their services the organizational chart generally display only one aspect:

the formal reporting and responsibility structure. The informal structure represents the centres of power and influence, otten based on people or groups with some sort of common interest. The changes will effect both formal and informal, the managers have to consider the changes that will affect the system together, and strategy must be planned accordingly.

Evans defined system as a set of interacting variables, but each system is a part of a larger system. The variables in this context include procedures, equipment, organisation and people. Chapman defined it as an assemblage of objects united by same form of regular interaction or interdependence. It implies dynamic process consisting of interrelated functions that tend to become increasingly complex as the volume of requirements placed on a system groups. The basic concept is interrelationship of parts on subsystems. The starting point is a set of objectives and the focus is on work design and it is distinct from the design of components of subsystems.

The system components are users, activities, events and objects which together form that system. The system boundary can be defined by drawing the distinction between control and the influence. For an information service for example, the user may be seen as outside the boundary because the availability of the service should affect the work methods of the user. The sphere of influence and identification of system boundary should aid the manager in preparing an organization for change.

3.4.1 Systems Environment

The systems environment defines the external relationships.

Closed Systems: Do not have inputs or outputs, they have no environment. Often this term is used for systems which interact weakly with the environment. For example, Jails, which do not get influenced with the activities of outside world.

Open Systems: The systems that are not closed; they have an input, processing, output and interact with the environment. They are dependent on the environment and sensitive to the changes within it. For example, libraries. Changes in the outside environment such as information technology influences on the working of the libraries.

3.4.2 System Attributes

Accuracy, timeliness, appropriateness, completeness and clarity form the essential attributes in a system environment.

System Relations: are of different types

Symbiotic: Where two systems operate as one, if one stops functioning the other cannot work.

Synergistic: working together of systems produce a better output. It means that the whole is greater than the sum of its parts. If separate departments within an organisation cooperate and interact, they become more productive than if each had acted in isolation.

Redundant: there is a duplication between the sub-systems. If one sub-system ceased to exist, the whole system could continue without it.

3.4.3 System Objectives

All the systems should be designed with well defined objectives, however some systems have less defined objectives and no easy measure of performance can be explained; for example systems as economic systems and business organizations have less clearly defined objectives than a system designed. The designed systems are built to meet the objectives specified (defined) in advance.

The general objectives of man made system is mainly to achieve the objectives for which the system is created. Determination of system objectives is an important component of analysis.

There are four types of system objectives which can be used to categorize the systems into four types

1) **Determined or Mechanistic Systems**: These systems always respond in the same way, produces the same results from any given input. machines are determined systems. For example, Computer responds predictably.

2) **Probabilistic Systems**: Probabilistic system is one where the output any given run, only specify the range of outputs that are probable. For example, a probabilistic system is a library and its stock. It is not possible to predict the number of items on loan at subsequent point of time.

3) **Adoptive or Self-Controlled Systems**: It is one which changes and controls itself. Here the output from the control system is fed back into the system and influences later outputs. They have an internal feedback where measurements of output are used to influence subsequent inputs.

4) **Competitive or Externally Controlled Systems**: Much of the business world is comprised of competitive systems. These systems are controlled by external factors in the systems environment. Such factors cause the system to change. For example, Production System.

3.4.4 System Models

System models help us understand how a system is structured and organised. There are two system models. They are i) Simple System Model, and ii) Complex System Model.

i) **Simple System Model**: The following figure depicts the simple system model.

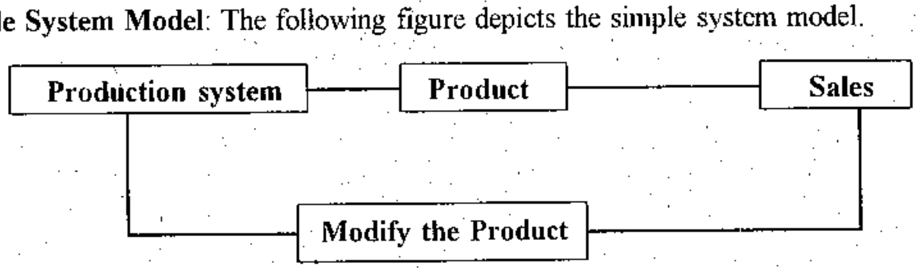


Figure - 2: Simple Systems Model

This represents a model, which shows main flow of work and information about work around the organization. This view regards the organization as being open system: the organization is linked to its environment by the passage of inputs, outputs and control science. The open system is linked to the environment and is stimulated to respond to changes in such a way that the system tends to survive. The open system must establish a means of monitoring the environment and assessing the needs. In relation to libraries and information services, the community study and user study represent a great deal in achieving this. It also illustrates the important feature of feedback of both effectiveness and efficiency. Now it has been realized by the managers that a regular review of efficiency and effectiveness is necessary part of the manager's job .

The type of feedback attained by the simple systems model is "negative feedback", which leads to stability in a system because the system becomes self controlling.

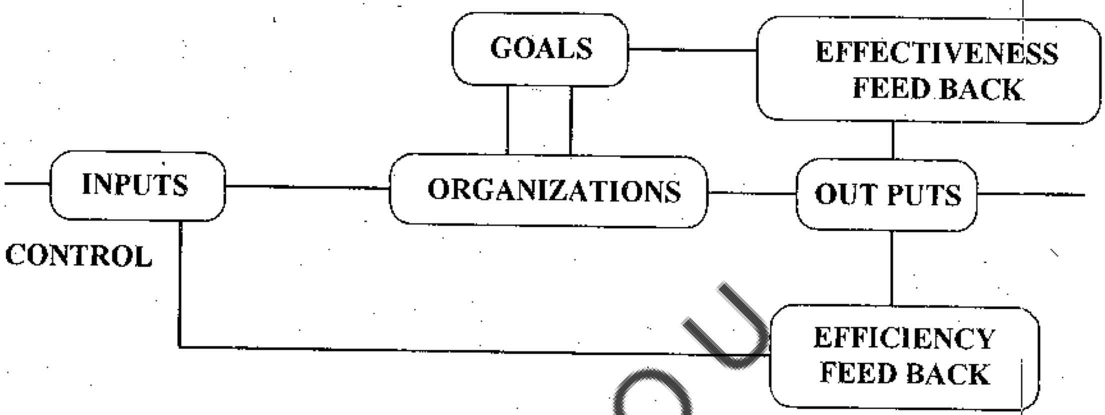


Fig.-3: Simple Systems Model for Libraries

ii) Complex Systems Model

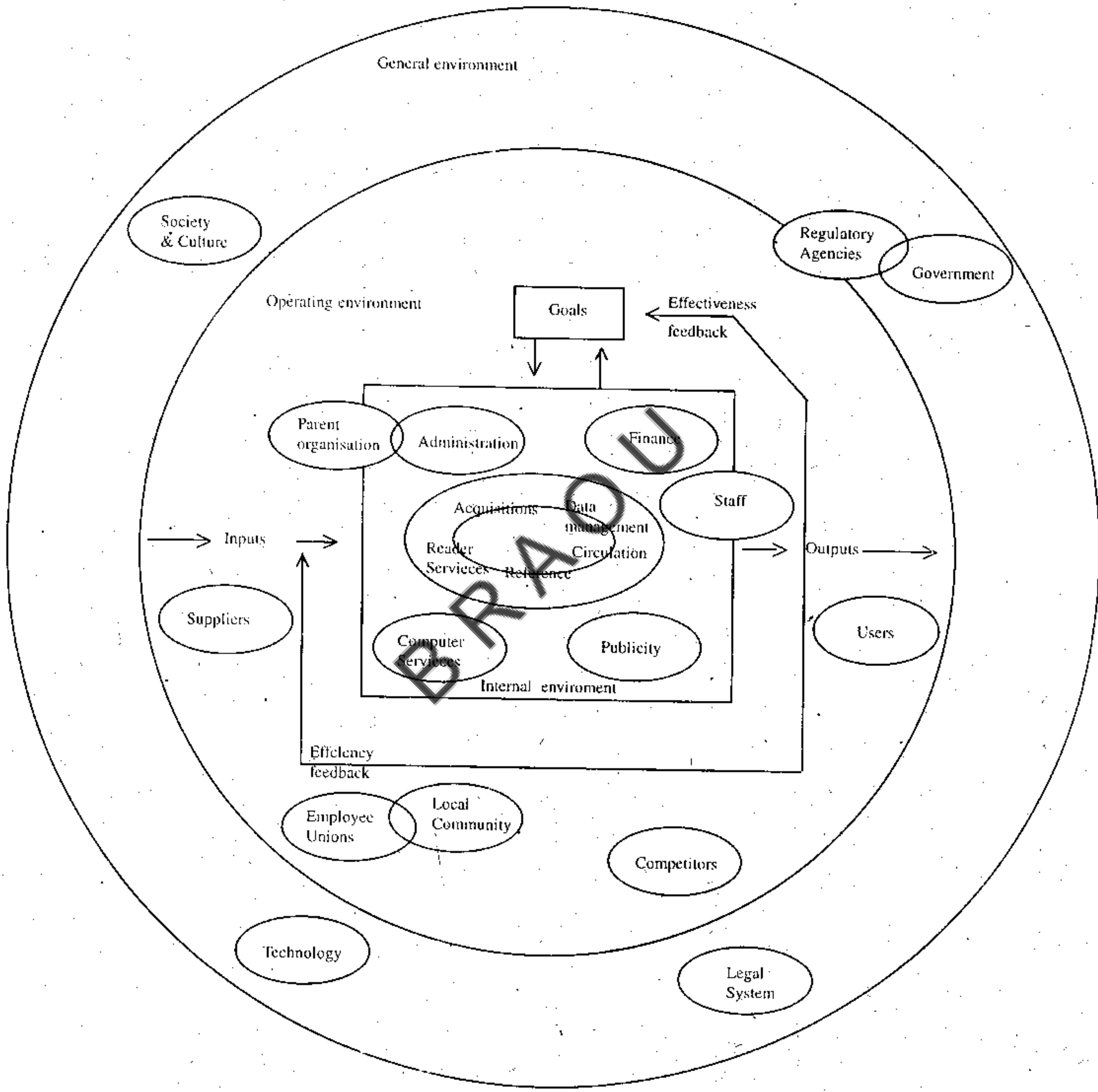
To define the environment of the system more closely and to consider what constitutes the organization can be done through a complex systems model.

The model displays three environmental levels:

1) **Internal Environment**: Which is contained by the system boundary, constitutes all of those elements that are within official jurisdiction of the organization. The internal environment is composed of subsystems, which operate with in the organization and which interact with each other. The change in one part of the system may affect the working of another.

2) Sub-Systems: Each subsystem in the internal environment has to be considered as a separate system which reveals subsystems within it. This is like.. viewing an organization under a microscope at higher and higher levels of magnification. This emphasises a need for elasticity in a system.

3) Operating Environment: It constitutes the groups of suppliers, customers, and the groups which deal with, influence or influenced directly by the work of the organization.



Complex systems model

4) General Environment: It constitutes the social, economic and technological context within which the organization operates. The general environment is capable of exerting a strong influence through the operating system.

Sub-Systems for Libraries

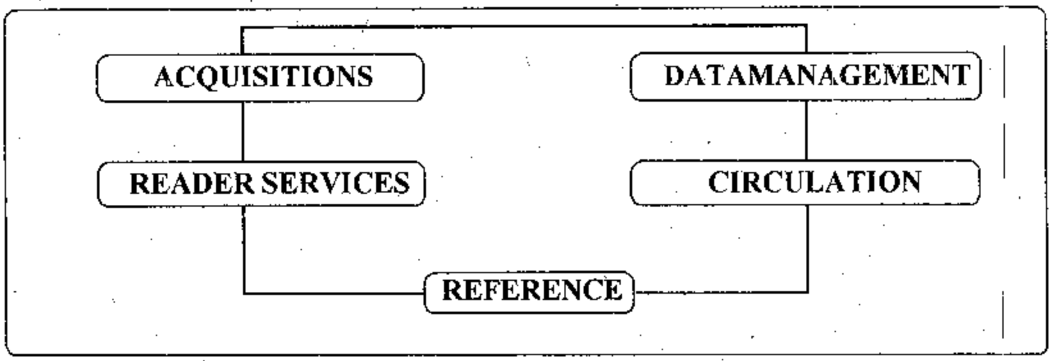


Figure-4: Sub-Systems for Libraries

The strategic management requires information about the operating and the general environments, whereas administration is principally concerned with the internal environment. The complex systems model represents only one aspect of the systems view of organization, that is, it is mainly concerned with the formal task oriented view of the organization what the organization does, or thinks to do.

It is necessary to take into consideration the models showing other aspects which are useful for the organization; like systems model showing the various groups and individuals who have some interest or commitment towards organization. The systems approach helps to reveal the linkages to its environment and other subsystems.

3.5 ORGANIZATIONAL CHARTS

An organizational structure is a set of formal, planned relationship between grouping similar functions and between the physical factors and human beings required for the performance of these functions.

3.5.1 Definition

Koontz and O'Donnell hold the view that " every organization can be charted, for a chart is nothing more than an indication of how departments are tied together along with their principal lines of authority.

George Terry defines an organizational chart as "a diagrammatical form which shows important aspects of an organization, including supervision and relative authority of each employee who is in charge of each respective function".

Organizational charts indicate the functions and their relationship, clear lines of authority and responsibility, visual summary of decision making centres, channels of communication and span of control and supervision. It is a useful management tool.

3.5.2 Types of Organisational Charts

There are three different ways in which the organizational charts can be drawn:

1) **Vertical** (from Top to Bottom): In this the major functions are shown at the top with subordinate functions in successive lower positions. It is a chart wherein scalar levels are running horizontally and functions running vertically. The position of the supreme authority is at the top and the lowest authority at the bottom.

2) **Horizontal** (From left to right): In this chart, the highest positions are put at the left and those with diminishing authority move towards the right. It represents scalar levels in a vertical position and functions horizontally. The position of supreme authority is at the left of the chart and the least authority is at the right of the chart.

3) **Circular**: The centre of the circle represents the position of supreme authority and the functions radiate in all directions from the centre. The higher the positions of authority, nearer they are to the centre, and the lesser the position of authority, the more distant they are from the centre.

Another classification of organization charts is Master charts and Supplementary charts. *Master charts* display the structure of an entire organization and indicate the overall relations of its major components. *Supplementary charts*, on the other hand are concerned with the entire organization but with a particular department or departments.

Advantages:

1) It acts as an important management tool

2) Overlapping and duplication of work is avoided

3) Points out to the inconsistencies and deficiencies

4) It acts as a guide and training ground

Limitations:

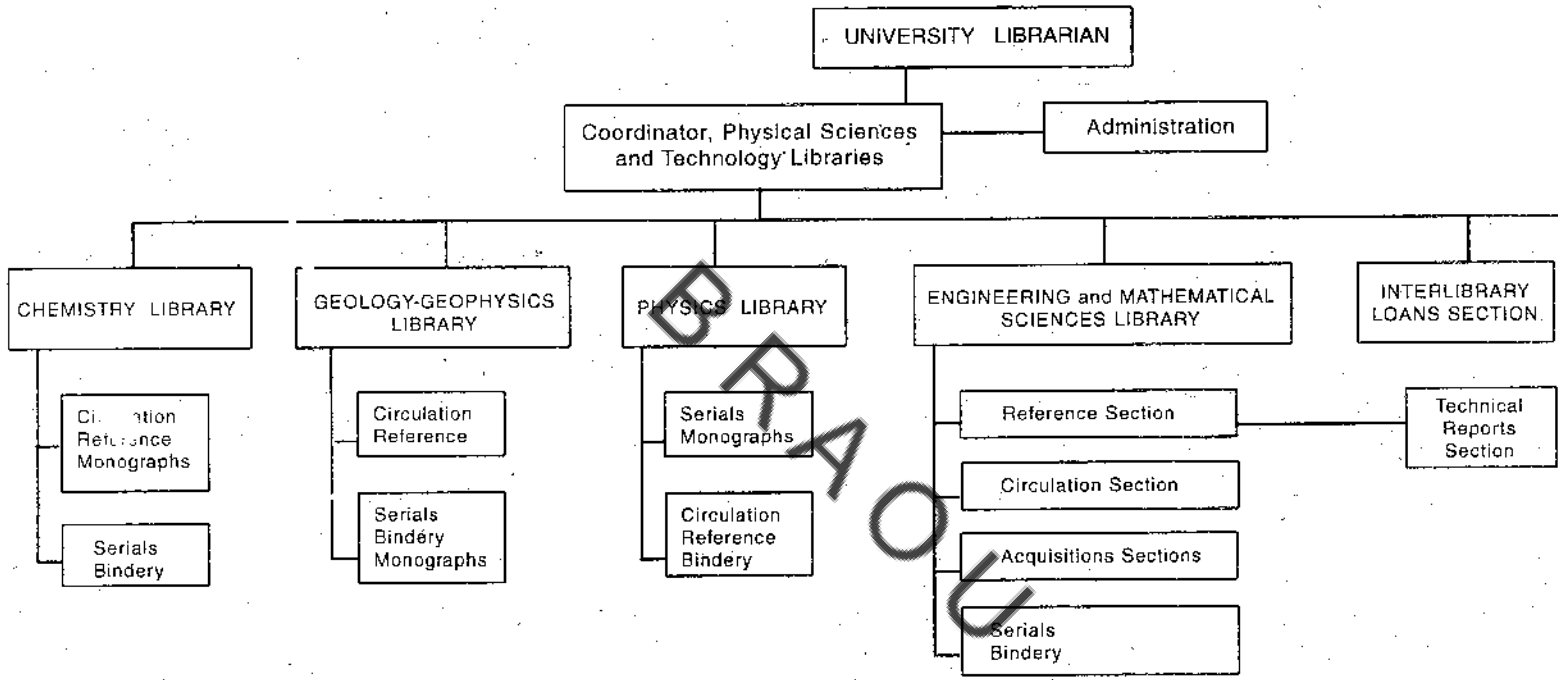
1) A chart does not reveal the full picture of organizations

2) It can not point out the limitation of exact authority at any position in the organization

3) In the absence of a dynamic management the chart gives rigidity to the organization

4) A chart does not represent the informal relationships in the organization

An organizational chart is a visual aid and a supplement to the verbal description of the structural frame work. It outlines the over all structure of the organization and distribution of functions. It levels its individual position, lines of authority and accountability. It is desirable to prepare a master organizational chart showing the primary functional details, supplementing the same with separate auxiliary charts for each department.



Organizational chart of a University Library

3.5.3 Construction of an Organisational Chart

After studying about the organisation charts, their advantages and disadvantages, now we are in a position to develop an organisational chart. We may proceed by steps in their logical sequence.

1) List out the organisational goals and objectives in measura ble and verifiable terms

2) Identify the chief executive and set the above goals and objectives down as his task

3) Break down the over all goals in sub-goals (tasks). The sub-goals should lead to the main goal.

4) List out and appraise the team (staff) available and assign them to appropriate functions and levels corresponding to the sub-goals.

5) Work out the *line of command.* Unity of command and flow of work should be set to the direction of the goal.

6) Assign accountability to the tasks and delegate authority.

7) Clarify the communication lines, up and down and laterally, from each functional point.

8) Review the structure to ensure functioning of the system.

9) Ensure feedback and correction as well as coordination and monitoring in the structure

10) Make sure there is no ambiguity or confusion. Everybody in the system should understand his own rights and duties.

3.6 LET US SUM UP

Let us recapitulate what has been covered in this unit.

* There are different meanings to the term 'organisation'. In terms of management, organisation brings together basic resources and people in an orderly manner to contribute towards a common goal.

* Organisational structure is one that shows the authority and responsibility relationships between various functions in the organisation by showing who reports to whom.

* There are three basic types of organisational structures. They are line organisation, line and staff organisation and functional organisation.

* There are five major forms in the evolution of organisational structure. They are bureaucracy, decentralisation, project organisation, matrix and network structure. The first four models are also applicable to libraries in a limited context, while the network structure may be most suitable to LICs.

* An organisational chart is a graphical representation of the form which the organisational structure takes to reveal the principal lines of authority.

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3.8 ASSIGNMENT

1) Examine the organisational structure of your office/ depart ment or a library and prepare an organisational chart.

2) Examine the organisation structure of different kinds of libraries in your locality and prepare organisational charts.

3) List out various tasks performed by each level in the organ isation.

3.9 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) "Organisation provides a structure and upholds the management functions". Discuss.

2) Draw a simple organisation chart and briefly describe each step.

3) Indicate the steps involved in constructing an organi sational chart.

II. SHORT NOTES

a) Urwicks' ten principles of organisation

b) Organisation theory

c) Matrix organisational structure

d) Line and staff organisation

e) Network structure

UNIT - 4 : LEADERSHIP AND DECISION MAKING PROCESS

Structure

4.0 AIMS AND OBJECTIVES

The aim of this unit is to introduce you to the concept and the theories of leadership. It also briefly explains various management styles and decision making process.

After studying this unit, you should be able to

- define the term leadership
- list out and discuss about various theories of leadership
- describe various styles of leadership
- discuss about the concept of management by objectives
- explain the process of decision making.

4.1 INTRODUCTION

Leadership is one of the important managerial functions in an organisation. It is closely related to motivating, directing and communicating functions. The decision-making process is often affected by the leadership. Hence the managerial quality depends on the leadership.

Leadership has different meanings to various authors. Leadership is defined as influence, the art of process of influencing people so that they will strive willingly and enthusiastically toward the achievement of group goals. To lead is to guide, conduct, direct, and precede. Leadership act as to help a group attain objectives through the maximum application of its capabilities.

4.2 LEADERSHIP - DEFINITION, QUALITIES, FUNCTIONS AND STYLES

In this section you are being introduced to various aspects of leadership such as definition of leadership, qualities, functions and styles.

4.2.1 Definitions

The dictionary meaning of the term 'lead' means to guide, conduct direct and precede. The persons who could do these functions is a leader. Leadership is often said as a psychological process of providing guidance for the followers.

Ralph Stogdill defines leadership as "the process (act) of influencing the task related activities of an organised group members"

Weihrich and Koontz defined leadership as influence, that is the art or process of influencing people so that they will strive willingly and enthusiastically toward the achievement of group goals.

According to Fred Fiedler, leadership is a process of influencing others for the purpose of performing a shared task".

Tannenbaum Weschler and Massarik in their book entitled, *Leadership,* defined leadership as "interpersonal influence, exercised in a situation and directed through the communication process toward the attainment of a specific goal or goals".

In addition to influencing and directing others, Evans also states that the group voluntarily accepts this influence and direction for a number of reasons.

From the above definitions we may infer that the basic characteristics of leadership are:

i) A leader is one who through some method or means is able to influence the behaviour of others; and

ii) The influence is directed towards the achievement of some task or goal.

The above inferences lead us to think and study what method or means some individuals are better able them others to successfully influence the behaviour of others.

4.2.2 Qualities of Leadership

Leadership involves various dimensions and attitudes. It requires vision, courage, understanding, determination, decisiveness, sense of timing, capacity to act, ability to inspire etc. Besides these qualities, leader is judged by his capacity to tackle the situations of crisis.

A leader is an effective human being. He should have identity, open mindedness, independence, responsibility, communicating ability, reasoning and problem-solving abilities. He should have concern for others, maturity, courage, sense of obligation, clarity of mind and expression, integrity, etc.

A leader is one who has some followers and the leader has the art to influence their behaviour. He encourages them and inspires them to act as a team and give their best to achieve the desired result. Leader has to instill the values.

The art of leadership seems to be a compound of at least four major ingredients.

1) The ability to use power effectively and in a responsible manner. (power)

2) The ability to comprehend that human beings have differing motivating forces at different situations. (understanding the people)

3) The ability to inspire (Inspiring followers), and

4) The ability to act in a manner that will develop a climate conducive to responding to and arousing motivations (style and climate).

Weihrich and Koontz have stated five ingredients of leadership. They are- a) power, b) fundamental understanding of people, c) ability to inspire followers to apply their full capabilities to a project, and d) the climate development. These roles are played by leader to have more productivity.

4.2.3 Managers as Leaders

As you have already seen in the beginning of this course, that the management is the process of getting things done through the efforts of other people. Manager is a formal position in an organisation. On the other hand a leader may not have a formal title or authority and he depends on his personal qualities to influence others.

The manager should have all the characteristics and qualities of a leader to influence the people working with him to achieve the desired results. Managers inspire their subordinates by their leadership qualities. Besides the influencing qualities, the managers have powers with their formal positions in the organisation. There are five types of leadership power identified as coercive power, reward power, legitimate power, expert power and charismatic power.

Hitt *et al* distinguishes a leader from a manager as "managers do things right, while leaders do the right things"

4.2.4 Functions of Leadership

The main function of leadership is to 'induce' or 'persuade' all subordinates or followers to contribute to organised goals in accordance with their maximum capacity. In other words, it is 'inspiring' and 'motivating'. As motivators, managers are concerned with the needs of their subordinates. Inspiration is an inner quality and a rare ability of a leader with charismatic quality. The functions of leadership and the manager's role are relative and similar, as the manager is supposed to lead the employees and successfully achieve the goals.

There 16 common activities and functions identified and expected from a Leader-Manager.

1) *Arbitrating and mediating:* A leader resolves a disagreement by arbitration and mediation.

2) *Suggesting:* The suggesting ability of the leader allows the subordinates a sense of participation in tasks.

3) *Supplying objectives:* The objectives supplied by the leader help members to work together.

4) *Catalyzing:* The leader acts as a catalyst to initiate or accelerate the work.

5) *Providing Security:* Leader provides personal security to his team members at the movement of adversaries to maintain an optimistic/ positive attitude.

6) *Representing:* A leader represents the organisation for which he is working and speaks for it with the outsiders.

7) *Inspiring and Zeal building:* A leader inspires his team mem bers to contribute more towards achieving the goals of the organisation.

8) *Praising:* A leader praises his subordinates for their good work.

9) *Goal Setting:* A leader contributes towards establishing objectives and goals.

10) *Executing:* A leader is responsible for executing the plans.

11) *Expertise:* A leader is an expert and he provides necessary guidance to his subordinates.

12) *Bearing Group Responsibility:* A leader bears the responsibility for deeds of his subordinates.

13) *Purveying Rewards and Punishments:* A leader approves or administers the rewards and punishment to his subordinates.

14) *Exemplifying:* A leader is a model for others to follow him.

15) *Father Figure:* A leader serves to fulfill an emotional role for the group members as an elder.

16) *Scape goat:* A leader is a ready target for the aggressions of his group members.

In addition to the above, the other functions of a leader are to create a good and congenial atmosphere to enable to have smooth flow.

The leader with his attitude and behaviour motivates the staff. The leader will be symbol of the group and acts a spokesperson of the group. The leader is also an example setter, shares the skills and knowledge and holds the responsibility. They need to instill values concerned to quality, honesty, etc.

Stoner and Freeman had suggested two major functions of leaders: (a) task related or problem solving, and (b) group maintenance or social functions such as mediating in case of disputes and ensuring that individuals feel values by the group.

Both roles have to be performed by the leader. Leaders also inspire their followers and create major impact on the library as organisation. Such leaders are known as charismatic or transformation leader. Leadership is challenging and they need to change their style to fit into changing situations.

Weinrich and Koontz have stated the ingredients of leadership as follows:

(a) The ability to use power effectively and in a responsible manner,

(b) The ability to comprehend that human beings have different motivating forces at different times and in different situations,

(c) The ability to inspire, and

(d) The ability to act in a manner that will develop a climate conducive to responding to evolving motivations.

Librarian or other professionals at managerial level must develop the leadership qualities and lead all the staff to achieve the objectives successfully.

4.2.5 Leadership Styles

Leaders have been observed applying three basic styles - autocratic, democratic and free-rein. The *Autocratic leader* was defined as one who commands and expects compliance, who is dogmatic and positive and who leads by the ability to with hold or give rewards and punishment.

The *Democratic leader* or *Participative leader* consults with subordinates on proposed actions and decisions and encourages participation from them. This type of leader was seen as ranging from the person who does not take action with out sub-ordinates concurrence to the one who makes decisions but consults subordinates before doing so.

The third type of leader, namely *Free-rein leader* or *Laissez-faire*, uses his or her power very little, if at all, giving subordinates a high degree of independence or free hand in their operations. Such leader depends highly on subordinates to set their own goals and means of achieving them and they see their role as one of aiding the operations of followers by furnishing them information and acting primarily as contact with the groups external environment.

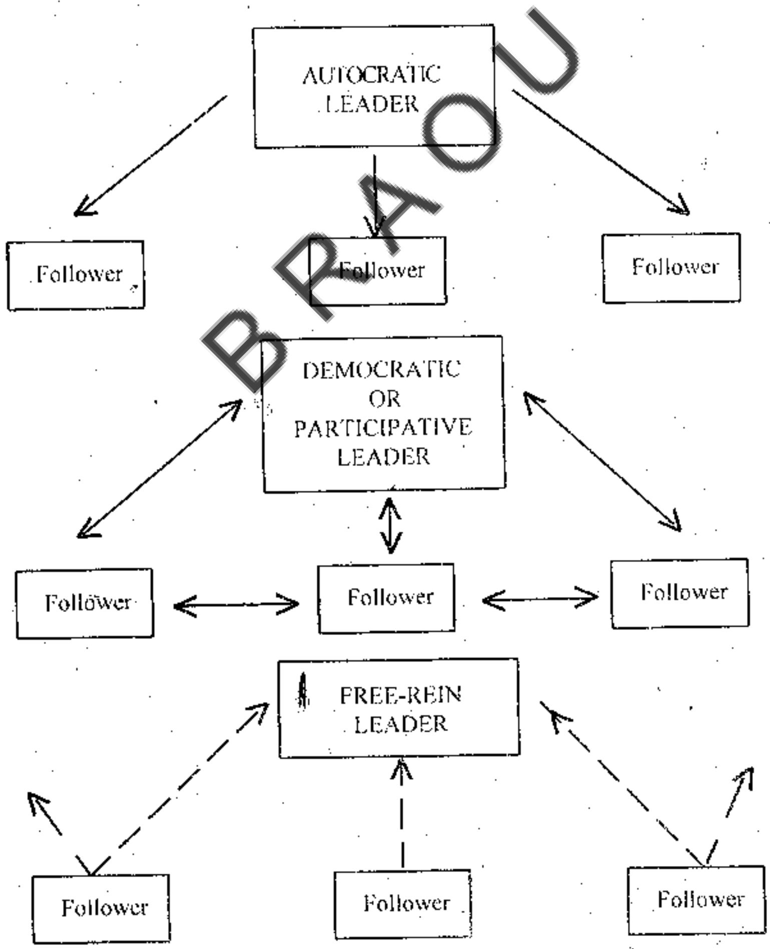


Fig.1 THE FLOW OF INFLUENCE WITH THREE LEADERSHIP STYLES.

Source : Koontz and O'Donnel. Essentials of Management. 4th ed. New york : McGraw-Hill 1988. P401

Stoner and Freeman have categorised leadership styles as follows: a) Task oriented style, and b) Employee-oriented style. The managers in the first category closely supervise employees to be sure that the task is performed satisfactorily. Getting the job is more important than the employees' growth and personal satisfaction. The managers of the second category motivate subordinates rather than control. They seek friendly, trusting and respectful relationship with employees. The manager leads his subordinates, influenced by his background, knowledge, values, cultural background and experience.

4.3 COMPONENTS OF LEADERSHIP

There are several concepts and approaches concerned to leadership. Some of them are stated briefly for your benefit.

4.3.1 Trait Approach to Leadership

Trait means distinct quality or feature. Earlier attempts were made to identify the traits that a leader possesses. The "Greatman" theory states that leaders are born and not made and researchers made an attempt to identify the physical, mental and personality traits.

Ralph Stogdill found that various researchers have identified specific traits related to leadership ability. They are -

a) Five physical traits (such as energy, appearance, height);

b) Four intelligence and ability traits

c) Sixteen personality traits (such as adaptability, aggressiveness, enthusiasm, and self-confidence)

d) Six task related characteristics (such as achievement, drive, persistence and initiative)

e) Nine social characteristics (such as cooperativeness, inter personal skills and administrative ability).

Recently, some management studies have identified the key traits of leadership. They are - drive (including achievement, motivation, energy, ambition, initiative and tenacity); honesty; integrity; self confidence (including emotional stability); cognitive ability and understanding the activities.

This approach has been not very fruitful as every leader do not have all the traits. But this approach may give some idea and these traits are associated with the patterns of behaviour.

4.3.2 Use of Authority

Leadership styles have been classified on the basis of use of authority. They are - autocratic, democratic, and free-rein.

a) *Autocratic leadership:* Leader commands and expects complience in positive and dogmatic manner.

b) *Democratic leadership:* This is also known as Participative leadership. The leader consults with subordinates on proposed actions and decisions and encourages participation from them.

c) *Free-rein leadership:* The leader uses very little power. High degree of independence is given in their operations. They depend largely on subordinates.

The styles are shown comparatively in the following chart:

	Authoritarian	*Democratic*	*Laissez-faire*
	All determination of policy by the leader	All policies a matter of group discussion	Complete freedom for group or individual decisions
2)	Techniques and activities dictated by leader	Activities arrived at during group discussions. Alternatives suggested by the leader	Materials supplied by the leaders, who would provide information if asked.
3)	Leader dictated individual job task and work companion of each individual	Members were free to work with whomever they choose. Division of task left upto the group	Complete non-participation of leader
4)	Leader was personal in praise and criticism of group work. Tended to remain aloof.	Leader wa objective in praise and criticism and tended to be a member of group.	Infrequent comments on member activities. No attempt to regulate the group.

Source: Misshauk, Michael J. *Management: Theory and Practice.* p.186.

4.3.7 Management Grid

The Management Grid Theory is one of the most popular among the leadership theories. Robert Blake and Jane Mouton developed this theory in 1978. It measures manager's relative concern for people and tasks. Management Grid is a two-dimensional matrix. The two dimensions on the 9x9 grid are labelled as 'concern for people' and 'concern for production'. According to this theory improvised performance is possible only when orientation is found towards both people and for tasks. Using the grid Blake and Mouton described five basic leadership styles. The numbers that preface each of the five styles of management describe where the style would fit on the grid. For example,

1. The (9,1) leader is concerned about the task or production. He is concerned with his responsibility to see that the work is completed. He is called a 'Task-Management Leader'.

2. The (1,9) leadership style indicates the high concern for people and low concern for production. The leader's major responsibility is to establish harmonious relationship among
subordinates. He is called 'Country Club Manager'

3. The (1,1) leader is concerned with neither production nor people. He is called as 'Improverish Management Leader'.

4. The (5,5) leadership style reflects a middle ground position. He attempts to balance and strike a compromise between high production and employee satisfaction.

5. The (9,9) leader is concerned about the task and the people. This position indicates the maximum concern for both output and people. He is called a 'Team Management Leader'.

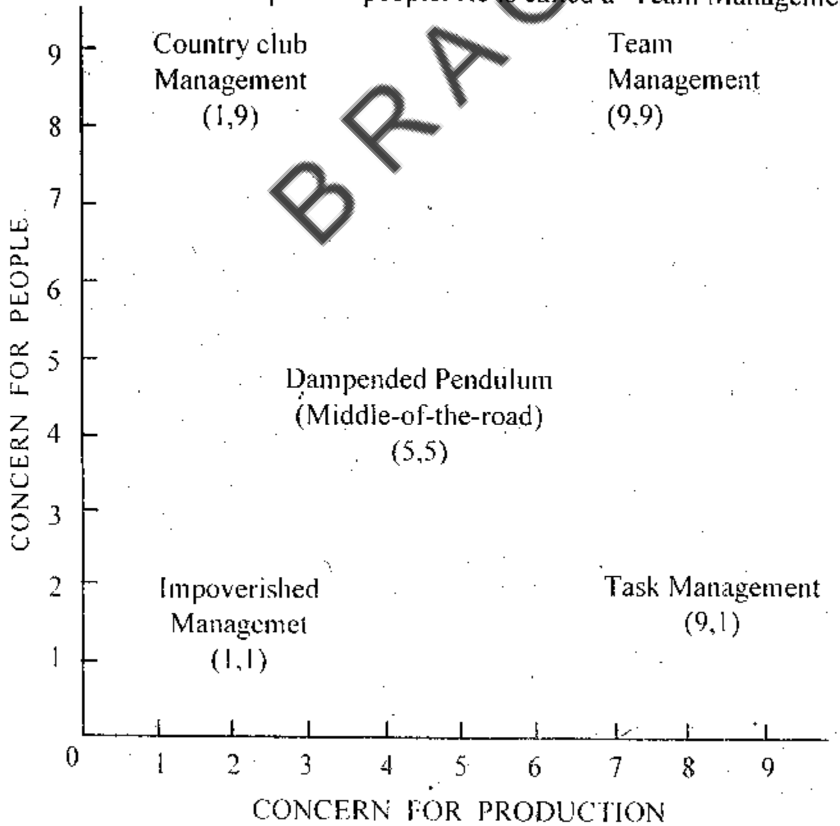


Figure-2: Management Grid

Blake and Mouton used this method/analysis to identify the specific leadership style. Once the style of a particular leader is understood by the individual managers, it is possible for them to attempt to change or modify their style in future situations.

4.3.4 Likerts Four Systems of Management

Rensis Likert and his associates at Michgan have supplied the patterns and styles of leaders ad managers for three decades.

In the course of these researches Likert has developed certain ideas and approaches important to understanding leadership behavior. Since it appeals to human motivations. Likert views are considered to be as the most effective way to lead a group. (All members of the group, including the manager or leader, adopt a supportive attitude in which they share in one another's common needs, values, aspirations, goals, and expectations).

Likert has pointed four Systems of Management

System 1 Exploitive-authoritative	System 2 Benevolent-authoritative	System 3 Consultative	System 4 Participative
1. Managers are highly autocratic.	Managers have patronising confidence in subordinates	These managers have substantial but not complete confidence and trust in sub-ordinates.	These managers have complete confidence and trust in subordinates.
2. Little trust in subordinates.	Trust subordinates.	Make use of ideas and opinions of subordinates.	Make constructive use of subordinates idea and opinions.
3. Motivate people through fear & punishment.	Motivate with rewards, some fear & punishment.	Use rewards for motivation with occasssional punishment and some participation.	We reward for motivation with occassional punishment and some participation.
4. Occassional rewards.	Rewards are common.	Rewards are given	Economic rewards are given on the basis of participation and involvement.
5. Engage downward communication	Permit some upward communication & opinions	Engage in communication flow both down and up.	Engage in communication flow both down and up.
6. Limit decision making to the top.	Solicit some ideas and opinions from subordinates but with close policy control. Allow some delegation of decision making.	Make broad policy and general decisions at the top, allowing specific decisions to be made at lower levels.	Encourage decision making throughont the organisation and operate among themselves and with their subordinates as a group.

Likert saw System 4 management as most participative of all and referred to it as "participative group"

In general Likert found that those managers who applied the system 4 approach to their operations had great success as Leaders. More over he noted that departments and companies managed by system 4 were most effective in setting goals and achieving them and were generally more productive. The success is mainly based on the degree of participation and the extent to involvement from the subordinates.

4.4 MANAGEMENT BY OBJECTIVE (MBO)

Objectives for organisation and individuals are set and effort is made by both managers and subordinates to reach the goals by using management skills. The management of organisation is set to successfully achieve the stated set of objectives. Therefore, this concept is known as Management by Objectives (MBO).

Peter Drucker had first professed this concept in his book entitled, *The Practice of Management* (1954). The objectives for organisation are set periodically (or annually) and the individual performance goals are set for employees. The individual goals are set based on the organisational objectives. The management and the individuals make an effort to achieve the employees' goals by which the organisational goals are automatically achieved. These goals or objectives are communicated to all the levels of personnel to enable them to know and achieve them successfully.

The specific MBO applications reveal the major advantages such as improved communication, increase in mutual understanding of mutual problems, better coordination of plans, improvement in attitudes regarding evaluation process, better use of all managerial abilities and increase in innovation and creativity. MBO is a powerful management tool which can be applied to all basic functions of management like planning, organising, directing, and controlling.

4.4.1 Definitions

Weihrich and Koontz defined MBO as a comprehensive managerial system that integrates many key managerial activities in a systematic manner that is consciously directed toward the effective and efficient achievement of organisational and individual objectives.

According to George Odiorne, "the superior and the subordinate managers of an organisation jointly define its common goals and define each individuals major areas of responsibility in terms of the results expected of him and use these measures as guides for operating the unit and assessing the contribution of each of its members". MBO is not a mere set of rules, a series of procedures or even a set of methods of managing.

Stoner and Freeman explain that MBO refers to a formal or moderately formal, set of procedures that begins with goal setting and continues through performance review. Managers and their subordinates act together to set common goals. Each person's major areas of responsibility are clearly defined in terms of measurable expected results or objectives used by subordinates in planning their work, and by both subordinates and superiors for monitoring progress.

These definitions clearly indicate that the common goals and individual goals are jointly set by supervisors/managers and subordinates. With these goals, the responsibility of everyone is indicated and management makes everyone to achieve the defined goals.

4.4.2 Steps in Applying MBO

The characteristics steps involved in applying MBO are as follows :

1) *Long-range Planning:* Objectives are set for managerial positions. Importance is given to objective setting in MBO because, a broad frame work of Library's Objectives for the next few years, gives a sense of Corporate purpose which minimises the narrow self interests of each section. It provides a criterion for judging the worthwhileness of short term actions and ensures coordination between the short term actions and long term goals.

   Objective setting in MBO is characterised by two important features.

   a) Joint objective setting: It involves all levels - the superiors and sub-ordinates.

   b) Linking up objectives: MBO takes into account the fact that the work of every section is likely to be connected with that of other sections. The objectives of high priority of one section may necessarily need the cooperation of another. By taking into account the links that exist among different sections MBO ensures enormous progress towards the goals.

2) *Key Result Analysis*

   The policies, means of control. and suggestions for improvement. are also taken note of in key result analysis. MBO stresses a great deal of quantifications.

3) *Management guide*

   In this step, the outcome of the steps mentioned above are documented and recorded under the following headings:

   a) Over all objectives
   b) Objectives of sections
   c) policies related to tasks
   d) key tasks
   e) Level of performance
   f) Control data
   g) Suggestions for improvement.

4) *Organization Structure*

In this step organization Structure takes the form of a chart showing primarily the allocation of man-power against the duties and responsibilities pertaining to their tasks. An organisational structure that gives maximum freedom and flexibility in operation is developed.

5) *Management Information System (MIS)*

MIS is a communication system for providing information to aid the head of Library and section heads to help decision making. An effective communication system is to be established.

6) *Performance Review*

This step involves reporting the progress to the managers. During this appraisal or review of progress, alteration or updation of objectives is possible.

7) *New job improvement plan*

As a result of performance review, a job improvement plan may originate. A fresh plan is drawn up for the next period. The new job improvement plan makes a measurable contribution to the section plan and library's plan towards better per formance.

8) *Training Program*

In this step manpower training programmes are developed for the employees and may be provided with opportunity to par ticipate in programme such as short term courses. refresher courses, organised by other institutions.

9) *Review of Performance*

The processes of review and control by the section heads and Librarian continues. Periodically the Library committee reviews the performance of the library and assesses the progress towards achievement of objectives and resets the targets if necessary.

Thus, the requirements of an effective MBO applications may be listed as follows:

1) Involvement of top level management
2) Participation of subordinates
3) Delegation of Authority

4.4.3 Benefits of MBO

It is not a philosophy of management but also a system which aims at identifying objectives of individuals with the objectives of the organization. When applied systematically it leads to following advantages:

1) Improvement in management or resulting in efficient and effective services
2) Improved communications
3) Encouragement of the staff to committ to their goals
4) Development of effective controls through effective planning.

Every library as an organisation strives to achieve the objectives. The objectives are end-points. The activities are planned to enable to achieve the objectives. At the end of a specified period, there is a need to examine and evaluate whether the objectives have been achieved or not.

The top management or high level management sets the goals of organisation. MBO proposes to set and clarify the specific roles of the managers and the employees, who are responsible in achieving the goals. It also sets the objectives to subordinates. These goals can be set to all the employees. They can be qualitative and quantitative.

As there is involvement of people at all levels in setting the goals, there is every possibility of achieving the goals and contributes better management. The employees committ themselves to their goals and develop effective control. Therefore, MBO had gained popularity. This concept supports the effective management.

4.5 DECISION MAKING PROCESS

Decision making is the selection of a course of action from among alternatives to achieve a specific objective or to solve a specific problem. It is a process and the outcome or product of such process is decision.

According to Peter Drucker, "Decision-making is only one of the tasks of an executive. It usually takes a small fraction of his time. But to make decisions is the specific executive task".

Prof. Herbert Simon emphasised its importance as "a post or position cannot be said to be managerial unless and until the right of decision making is attached to it". Managers are paid for the decisions they make the quality of decisions made, determine his effectiveness as a manager.

Decision making is the core of planning. Accordingly, decision-making is essentially artificial process that involve the selection of a particular course of action, from among the alternatives available, to achieve a pre-determined objective.

The administration of modern organizations and enterprises has become an enormously complex exercise. There has been an increasing tendency to turn to quantitative techniques and models as a potential means of solving many of the problems.

Managers sometimes see decision making as their central job because they must constantly choose what is to be done, who is to do it, when where and occasionally how it will be done.

Decision making is however, only one step his planning and it is also a part of everyone's daily living.

4.5.1 Rational Decision Making

The core planning is really decision making. Decision making must be rational. But what is a rational decision ? Rational decision is attempting to reach some goal that cannot be attained without action. The managers should have a clear understanding of alternative courses by which a goal can be reached under existing circumstances and limitations.

The decisions taken do not guarantee always that they are right decisions. At the same time the rational, intelligent and systematic approach are more likely to be high quality solutions/ decisions and getting the most satisfactory or best solution. Stoner and Freeman had suggested four major stages for a rational model of decision making. They are

1) Investigate the situation: In this state the problem has to be anounced and defined. After defining the problem, the objectives for decision making has be spelt out. Diagnosis of the course has to be made.

2) Develop alternatives: The alternatives which are likely to solve the problems have to be identified. The managers with their experience, knowledge and exposure can also look for creative alternatives.

3) Evaluate the alternatives and select the best one: Every alternative solution needs to be examined and evaluated. It is necessary to examine each one, whether it is feasible and does it give satisfactory solution. How does each alternative effect on the organisation. Select the best possible and feasible alternative.

4) Implement and monitor the decision: Once the alternative is selected, there is a need to plan the implementation of this alternative. The plans will help in proper and successful implementation. The implementation also needs to be monitored for planned implementation and successful results/outcome.

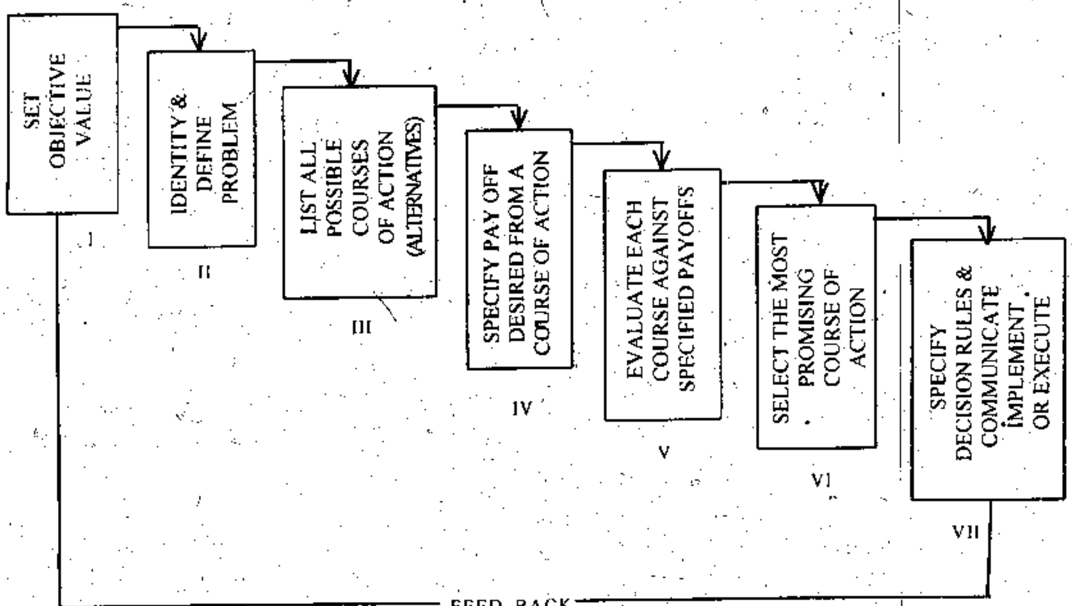


Figure-3: Sequence of Steps in Decision Making

To develop the alternatives is very important and the staff may be associated in developing such alternatives. Even the 'principle of limiting factor' may be useful. This principle is - 'to identify and overcome the factors that are blocking in achieving the goals, the best alternative course of action can be selected. Evaluation and selection of alternatives will contribute in achievement of goals. The quantitative and qualitative factors (both) have to be taken into consideration. Quantitative includes measurement in numerical terms and qualitative includes the labour relations, rise of technological change etc. Even the concept of 'marginal analysis' also can be applied. It is comparing the additional revenues arising from additional costs.

For selecting alternative the approaches used are - a) experience, b) experimentation, and c) research and analysis.

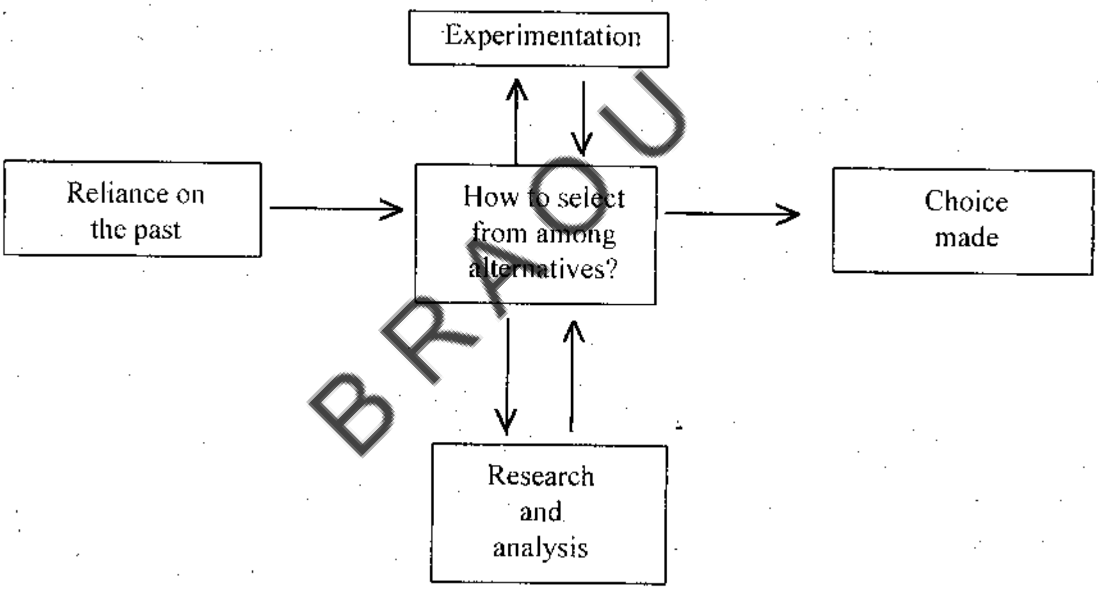


Figure-4: Bases for Selecting from among Alternative Courses of Action

4.5.2 Problem Analysis

The need for decision making is to solve the problems. Therefore, to make the decisions, help in identification of alternatives and selection of right alternatives. The following points help to analyse the problems.

Standard performance has to be compared with that of real performance. There is a need to know whether there is any deviation and if present, the deviation point needs to be located. The manager has to look for the reasons or causes of the problem and also to examine who get effected due to this deviation.

The relevant causes that took place due to the causes of the problems need to be analysed. As all the data and information is available due to all these steps, the necessary corrections could be made or necessary and appropriate decisions may be made.

4.5.3 Problem Solving

Problem solving depends upon making right decisions. Right decisions or successful decision making is not an easy job. That is the reason the managers are considered successful only when they are successful as decision makers. The success of decision making depends upon

a) *Information available:* The relevant, factual, complete and uptodate information is essential. The source of information is also important.

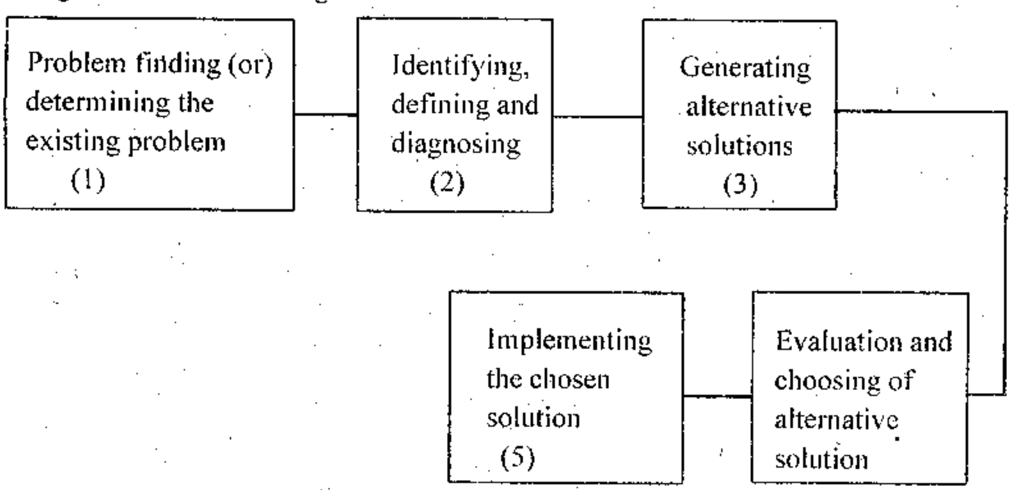
b) *Environment:* The environment or under which conditions the decisions are taken, is very important. Here environment includes pressure, emotion, time, people, etc. If there is pressure or lack of time the decisions are likely to be poor and get effected on problem solving.

c) *Planning:* Proper planning is required to make the successful decisions to enable to solve the problem. Other people who are associated with the work may be involved in planning and decision making.

Problem Solving *versus* Decision Making

It is a fact that decision making is done to solve the problem. But is decision making and, problem solving the same ? It is really an important aspect that has to be taken into consideration.

George Huber had differentiated between problem solving and decision making. In this process as well as to assist and clarify the differentiation the following work flow chart is being drawin with five stages:



Huber had identified the three following types of actions from the above work flow chart:

(a) *Decision making:* This induces the steps from 2 to 4. In this type only decisions are made but the implementation is not considered as one of the jobs of managers. Therefore, the result or outcome is not known to decision maker.

(b) *Problem solving:* This involves the steps 2 to 5, which includes not only identification of problem but also to correct the problem by implementating the course of action.

(c) *Choice making:* This include only step 4. The background work is done by some one and the decision maker takes the decision on the basis of the information made available.

The manager's role should not be either choice maker or decision maker, but it should be problem solver.

4.4.4 Types of Decisions

The decisions are categorised into different types on the basis of its coverage, impact and intensity. They are

a) *Basic:* This type of decision is a unique decision, which will have a long term effect and which may need large investment. Any slight mistake in these decisions would seriously effect the working of the organisation. Eg.: Selection of cataloguing code or classification scheme or location of a library.

b) *Strategic:* These decisions will have impact on basic objectives and policies. These decisions find out the best method or ways and means in the changing situation. It may include the decisions that are associated with productivity reorganisation. In a library situation, to attract more users, the activities like oral review programmes may be organised.

c) *Routine:* These decisions are repetitive and needs little thought. These decisions need less thought and are based on procedures and policies of the library. Eg. Issue of books, renewal of books, issue of a journal.

d) *Programmed:* These decisions are made on the basis of either written or unwritten policies, procedures or rules. The decisions are already indicated and made at the organisation level, less freedom is given to the manager. The manager need not think for a long and are uncomplicated. These are also based on standard procedures. Eg., Fixing the salary to a new employee, giving annual increment to the staff.

e) *Non-programmed.* These decisions are to be taken to solve the unexpected and non-routine problems. These problems may need special treatment and the manager has to analyse, use his knowledge and experience in decision making. Judgement, creativity and rules shall also help decision maker.

f) *Administrative decisions:* The decisions concerned with structuring the personnel, performance, workflow, etc come under this category.

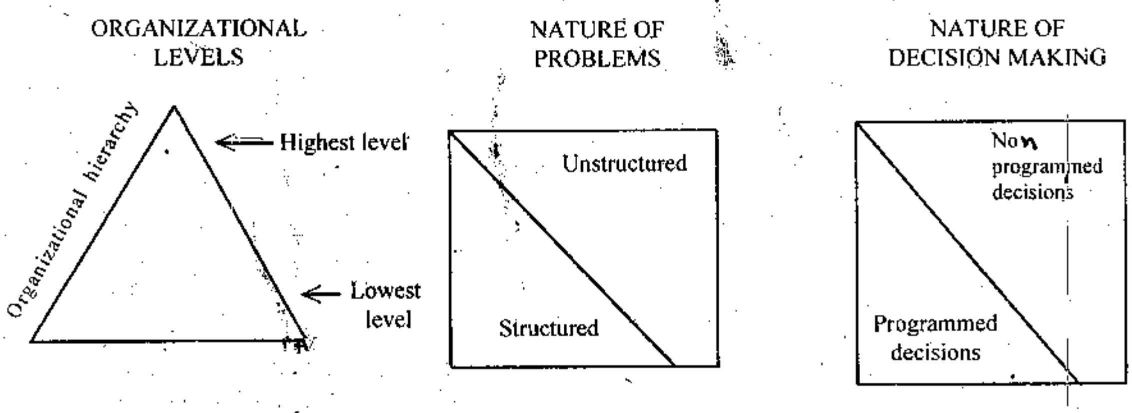


Fig .5 NATURE OF PROBLEMS AND DECISION MAKING IN THE ORGANIZATION

The decision taken may provide varied results. The results or outcome may be categorised as follows:

i) *Certainity:* The managers have accurate information about the outcome of various alternatives under consideration.

ii) *Risk:* The managers are aware of the possibility of a particular decision, which leads to a desired outcome.

iii) *Uncertainity:* The outcome of the decisions are uncertain and little known. This is due to lack of information and the prevailing conditions under which the decisions are taken.

4.6 LET US SUM UP

In this unit, meaning and definition of leadership had been discussed. The qualities and functions of a leader had been stated. The leadership qualities are essential to every manager to enable them to successfully achieve the objectives of an organisation. Every manager needs to become a leader.

Few concepts related to the leadership had also been discussed. The trait theory discusses the certain traits required for a leader. Few researchers have identified the traits of a leader, but no leader has all these traits. Therefore, this theory helps as a guideline to identify the leader.

On the basis of use of authority, the leadership styles have been identified into autocratic, democratic and free-rein.

Success of any organisation depends upon achieving the objectives. Therefore, the objectives at organisational level and individual level are identified by both managers and subordinates. Individuals take responsibility to achieve their objectives and in turn they help to achieve the organisational objectives. This approach to management is based on objectives and therefore, it is known as MBO.

Decision making is a regular and routine activity. The decisions are taken at various levels. These decisions are different types. The decision making is also discussed in detail.

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4.8 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Define the term 'Leadership'. Explain the qualities and functions of leadership.

2) List out various leadership styles/approaches. Briefly explain each of them.

3) What is MBO ? Describe the steps involved in applying MBO.

4) Describe the various steps in decision-making process.

II. SHORT NOTES

a) Likert's four systems

b) Non-programmed decisions

c) Management Grid

UNIT - 5 : PLANNING

Structure

5.0 AIMS AND OBJECTIVES

The aim of this unit is to provide you an overview of planning with special emphasis on the factors, types and steps involved in the planning of information systems and services.

After studying the unit you should be able to

- explain the concept of planning
- recognise the need and value of planning
- draw a conceptual framework for planning
- identify the factors involved in planning
- discuss the use of systems approach in planning of LICs.

5.1 INTRODUCTION

Planning has assumed considerable importance in recent times due to changes in the library and information environment. In the earlier units of this block, we have discussed some of the

concepts/theories and functions of management which will provide you background to understand the concept of planning.

As all other managerial functions, such as, organising, staffing, directing, coordinating, budgeting, etc contribute to the advancement of objectives, planning logically precedes all of them and hence is discussed in detail in this unit. Details include need for planning, definition, types steps and techniques of planning. Perhaps, the key position and importance of this unit can be better understood and appreciated when you study other blocks, like Management of Information Systems and Financial Resource and Human Resource Management and their respective units. A similarity in the Planning Approach vis-a-vis Systems Analysis and Design will be evident to you. In other words, the topic of "Planning" discussed in this unit would facilitate in the understanding of the concepts discussed in the other blocks/units.

5.2 PLANNING

Planning is concerned with the future, whether it be tomorrow, next month or few years away. But, it is also concerned with the present,since it involves moving from a current situation towards a future goal.

5.2.1 Definition

Planning is concerned essentially with two aspects: i) setting the right goals; and ii) choosing the right means for attaining those goals. These two aspects are vital to the process of management. It is also a vital management function. Further, it helps to organise the people and resources. In simple terms - it is an instrument used for achieving the desired goals.

It is a task or activity that is required on a continuous basis for the management of all organisations, including library and information systems. It is an ongoing basic management activity that is shared in varying degrees by all levels of management. It is a locomotive that drives a train of organising, leading and controlling activities (Stoner, 1992).

Essentially, planning is concerned with the future. It provides a clear idea of what needs to be organised as well as indicates the sense of direction. When one plans, one attempts to sketch out the things that will, might, or must happen to proceed from a given point to a desired point. In other words, as Koontz *et al* (1980) put it

> "... Planning is deciding in advance what to do, how to do it, when to do it, and who is to do it. Planning may also be said to bridge the gap from where we are to where we want to go. It contributes to the accomplishment of things.

Although the exact future can seldom be predicted and factors beyond control may interfere with the best-laid plans, unless there is planning, events are left to chance, planning is an intellectually demanding process; it requires the conscious determination of courses of action and the basing of decisions on purpose, knowledge, and considered estimates".

Taylor and Sparkes defined planning as an analytical process involving four steps. a) Assessment of future, (b) Determination of desired objectives in the context of future, (c) Development of alternative courses of action to achieve such objectives, and (d) Selection of a course/courses of action from among these objectives. These steps contribute in taking the organisation to desired state in a given period of time by setting it on a predetermined course of action. This process is relevant even to LICs. It is necessary to remember that planning is not only the most basic function, but it is also a delicate, complicated, time-consuming rocess. It needs foresight, knowledge in relevant fields/subjects and exposure to environment and technology.

Many library professionals experience a certain resent-ment at the intrusion of planning on their traditional and more intuitive style of management. To those, it may be said that "unless librarians are active and knowledgeable partners in the planning process, they will cease to be architects of their own profession" (Penna, 1970). On the other hand, some of the experienced among the professionals say that planning approach is only a way of writing down intentions which enforces clarifica-tion of the mind and quantifying intentions and makes one face reality better. The right answer to the question 'why we need planning in LICs?' is to improve the services to the users.

Another feature that needs to be recognised is that planning is an on-going process which is cyclic in nature. To keep the intentions in line with changes in environment, one must con-stantly review the previous actions and relate them to the objectives, policies and programmes, if necessary modify them accordingly. This constant recycling of intentions, results and new intentions is called the planning cycle (Wilson 1978) and the different cycles vary in the levels of data input and planning activity.

Planning also has been described as "risk-taking. It is radical, in the most basic sense of the term : going back to the root of the matter. The planning group begins by defining the role of the library in its community and the library's goals, objectives, and strategies are rooted in this decision... The planning process itself is inevitably political, involving as it does the weighing of the needs of various interest groups" (Palmour et al, 1980).

But, for planning to be successful the climate within the library or system must be hospitable both from the staff and clientele. Therefore, it is essential in planning that library and information science professionals look forward to the future needs of their clientele in the context of changing environment in information storage and retrieval. It may be useful to look into the advantages of planning.

5.2.2 Advantages of Planning

The advantages of planning are obvious. It can be observed here that without planning most libraries will remain poorly organised and ill-equipped to meet their objectives of service to users.

Specifically, planning of libraries would effect the following advantages:

a) Planning helps to systematically move towards the achievement of the goals of the library. It gives direction to growth and future activity.

b) Planning helps to offset uncertainty and change. Its attention is focussed on clearly defined objectives

c) The decisions are taken based on concrete activity

d) Planning helps in identifying essential and priority action programmes for resource allocation to achieve the specified goals of a library

e) It facilitates control and coordination of library activities/programs.

f) Planning helps rechecking, error-identifying and remodifying the actions and programs due to unforeseen circumstances at any stage in course of action. It contributes to economy in operations

g) Planning helps in clear demarcation and allocation of activities among a group of people and effectively controls the course of action of different people towards achieving the goals.

h) Planning helps to draft a financially goal and activity-oriented budget. A good plan is capable of efficient, effective or enhanced use of financial resources.

i) Planning provides an integrated and yet an analytical projection of a future course of a library.

In brief, the planning helps in achievement of goals, identification of priority, coordination, cooperation, finances and manpower. Some may argue that it is possible to develop a library or information system easily, but to do so without planning leads to disaster.

5.3 TYPES OF PLANS

The modern organisations including LICs are complex and need to coordinate the actions of both professionals and non-professionals. The managers at all levels have to create plans to enable them to successfully achieve the goals. These plans are two types: i) Strategic Plans, and 2) Operational/Tactical Plans. The first type is designed to meet the broad goals of organisation and the second type shows how strategic plans will be implemented in day to day activities. They are discussed in detail in the following subsections.

5.3.1 Strategic Planning

Strategic planning is the process of determining objectives, policies, strategies as well as identification of future opportunities, present strengths and weaknesses in the organisation. It also defines preferred courses of action and disposition of responsibilities to achieve the objectives. In brief these plans are designed to meet organisation's broad goals. Strategic planning is sometimes known as strategic management. It is concerned with

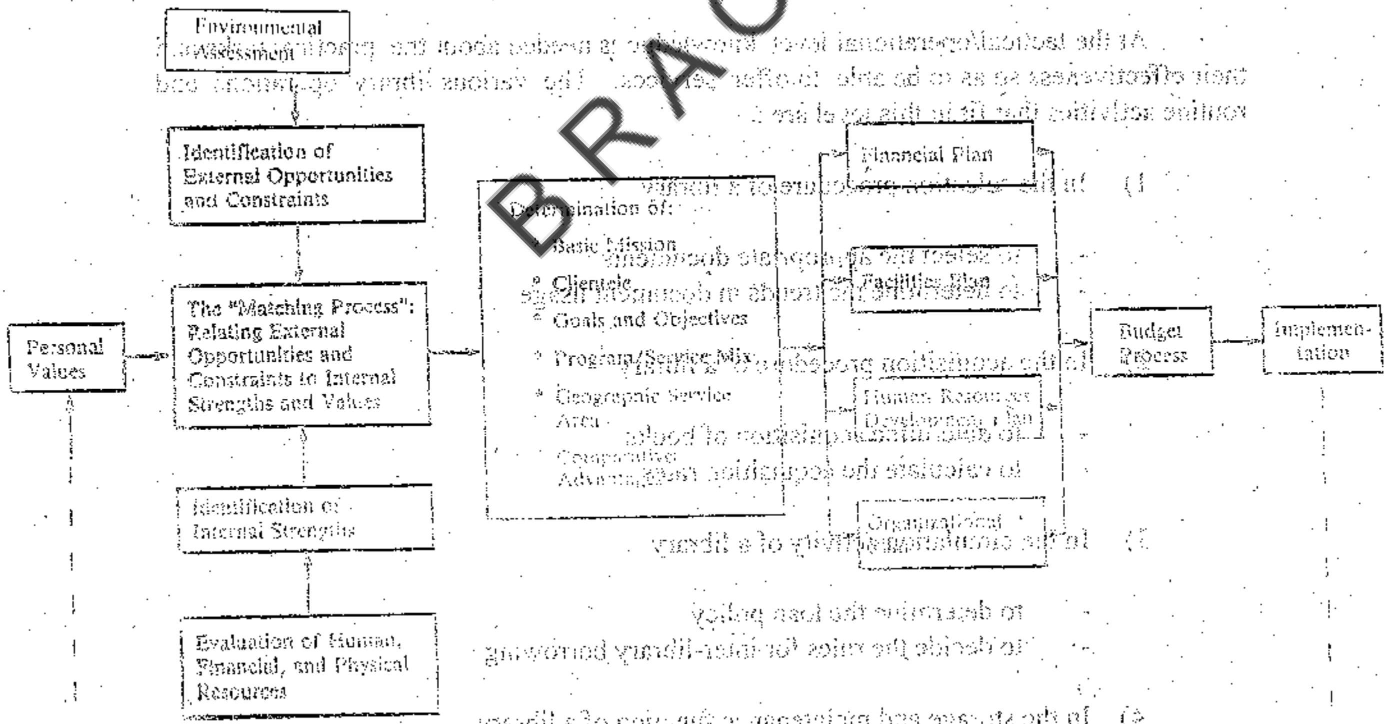
* Clarifying the long-term goals of the organisation

* Scanning the internal and external environment

* Developing strategic plans to ensure that the design of the organisation suits to its environment.

Strategic planning has also been defined as both an intellectual exercise and a process that concentrates resources in areas that anticipate the future. Bryson defines "Strategic Planning as a disciplined effort to produce fundamental decisions and actions that shape and guide what an organisation is, what it does, and why it does it". It is said that the strategic thinker contemplates the future, and determines and implements those actions that will bring the greatest return from available resources. Keller has identified six features that distinguish strategic planning from systems analysis, incrementalism, management science, long-range planning, etc — it is active than passive; it looks outwards rather than inward; it is competitive; it focuses on decisions rather than plans, goals, analyses or forecasts; it is participatory and tolerant of controversy; and finally, strategic planning concentrates on the fate of the LICs as long-term survival and vitality of the organisation is most important.

An illustration of strategic planning process suggested by Stueart and Moran is given below:



Strategic planning is conducted at the highest levels of management and relates exclusively to decisions in those levels. It usually covers a large-range period, but sometimes may cover only a very short period. In terms of evaluation, results of strategic planning may become evident only after a number of years.

5.3.2 Operational Planning

Operational planning also called tactical planning and it is concerned with:

* Defining in detail what has to be done to implement the preferred strategies in terms of the resources and activities required, the priorities and target dates.

* Establishing criteria for assessing the effectiveness with which action plans are implemented

* Making clear to all concerned what action is required and by when.

Atherton views operational planning as consisting of detailed, uniform, and comparatively complete sets of programme associated with the ongoing administration of the information service. It is, actually, the linking of organisational components — that is, techniques, materials, procedures, strategic plans, rules, people, capital, and facilities to facilitate the flow of interrelated events in a particular function. The emphasis at this level is on people - - on getting things done through people. (Atherton, 1977)

At the tactical/operational level, knowledge is needed about the practical tasks and their effectiveness so as to be able to offer services. The various library operations and routine activities that fit in this level are :

1) In the selection procedure of a library

   - to select the appropriate documents
   - to determine the trends in document usage

2) In the acquisition procedure of a library

   - to determine acquisition of books
   - to calculate the acquisition rates

3) In the circulation activity of a library

   - to determine the loan policy
   - to decide the rules for inter-library borrowing

4) In the storage and maintenance function of a library

   - to decide the procedure for shelf reading
   - to determine the weeding procedure
   - to study library document losses

5) In the information transfer and dissemination function

- to determine user needs
- for marketing and advertising library services
- to assess the performance of services

6) In the personnel management area of a library

- to plan staffing
- to motivate personnel
- to provide training and in development of personnel

7) In the financial management of LICs

for resource allocation

In other words, tactical/operational planning is done principally from a functional point of view, whereas strategic planning is done from a corporate point of view (Louis & Seetharama).

5.4 PHASES / STEPS IN PLANNING

Planning, as mentioned earlier, is a continuous process with a number of steps. These steps are repeated in subsequent steps also. While the steps may appear to be rigidly ordered with no flexibility whatsoever, it may be pointed out that the suggested sequence is not mandatory. But all the steps are essential though the sequence may be changed to meet with specific constraints, possibilities and requirements of the specific library or information centre concerned. The steps can be discussed in relation to two phases — Pre-planning Phase and Planning Phase Proper.

1) Pre-planning Phase

- Pre-planning information collection
- Assessing library needs and environment in wich the LIC is working
- Evaluating current library services and resources

2) Planning Phase Proper

- Determining the role of the LIC
- Setting goals, objectives and priorities
- Developing and evaluating strategies
- Implementing strategies
- Monitoring and evaluating progress.

5.4.1 Pre-Planning Phase

At the Pre-planning phase in the establishment of an LIC, it is essential that a feasibility study should be undertaken to examine the technical viability. Some of the facets to be cov-ered in a feasibility study are:

* Potential clientele
* Total information flow
* Current Library Resources and Services (If applicable)

(1) Study of Potential Clientele

One of the most important aspects in a feasibility study is to study the information needs of potential users of the LIC. This would involve collection of information on the institutions' projects and programmes as well as individual users's interests and needs. Such a study would facilitate decision-making in relation to the type of collection to be built and the information services to be designed to meet with user's needs individu-ally and collectively.

(a) Institutional Characteristics:

An approach to an understanding of the fields of interests of individuals to be served and of the organisation as a whole could begin by acquiring background information about the organisation/mission/project. This would involve finding answers to the following questions:

1) **What are the goals or objectives of the organisation /mission / project?**

   Statements answering the question may be found in some "internal" documents, such as memorandum of association, character of incorporation, policy statement, etc.

2) **What are the fields of activity and scope of each discernible activity of the persons involved ?**

   Such information is usually given in some "internal" documents, organisational and functional charts.

3) **What information do they use or need in order to perform efficiently their respective tasks ?**

   Such information may have to be gathered through interviews, questionnaires, etc. of potential users.

4) **Where do they now get the information ?**

   Such information may have to be gathered through inter-views, questionnaires, etc.

5) **Through what channels and media do they now get the information ?**

Information on the channels and media may have to be gathered through observation of information flow patterns, study of organisational charts, interviewing and questionnaire survey of the potential users.

6) Is the information available adequate, timely, reliableand accessible at reasonable cost ?

Such information has to be obtained by survey, through interviews and questionnaires.

7) Is there among the users an interest in or awareness of the value of information and of an Information centre ?

8) Can the existing information centre be modified for a better information services or a new IC needed ?

This, of course, is the starting point for planning the system.

(b) User Groups:

The next step would be to identify more specifically the potential user groups. This may be done on the basis of interviews, questionnaires, study of organisational and functional charts, etc. The type of questions to which answers will have to be found include:

- Can the user group be identified ? Is it a distinct, visible, homogeneous group?

  Can the identified group benefit from the information services?

- How diverse is the information requirement of group with respect to professional objectives, functions, work patterns, educational background, etc?

- What are the user-related constraints on the services?

(c) Individual User Interests:

More specific information about users could cover the following:

- Subjects and associated interests- e.g. specific subjects or allied subjects; authors—individual or corporate whose works are of interest; series in which the userin interested; periodicals, the articles in which are to be specifically notified; language constraints.

- Education, training, and special expertise

- Foreign language competence

- Functions, activities and responsibilities in the institution

- Professional bodies in which the user is a member

- Technical periodicals which user is receiving through society membership,subscription, etc.

- Types of reports/internal and external/received by the user

- Types of reports which user is not receiving but would like to receive

- Outside organisations with which user has academic or professional contacts

- Channels of communication between user and other groups in the organisation

- Kinds of information materials preferred by user: periodicals, reports, trade literature, newspapers, etc.

- Types of information notices/services preferred by user: Current awareness service, abstracts, digests, data,

- Is the user an "information gatekeeper" in the institution?

- Is the user associated with any "information gatekeeper" in the institution ?

- Approximate time available to user in a day or week for reading scientific and technical information material.

In addition to the above some more information could be ascertained from the users.

(d) Methods of Survey and Study:

Some methods of collecting information about the organisation and about the information requirement of the potential users are mentioned below. No single method may provide all the necessary information ; therefore, several of the methods may have to be used and the findings synthesized so as to get a more complete picture. Some of these methods are

- Study of the organisational charts of the institution

- Study of the functions/activities charts of the institution

- Study of the annual reports, plans and programmes, and other internal documents of the institutions

- Survey of potential users using appropriate questionnaire

- Interviewing users, that is :

- Interviewing potential user directly

- Interviewing of supervisors of user (e.g. persons higher in the hierarchy, teachers, guides, etc)

- Interviewing subordinates of user (e.g. persons controlled, taught, guided, etc)

- Interviewing persons of coordinate status/colleagues or user

- Study of papers, books,etc published by users

Such studies have to be done periodically to update the information about user interests, institutional programmes, etc. There should be a built-in-mechanism in the information system for this purpose. In the context of user studies, Saracevic and Wood (1981) have suggested that a plan should consist of at least these steps:

i) Surveying the previous studies and literature in general and learning about all aspects of user studies

ii) Determining the objectives of the study

iii) Determining the variables to be studied and the model to be followed

iv) Selecting the sample of the population to be studied

v) Determining the method for collection of data of observations

vi) Determining the method of analysis of data or observations

vii) Determining the ways of presentation and utilisation of results, including dissemination.

At this juncture, it is pertinent to mention that while user studies facilitate a good understanding of their information needs. which are dynamic. Therefore, a continuous process of updating becomes essential.

ii) Study of Total Information Flow

Diffusion or information transfer is a process by which an innovation or new idea spreads among the members of a social system — it is a type of communication process. It is the spread of a new idea from its source of invention, creation, or generation to its ultimate users or adopters, i.e. to the destinations or recipients (Saracevic and Wood 1981). It constitutes an essential element in a feasibility study for the establishment of an IC as it not only throws light on the information transfer processes among the users of information but also on the information seeking behaviour of persons specialising in the discipline (s) concerned.

A study of the total information flow should consist of:

i) Identification of the points of generation and utilisation of information ;

ii) Identification of the sources/information transfer media/channels— internal, external/, formal, informal, informal, documentary, non-documentary-of information;

iii) Observation of the information seeking behaviour of information users.

One general model of information transfer indicating the information dissemination media and mechanisms is given in a diagram.

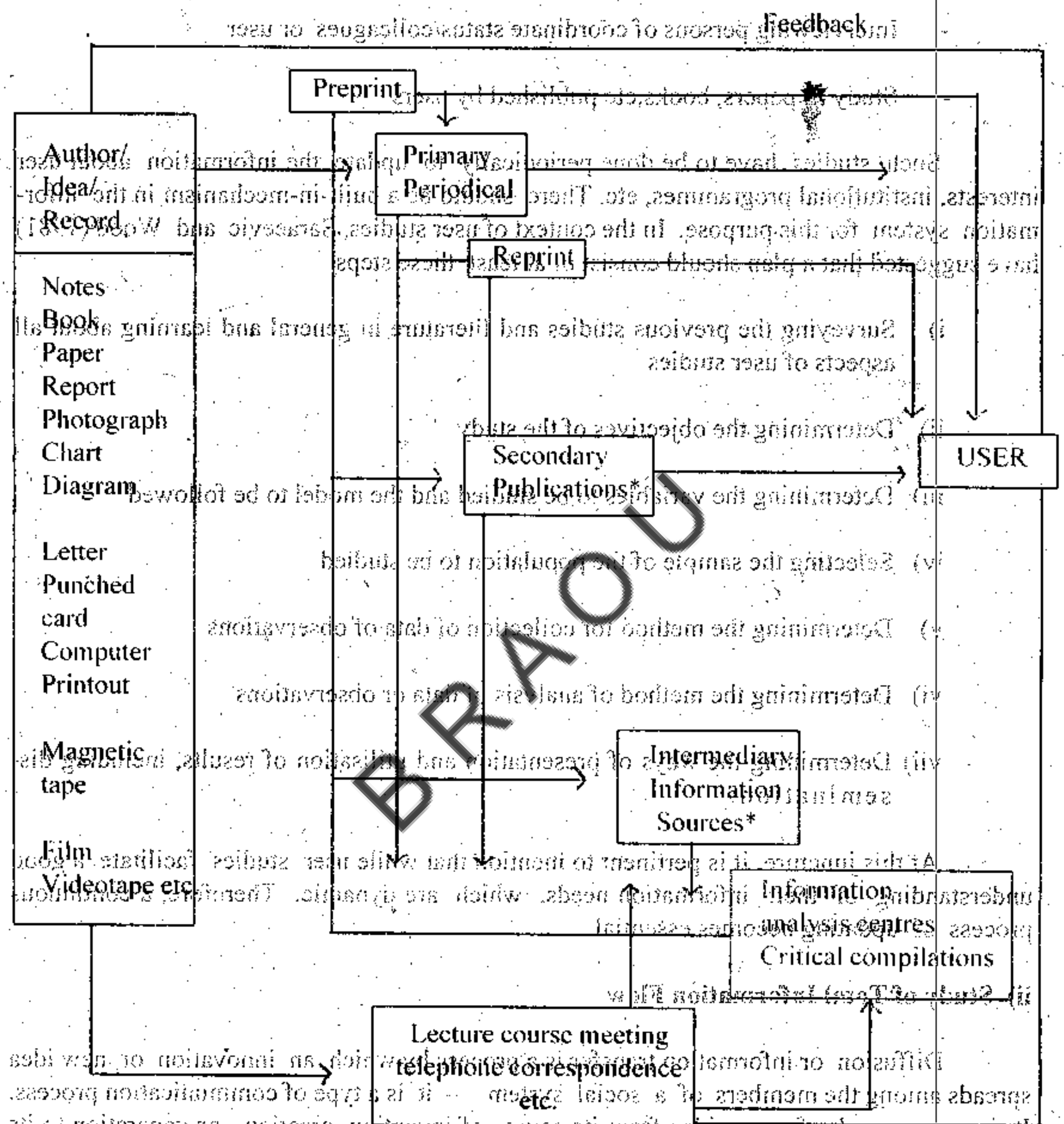


Figure-2 : INFORMATION DISSEMINATION MEDIA AND MECHANISMS

8) Techniques/Methods for Studying Flow

Some of the techniques that can be used for studying information flow are,

i) Interviewing

ii) Flow-charting

iii) Check-lists

iv) Decision tables

While each of the technique has its advantages and limitations, flow-charting seems to be preferred by many as it offers a basis for the comparison of the present and proposed systems.

In addition, Hartman et al (1972) have suggested the following methods for studying information flow, especially, in organisations.

(a) Departmental method: Information flow within a department and between departments in an organisation

(b) Stimulus-Response method: Information flow is studied by stimulating, say, by a customer's order and observing the response to the stimulus. This method is suitable for feasibility study, for preliminary system analysis and design as it stresses on the relationship and design.

(c) Action-oriented method: Information required to initiate or control specific action— preparation of purchase order, delivery of goods, etc. This method is suitable for small-scale applications and is independent of procedures within a larger organisation.

(d) Object-information method: Concentrate on the objects produced or controlled—products manufactured, customers served, etc— by certain specific items of information.

(e) Output-analysis method: Start analysis with the investigation of outputs, by working backwards from the outputs to the inputs, one can understand the informa tion flow structure of the system concerned.

Whatever be the method adopted, one should consider the time factor —i.e., time of occurrence of significant events in information flow — apart from the direction — horizontal, vertical etc — of flow. At this stage, it is needless to mention that a systematic study of information flow would facilitate in channelising / disseminating the information to the targets of utilisation when the LIC becomes fully operational.

iii) Current Library Services and Resources

In evaluating current library services and resources, sever-al kinds of measures have been suggested:

- * EFFORT — the quantity and quality of input or resources used, for example, staff time and materials
- * PERFORMANCE — the results of effort, including the output, such as, items circulated or reference questions answered
- * ADEQUACY OF PERFORMANCE — the degree to which performance is adequate to the total need. One approximation of this measure is the proportion of users using the library or IC.

* EFFICIENCY the ratio between effort and performance; for example, circulation per title held.

* PROCESS how and why a service or program works or does not work. An example of this measure is staff and user assessment of the strengths and weaknesses of the library or IC. (Suchman. 1967).

(Note: Library statistics, Responses to surveys, Performance measures contribute to the evaluation of current IC performance).

5.4.2 Planning Phase Proper

In planning of LICs, one must be careful not to have ambitious programmes which cannot be completed. Therefore, it becomes necessary to make some decisions regarding the scope of the planning, which includes issues to be included or excluded from consideration and any constraints to the planning process. In other words, the decision should be taken regarding the magnitude of the planning effort feasible at the particular time, and the boundaries of effort to be undertaken.

Further, scheduling of data collection effort needs to be done. In this context, only that much data/information as neces-sary should be collected since too much data is as bad as too little. . Hence, it would be helpful to keep the following questions in mind when designing any data collection:

What are the questions ?

Will this available data answer these questions?

How the information is being used and what will be the effect of such information on the planning process ?

Can we collect and process and use the data ?

The planning process described in the succeeding subsections can be successfully applied to overall system planning and coordinated planning in individual libraries in the system.

i) Determining the role of the LICs

The role or purpose of the LICs should be derived and be in conformity with the needs of the mission/project. The identification of the role would be greatly facilitated by the information collected earlier at the pre-planning stage. For example, based on the study of the potential clientele, the study of total information flow, literature survey (checklist of information/ documentary sources), and survey of institutions /experts in the field,, etc., it is possible to derive the general role or purpose of the IC as well as the specific objectives in relation to the collection to be developed, the information services to be provided, the manpower required, and the general management of the LICs. In other words, the statement in relation to the role should serve as a broad guideline for the development and operation of the LICs.

The role of a LIC can be: "to provide for information needs

* of a given group of users ;
* in relation to their given problems ;
* with information from given subjects, or topics ;
* contained in given information sources ;
* evaluated, prepared, and supplied in a way that is appropriate to that given group of users ; and
* as accomplished under given economic constraints and other social, cultural, and political requirements and values,

For example, the role statement of a Public Library can be expressed as follows:

* To make readily available to the greatest possible number of residents the most wanted library materials of all the kinds, and to serve as a point of access for any needed information.

In formulating a role statement, depending on the situation, some of the following elements may be considered for inclusion :

* Access to services
* Print and non-print collections
* Service groups —current users, special services to target groups, the underserved and unserved.

ii) Goals

In contrast to the role statement which projects the directions in which the IC will move, goals represent the ends towards which it is striving offer the planning period. Goals are not necessarily quantifiable statements. On the other hand, objectives are specific targets to be achieved during the planning period, measurable steps leading to the goals.

iii) Objectives

Objectives, on the other hand, are specific and include :

* the desired outcome (e.g. to increase the number of persons registered)
* the measurement of achievement (e.g: to 50% of total population)
* the time frame (e.g.: by 1995).

Where objectives are not quantifiable, they may be stated in terms of tasks to be accomplished.

iv) Priorities

Due to several constraints, no library or IC can achieve all the goals and objectives that the planning committee has identified. Hence, the next step would be to determine the importance of the goals/objectives and assign priorities. This assignment of priorities can be done taking into consideration of several factors such as needs and objectives.

The priorities concerned can be identified as follows:

(a) Assign each objective as essential, important, or desirable

(b) Within each contingency, ranking all the objectives in order of importance, initially section or department level and subsequently organisation level.

v) Strategies

Strategies are defined as actions to be taken to achieve the goals and objectives which are the desired ends. For this purpose, reexamination of the operations and services is undertaken followed by devising new ones. The different strategies developed are compared for their effectiveness, relative cost, and priorities given different objectives. In other words, different course of actions for the achievement of the objectives are considered and the best is selected.

vi) Monitoring and Evaluating Progress

Since planning is a continuing process, monitoring and evaluating progress towards achievement of goals becomes a necessary step. Then there is a need for reviewing and updating goals/objectives/priorities and developing new strategies. These steps are repeated in successive planning cycles.

5.4.3 Planning Process

There are many factors involved in planning process. The major factors that influence the planning process are time, collection and analysis of data, levels of planning, change, environment, etc.

Time: The plans can be categorised into two categories on the basis of time factor, namely, long-range and short-range terms.

Data: The second factor useful in planning is data. The data needs to be collected and analysed to make available pertinent information for planning process. The data should be relevant to activities, operations; staff and users.

Levels of planning: Managers or supervisors at all levels, i.e., upper, middle and lower levels need to involve in planning, which provides an advantage of getting practical pint of view.

Change: The planning should be flexible to meet the changing needs. Therefore, the long0range plans are generally reviewed and revised and periodically.

Environment: Environment of LICs is getting changed at a fast rate whether it is internal or external. The plans must be able to adopt the changing environment, such as political, social, legal, psychological and physical changes. The change may even be seen in the attitudes of users, staff and administration. The factors need to be considered in planning process and necessary techniques need to be developed for planning.

Every programme is developed and executed by using certain techniques. Similarly certain techniques have been developed for planning process. Since planning involves estimation and forecasting of the requirements of the different units of an IC or system, tools like standardisation, work study, time study, system analysis, etc would be useful in the planning process. Some of these would be dealt with in detail in other units.

5.5 MONITORING TECHNIQUES

Before starting any project, it is essential to devise an adequate plan for scheduling and monitoring the various activities of the given project. The minitoring techiques help in identifying the bottlenecks and even discovering alternate work-plan for the accomplishment of the project.

A monitoring technique is a time negotiated procedure on how allocated resources are commited to achieving the objectives. The technique helps us as a guideline, a tool or an aid.

The best techniques which are not rigid and have the provision for adjustments as future events become known.

There are a number of techniques associated with monitoring and controlling. Some of them are

- Operations Research (OR)
- Management Information Systems (MIS)
- Management by Objectives (MBO)
- Network Analysis
- Budgeting (as a monitoring technique)

In this section you will be studying about the Operations Research (OR) and Network Analysis techniques. The other techniques, such as MBO (Unit-4), MIS (Unit-8) and Budgeting (Unit-10) are dealt in detail in other units of this course.

5.5.1 Operations Research (OR)

Operations Research came into existence during the Would war II, when the British and American military management called upon a group of scientists with diverse educational backgrounds to apply a scientific approach to deal with strategic and tactical problems of various military operations. The objective was to allocate scarce resources in an effective manner to various military operations. Thus the concept and name OR was derived from the research on (military) operations. After the world war the techniques of OR have been used for non-military operations also.

Ackoff and Arnoff Churchman defined, "OR is the application of scientific methods, techniques and tools to problems involving the operations of a system so as to provide those in control of the system with optimum solution to the problem".

OR is a scientific approach to problem solving. Its purpose is to assist managers in choosing preferred course of action from the available alternatives.

The main characteristics of OR are as follows :

1 It provides inter-disciplinary team approach, involving mathematicians, statisticians, economists, engineers, systems analysts, computers scientists, etc.

2 It privides a wholistic approach to the system

3 It provides methodological approach (ie., formulation, testing and refinement) and uses mathematical models and simulation methods in solving the problems

4 It uses mathematical techniques, like linear programming, probability theory, queing theory and network analysis.

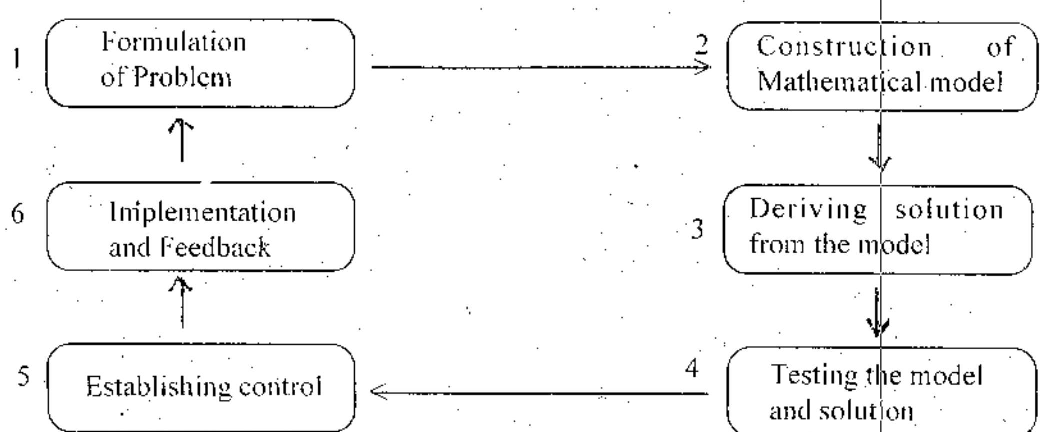
5 It adopts objective approach in an attempt to find the best optimal solution from the available alternative courses of action to the problem under consideration.

Phases of OR

The scientific method in OR study generally involves the following phases :

i) Formulating the problem
ii) Constructing a mathematical model to represent the system under study
iii) Deriving a solution from the model
iv) Testing the model and the solution derived from it
v) Establishing controls over the solution
vi) Putting the solution to work, i.e., implementaion

The OR process involving all the above six steps can be shown diagramatically as below:



OR and LICs

The application of Operations Research came into library and information field during the late 1960s and early 1970s. Later LICs have been started using OR through mathematical and statistical approaches in their practical problem solving and decision making process. It become possible for libraries to make more exploratory studies using OR techniques in the computerised systems.

LICs can use OR in various activities:

- Allocation of resources
- Policy making (policies relating to acquisition, loan, ILL, weeding, etc);
- Planning activities (planning of resources, new services, manpower, etc)
- Information services (marketing of information services designing of new services, etc,)
- Establishing of databases, subscribing to online services

However, there are certain difficulties in adopting OR techniques in LICs as it is difficult to express many activities in mathematical terms and use quantitative analysis.

5.2 Network Analysis

The class of OR techniques used for planning, scheduling and controlling large and complex projects are often referred to as Network Analysis. Network analysis is considered as one of the best techniques of monitoring project activities.

The network planning methods work in the following way:

First, the project is broken down into a series of small individual tasks or activities and then they are arranged in a logical sequence. It is also decided as to which tasks will be performed simultaneously and which others, sequentially. The analyses help us to start and complete the activities as per plan and time schedule. A network diagram is constructed.

Secondly, the duration of each ectivity is estimated. A crucial task for the technique is then find those activities which are *critical*. Critical activities are defined as those for which the smallest delay in starting or completing them will delay completion of the whole project. The critical activities define a *critical path* through the network. Other activities are *slack*. They can be delayed to some extent without delaying the whole project.

Third attention is concentrated on the critical activities. A rearrangement of resources might speed them up.

The objectives of network analysis are

1) Minimization of total project cost
2) Minimization of total project duration
3) Trade-off between time and cost project
4) Minimization of idle resources
5) To minimize production delays, interruption and conflicts

A wide range of industries and organisations use network techniques. The techniques are used in project management of construction project, manufacturing and assembly lines. R&D work, repair and maintenance, etc. For example, in libraries and information centres, the technique can be used in the construction of library buildings, library automation, developing a new information service, etc.

There are a number of network techniques, which have been developed and used in various organisations. Some of the well-known techniques include:

PERT	Programme Evaluation Review Technique
CPM	Critical Path Method
PEP	Programme Evaluation Procedure
GERT	Graphical Evaluation Review Technique
PCS	Project Control System

In libraries and information centres PERT and CPM are the most commonly used network techniques.

Gantt Chart

Prior to the development of PERT/CPM, the most population technique for project scheduling was the Bar or Gantt Chart, developed by Henry L. Gantt. The technique is developed for use in short-term job planning. It is effective in production operations, where the time to perform various activities has been well established.

The Gantt chart shows a graphic representation of work on a time scale. Along the horizontal axis, it shows time, work schedule, and work completed. Along the vertical axis it shows the infividuals and machines assigned to those schedules. The time schedule is subdivided into appropriate units, of hours, days, or perhaps even weeks. A heavy horizontal line is drawn in each row showing the amount of time each person or machine should need for a particular task. As the actual work proceeds, a lighter line is drawn next to the heavy line to show what is being accomplished. A vertical marker (arrow) normally indicates the current date. For example, we want to prepare computer printed catalogue in a library. Suppose we use three terminals for entry and two printers for printing the cards and the particular job (no.140) was schelduled to be completed on a particular date/day (Saturday, 16th). However, on that date, as indicated by the arrow, the job was not complete and was in fact two days behind the schedule.

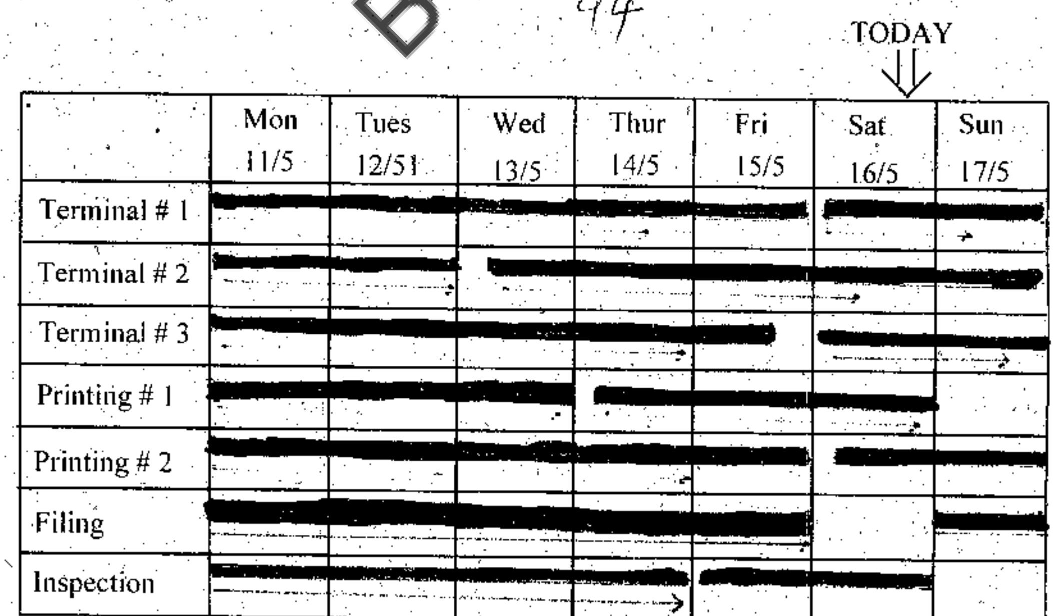


Fig-2: Gantt Chart

Gantt Charts are very helpful where there is little or no relarionship between successive activites or where the time to complete a task have been established. Unfortunately such ideal conditions do not always exist. Its inability to show the interrelationships and interdependence among the many activities is its main drawback to study the progress of the project. Although it is possible to redraw the chart to show the interrelationships, but the confusion arises as the size of the project increases. To overcome such limitations PERT/CPM were proposed in the late 1950s.

PERT/CPM

PERT was developed by a research team working on Polaris Missile Programme of the US Navy. The objective of the team was to efficiently plan and produce the missile system. Since 1959, this technique has been used in almost all types of large scale industries.

CPM was developed jointly by E.I. Dupont Company and Remington Rand Univac Division. The aim behind the development was to have a better planning in controlling the overhaul and maintenance of chemical plants. The method was made public in 1959 by Kelley and Walker.

The basic difference between PERT and CPM lies in their origin and development. Initially the PERT technique was applied to R&D projects while the CPM was used towards construction projects. Both of them share in common the notion of a critical path. The major differences between PERT and CPM may be summarised as below:

PERT	CPM
1. Event oriented	1. Activity oriented
2. Probabilistic in nature	2. Deterministic in nature
3. Concerned with time	3. Concernced with time and cost
4. Used for new projects	4. Used for repetitive projects.

Steps involved in Application of PERT/CPM

The application of PERT/CPM in particular network analysis methods in general, have to go through the following steps:

Spet-1: *Project planning and construction of the network*

The various stages involved during this step are:

i) Indentifying various activities or work elements involved in the project,

ii) Specifying the interrelationship among various activities, or work elements, and

iii) Developing a network diagram showing the sequential inter-relationships between the various activities.

Step-2: *Scheduling*

In this step, each of the tasks required to be performed is taken up. This is called 'Scheduling of the Project'. This involves the following activities:

i) Estimating the duration(s) of the activities, taking into consideration the resource required for their execution in most economic manner.

ii) based on the time estimates, preparing a time chart showing the start and finish times for each activity, and hence calculation of total project duration by applying network analysis techniques such as forward pass and floats calculation; indentifying critical path; carrying out resource smoothing exercise, etc.

Step-3: *Project control*

This phase refers to evaluating actual progress against the plan. If significant differences are observed then rescheduling must be done to update and revise the uncompleted part of the project. Reallocation of resources or remedial measures are also adopted.

Constructing the Network

As noted earlier a network system involves indntifying all the key activities, sequencing these activities in a flow diagram and assigning time durations. Using these steps a network may ba constructed.

A network is a graphic plan of all activities and events. A network diagram presents the relationship between all the activities of a project. It consists of a certain configuration of arrows and nodes for showing the logical sequeance of activities to be performed to achieve project objectives. Time, cost and other resources are allocated to different activities. This can be illustrated through a simplified two-path diagram.

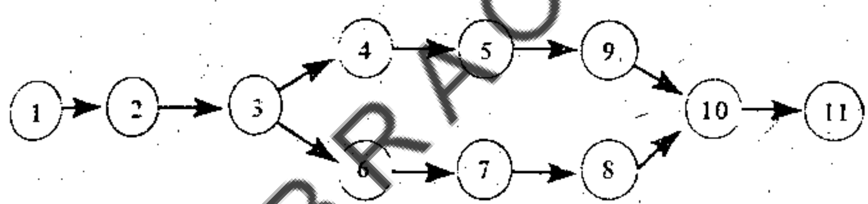
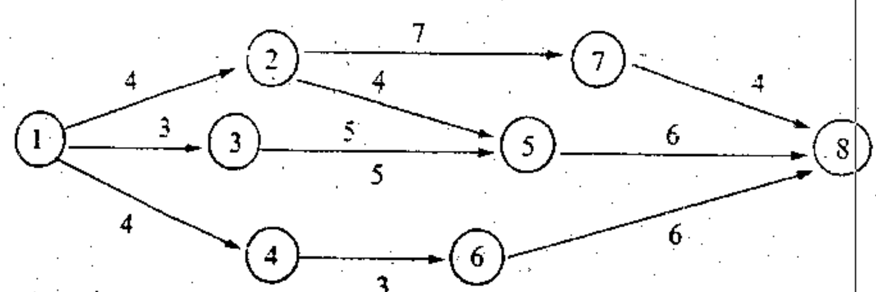


Fig-3: Simplified Two-Path PERT Diagram



(Weeks indicated by numbers along the paths)

Fig-4: Four-path PERT Diagram illustrating the critical paths

Source: Stueart and Moran (1987). *Library Management*. 3rd. ed.

In the above diagram, the numbered circles are called *events.* An event is a definite point in time at which some activity will be completed. The liness with arrows connectingtheeventsillu strate *activities* or tasks that must be performed in order for an event to occur.Events do not occur until all of the work included in the activities leading up to the event have been completed. The connected series of activities and events from beginning (1) to end (11) is called a *path.*

The system for planning and scheduling work, often described as Critical Path Method (CPM). It consists of enumerating the activities and events whose completion can be measured.

Critical path is formed by critical activities. This critical path is the longest path and consumes maximum resources and maximum time. A critical path has zero float. The expected completion dates cannot be met, if even one critical activity is delayed. A critical path reveals those activities which must be mamipulated by some means or the other if the scheduled completion dates are to be met.

CPM can be applied to library projects also. For example, the opening of a new brach library. The activities can be plotted to allow the librarian to determine the mode expeditious route or critical path. Times can be assigned to each activity say from the time the idea of a branch library is formulated until the building is ready for occupancy. This can be presented in a two-path diagram. Times would be assighed for each activity (say, three weeks between the events 4 and 5, while time between 6 and 7 may be one week). This suggests to the librarian that either path 1,2,3,4,5,9,10,11 or path 1,2,3,6,7,8,10,11, can be taken. If time is of the essece, the shorter route might be more desirable. However, it may not be true in all situatios in service-oriented instituions like LICs.

The major disadvantage of PERT/CPM is its overemphasis on time and almost complete lack of attention to cost. This has led to the development of PERT/COST. The PERT/COST introduces the cost factor into the process. In projects of complex nature with numerous events involved, it becomes very expensive to establish a cost for each event.

5.6 LET US SUM UP

One of the best explanations of the process of planning is that it involves action taken in the present with regard to the future. It also involves a consideration of both ends (outcomes in the future) and means (ways of bringing about those outcomes). Other points made in the context of planning are:

* Planning is a continuous and dynamic process.
* Planning involves coordination— as it involves a multiplicity of decisions, bringing together a number of disparate elements.
* Planning process provides management with a tool to combat inertia and replace reaction with a forward thinking, pro-active approach
* Planning takes time and effort and is used to reduce uncertainty and increase conformity
* Planning is of great importance at a time of change. As a matter of fact, planning inevitably means change.
* Planning is risk taking.

In conclusion, it may be said that planning is the dynamic process of committing resources systematically and with the best possible knowledge of the future ; of organising systematically the effort needed to utilise these resources ; and of measuring the results of planning decisions against expectations through systematic feedback.

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5.8 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Discuss in detail the concept of "Planning".
2) What are the advantages of Planning, specifically in the context of libraries and information centres.
3) Describe a conceptual model for planning. Illustrate your answer with a figure.
4) Define the term "Strategic Planning" and enumerate the sub-processes involved.
5) Briefly describe the steps involved in planning of libraries and information centres.

II. SHORT NOTES

a) Tactical planning
b) Levels of planning
c) Total Information Flow

BLOCK - II : SYSTEMS STUDY

In the previous Block you have studied about the principles and theories of management and also the nature and functions of management. The present Block introduces you the systems study. It is basically concerned with systems analysis and design and its application to library and information centres.

There are three units in this Block dealing with systems analysis and design, evaluation of information systems and services and management information systems.

Unit-6 deals with Systems Analysis and Design. Systems analysis helps in logical analysis of a problem and the design of system to correct any of the inefficiencies. It is a conceptual strategy for problem solving and decision making. Systems analysis can be profitably applied to various aspects of library and information centre management, like formulation of objectives, library automation, book ordering, interlibrary loan, etc.

Unit-7 discusses another aspect of systems study, i.e. the techniques and methods of Evaluating Information Systems and Services. It includes the details such as framework for evaluation, evaluation measures and their applicability. Evaluation of information systems and services is necessary, if LICs to function efficiently and effectively as information providers. It is a powerful tool to improve the efficiency of the libraries.

Unit-8 deals with Management Information Systems (MIS). MIS is an integrated system for providing information to support planning, control and operations of an organisation. It helps the managers to enable them to make timely and effective decisions. Now-a-days it is used exclusively for computerised information systems.

UNIT - 6 : SYSTEMS ANALYSIS

Structure

6.0 AIMS AND OBJECTIVES

The aim of the unit is to provide an overview of Systems Analysis with special emphasis on the methodology along with its strengths and limitations as a management technique.

After studying the unit, you should be able to

- get an overview of Systems Analysis
- get an insight into the methodology involved in System Analysis
- identify the areas of application of Systems Analysis
- apply systems analysis in the management of LIS.

6.1 INTRODUCTION

In this unit, you are being introduced to the concept of System Analysis in the context of library and information systems and services. While in the earlier block, the theories of management and the factors and techniques of the planning process were discussed, this block concerns itself with Systems Analysis and its application to management of information systems and services, including evaluation and management information systems.

It is common knowledge that many organisations resorted to some techniques/ methodology or the other for the purpose of improving their efficiency and effectiveness. It was during the 18th and 19th centuries that such economists as Adam Smith and G.Marshall became the pioneers of principles of Organisation and Management thought. Subsequently, during World War II, Operations Research (O R) came into existence, thanks to a team of experts-Mathematicians, Physicists, Statisticians, Engineers, etc. Not satisfied with O R, Economists like Charles Hitch and E.S. Quade of the Rand corporation became pioneers in the development of the management technique "Systems Analysis" (=SA) to enable the manager to fulfil his role in the organisation efficiently and effectively.

In the later sections of the unit you will be provided with the details on the application of Systems Analysis to libraries and information centres. A few applications of System Analysis have been described here to illustrate its utility. While in the earlier block, the theories of management and the factors and techniques of the planning process were discussed, this block concerns itself with system Analysis and its application to management of libraries and information centres, including their evaluation and Management Information System.

6.2 SYSTEMS ANALYSIS - NEED, MEANING AND DEFINITIONS

6.2.1 Need for Systems Analysis

The difficulties encountered in a library and information environment was largely due to the following:

* Increased Quantity and sophistication of the demand of the users (due to surging enrollments, teaching methods, etc) interdisciplinary research, specialisation, features of the World of Information, etc.

* Lack of funds

* Increase in inter-institutional cooperation

* Shortage of professionals etc.

These necessitated the re-examination of libraries and information centres. This called for a techniques which combined the good points of Organisation and Management (O&M), Operations Research (OR) and the result was the technique of Systems Analysis (SA).

6.2.2 Meaning of the Terms

In attempting to discuss the topic of Systems Analysis, it would be helpful to provide definitions of terms - 'Systems' and 'Analysis'.

A 'System' may be defined as

* Organised or complex whole, an assemblage or combination of things or parts forming a complex or unitary whole.

* Assemblage of objects united by some form of regular interaction and interdependence

* A group of parts or components or elements interlinked together in some fashion in order to achieve some objective.

For example, one is all too familiar with the digestive system, circulatory system, respiratory system, etc. each having their own objectives. Further, they also have commonality among all these systems i.e. some kind of linkage of various components or parts to make a whole body with a view to achieve some objective. Thus, the systems concept or viewpoint is the simple recognition that any organization is a system made of segments, each of which has its own goals. In the context of library systems, we come across acquisition sub-systems, technical processing sub-system, circulation and maintenance sub-systems, information dissemination sub-system, etc. All the sub-systems are inter-linked, including operations. Each of these library subsystems has their own objective and at the same time they join together to achieve the objectives of a large system, i.e., library. Further, the characteristics of monitoring and feedback are inherent in a system.

'Analysis' is a rigorously controlled inquiry into the existing conditions. Analysis, therefore, implies that the system is broken down into its functional parts in the first instance; the functioning of each system is studied in detail; and if found necessary, a new synthesis is attempted such that the system functions better.

6.2.3 Definitions

Having noted the meanings of the two terms System and Analysis, we are now in a position to attempt a definition of Systems Analysis. It may be defined as

* The organised scientific study accomplished by breaking down the different components of an assembly and its subsequent synthesis into a unified whole with a view to achieving the tasks, goals and objectives of the assembly.

* The systematic and logical analysis of a problem and the design of a system to correct any of the ineffi ciencies or errors which exist in the current opera tions.

* A conceptual strategy for problem solving.

* The logical analysis of the present systems; evaluation of the efficiency, economy, accuracy, productivity and timeliness of existing methods and procedures against established goals of the library; and the design of new methods/procedures or modification of existing methods/procedures to improve flow of information through the systems.

Thus, Systems Analysis is concerned with systematically analysing a total system in its context, and in identifying and describing the interrelatedness of all the component parts or operations of the overall system. It attempts to measure not the effectiveness of a single operation or a narrowly focused set of operations, but the system as a whole relative to the stated objectives and restraints of the present organisation.

It represents a way of looking at and analysing complex organisations, and describing them in essentially quantitative terms. Its first objective is to encompass the total system of operations, from management stated objectives and the resources (personal, material, etc.) available to achieve objectives, to the environment in which the system exists. Then it turns its attention to relating (but not evaluating) objectives and results. It does this initially in quantitative terms (e.g., the unit cost of cataloguing a book, the time lapse between placing an order and receiving a book) and then consults with the management to determine system efficiency and effectiveness. The evaluative aspect of this effort is a shared responsibility of the technically oriented system analyst and management, and produces a qualitative evaluation of the system being considered.

6.2.4 Systems Analysis as Discipline

System Analysis, therefore, is not simply a collection of techniques but rather is a discipline which is presently attempting to synthesize previous theories and branches of management science into a new discipline and what direction it will take is still ambiguous.

On the other hand, an operational definition that provides insight into elements of the conceptual strategy characterizes systems analysis as ..." inquiry to assist decision makers in choosing preferred future courses of action by

(i) systematically examining and re-examining the relevant objectives and the alternative policies and strategies for achieving them; and

(ii) comparing quantitatively where possible the economic cost, effectiveness (benefits), and risks of the alternatives" (Fisher, 1971)

'Systematical' implies that the procedure is planned and sequenced before it is executed; 'Alternative' presupposes the existence of objectives or a problem for which more than one course of action or solution is possible; 'Quantitatively' expresses a focus of System Analysis on variables whose units of measure are inherently numeric or convertible to numerics; 'the provision, when possible' indicates that such variables are desiderata but may not occur in some situations. 'Effectiveness' relates to the discovery of the best or most promising solution to the problem.

Commenting on the various terms associated with Systems Analysis, Quade remarks that "all convey the same meaning... What is important, therefore, are the characteristics they have in common. These include an effort to make comparisons systematically in quantitative terms, using a logical sequence of steps that can be retraced and verified by others".

6.3 METHODOLOGY OF SYSTEMS STUDY

A full-scale formal systems study will involve a variety of personnel, the number and type of which changes as the effort progresses. The actual work in a systems effort is normally done by a group of five or six specialists organised as a project team, headed by a project leader directly responsible to the top management. Members of the team are selected on the basis of anticipated needs of the project. If the object of the project is to explore the possibility of rising computers in cataloguing, for example, the team would be made up of cataloguing librarians, analysts and computer programmers.

6.3.1 Points for consideration for a Systems Study

In the context of a Systems Study, some of the points/factors to be considered are:

(a) Defining the study problems—general definition of the problems to be studied and identification and description of specific problems involved

(b) Definition of library's overall goals

(c) Scope of the study —— areas and activities to be studied; priorities, if any; definition and illustration of any limits or restrictions, to be placed on the development of the system. Type of system (manual or computer-based) wanted; number and proportional distribution of personnel to be in the system; and tolerable unit or total costs of operations of the system

(d) Methods and Techniques to be used for obtaining and recording necessary information — Sampling techniques, Survey forms, Format of Reports, etc.

(e) Work and Time schedule — Man-days, Type of skills needed for each assignment, Responsibilities of each person, Target dates for interim reporting and completion.

(f) Announcement of Study Plan to Staff and Users — reasons for study, goals for study, benefits expected, and solicitation of co-operation from staff.

(g) Staff Training Programme, if required.

6.3.2 Steps in a Systems Study

A Systems Study which may be equated to the phrase " Let's be organised " helps to increase efficiency and productivity of the library. It consists of the following procedural components:

(1) Problem identification, definition and description in a system context

(2) Statement of objectives

(a) Overall system objectives
(b) Outcomes desired of the problem solution
(c) Performance indicators, expressed quantitatively when possible, by which achievement of outcomes can be ascertained.

(3) Specification of inputs or resources, priorities and constraints on possible courses of action (i.e. problem solutions)

(4) Formulation of alternative courses of action:

  (a) Estimation of advantages and disadvantages of each alternative

  (b) Rejection of less feasible or desirable alternatives

(5) Collection and analysis of data on promising alternatives.

(6) Selection and implementation of the best possible alternative.

(7) Performance monitoring, measurement, and evaluation

(8) Correction or modification of the implementation as needed

(9) Performance monitoring, measurement and re-evaluation.

6.3.3 Phases in Systems Study

Another approach to Systems Study consists broadly of three interdependent phases:

(i) ANALYSIS PHASE --- which includes four surveys: Survey of Requirements, Survey of Current Operating Conditions, Survey of Outputs, and Survey of Inputs.

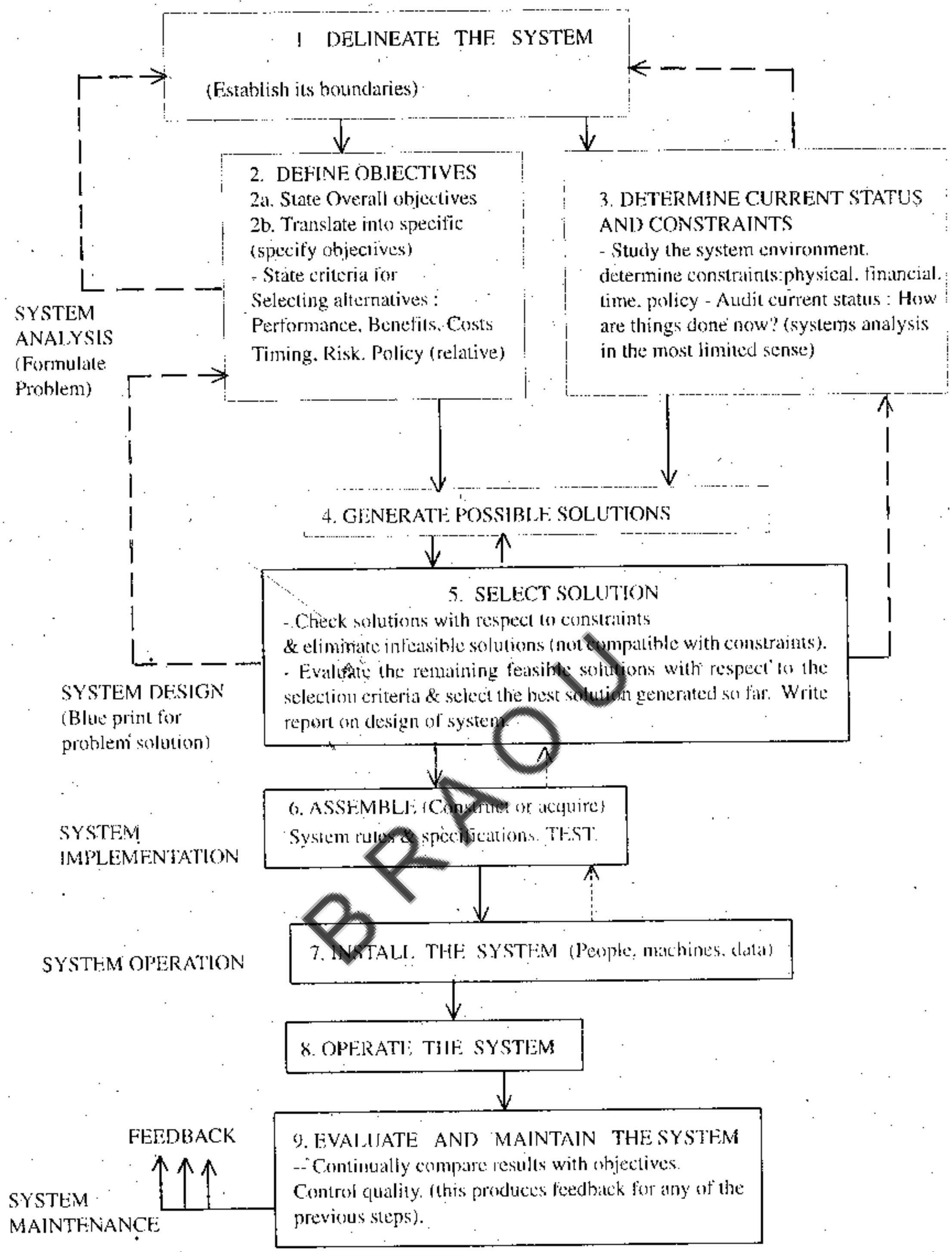
(ii) EVALUATION PHASE --- which is a detailed examination of current procedures with respect to their adequacy to implement the mission of the system.

(iii) DESIGN PHASE --- which is action taken by validation of the existing system, by modification of it or by substitution of a newly designed system to satisfy the demands being placed on the system.

The design phase is followed by System Installation and Follow-up action if and when needed.

6.3.4 Systems Analysis and Problem Solving

Systems Analysis may also be considered as a formal approach to problem solving or decision - making and consists of a step-by-step procedure in which objectives are explicitly specified, present situation is clearly described, and available alternatives are systematically explored and then evaluated with respect to objectives. It is not a linear process in which one function neatly follows another. The figure below shows a logical sequence of functions. Functions 1-5 should be performed in several cycles, each time more thoroughly. Function 4 Generates Solution and Function 5 Select Solution, interact heavily.


1 DELINEATE THE SYSTEM
(Establish its boundaries)
2. DEFINE OBJECTIVES
2a. State Overall objectives
2b. Translate into specific (specify objectives)
- State criteria for Selecting alternatives : Performance, Benefits, Costs Timing, Risk, Policy (relative)
3. DETERMINE CURRENT STATUS AND CONSTRAINTS
- Study the system environment, determine constraints:physical, financial, time, policy - Audit current status : How are things done now? (systems analysis in the most limited sense)
SYSTEM ANALYSIS (Formulate Problem)
4. GENERATE POSSIBLE SOLUTIONS
5. SELECT SOLUTION
- Check solutions with respect to constraints & eliminate infeasible solutions (not compatible with constraints).
- Evaluate the remaining feasible solutions with respect to the selection criteria & select the best solution generated so far. Write report on design of system.
SYSTEM DESIGN (Blue print for problem solution)
6. ASSEMBLE (Construct or acquire) System rules & specifications. TEST.
SYSTEM IMPLEMENTATION
7. INSTALL THE SYSTEM (People, machines, data)
SYSTEM OPERATION
8. OPERATE THE SYSTEM
9. EVALUATE AND MAINTAIN THE SYSTEM
-- Continually compare results with objectives. Control quality. (this produces feedback for any of the previous steps).
FEEDBACK
SYSTEM MAINTENANCE

6.4 SYSTEMS ANALYSIS

As identified in the previous sections, systems study mainly consists of three phases, namely, analysis, evaluation and design besides systems installation and follow-up. In this section you will study them in detail about each phases.

6.4.1 Analysis Phase

In this phase, the analyst should acquire a complete understanding of the system and its components inputs, outputs and existing conditions; and determine the interactions and inter-relations existing between the system under investigation and all other systems that place demands on it.

In other words, the questions to be asked are: What is required of the system? And what must it do to satisfy the demands and needs of users? In order to find answers to these questions, it becomes imperative to undertake four surveys:

* Survey of requirements
* Survey of current operations/operating conditions
* Survey of outputs
* Survey of inputs

a) Survey of Requirements

Though the terms 'demands' and 'requirements' are used synonymously, there is a difference in the meaning of these terms. Action taken translates a demand into a requirement i.e., demand places a requirement on the system.

For example:

Demand: To provide user with an accurate and current catalogue of the library's serials holding necessary for the users

Requirement: Serials system requires records that can be manipulated in various ways to satisfy multiple demands.

Internal Requirement: Prompt claim of issues on a definite schedule, precise control of renewals of subscriptions when due, improved accuracy and speed in the check-in of issues.

For the purpose of conducting the survey, a work sheet should be designed and it should include description of a) requirement, b) decisions to be taken for the requirement, c) actions to be taken for the decisions, and d) functions to be performed for the requirements.

b) Survey of Current Operations

The remaining three surveys - - of Current Operations, Outputs and Inputs- - though treated separately can be performed concurrently. In the survey of current operations, every item about the system is closely scrutinised - - its requirements, equipment, personnel, procedures and their applicability to stated outputs, effect of other systems and functions of the library upon the systems procedure, flow of work through the system, etc. Obviously, for this close scrutiny, detailed work sheets need to be prepared.

For example:

Equipment Survey: details include brief description of the system and its major activities; primary requirement of the system; manual of procedures if available; equipment used presently and to be replaced; other equipment available both in and outside the library; location; special features, if any; percentage use; age and condition; authorisation and procedure required for use of equipment in and outside the library etc.

Personal Survey: details on staff positions; job level or classification and grade of each position; special skills required; name of person in the position, noting vacancies and additional personnel not reflected in the organisation chart; actual job level of person; special skills possessed by the persons; accuracy and uptodateness of job-descriptions.

System Component Survey: of each major activity or sub-system in work-step sequence furnishing a complete picture of the flow of work through the whole system consisting of its several sub-systems. In relation to each component, the methods/ procedures/ operations/ functions/ decisions/ actions involved, brief description and the standard work rate need to be given.

In this context, the role of the analyst is to observe and record what exists and what is done objectively at present and what is not done. At this stage, the cardinal principle for the analyst is not to suggest changes.

(c) Survey of Inputs / Outputs

It is pertinent to mention at this juncture that a demand places a requirement (i.e. performance of a task) on the system, which requires an input for the generation of the desired output (i.e. results that follow after the performance of the task). Here, by input is meant information that is a matter of record within a system and output is information transmitted from the system. However, an output may become the input for a subsequent performance of a task. The idea in this survey is that the input - output chain should be followed through the system to its destination. In the context of inputs / outputs — the type the sources, the content and form need to be identified.

Appropriate worksheets for inputs and outputs need to be designed for use in the surveys. The outcome of these surveys should be that the analyst gets a general overview of the system, revealing the work flow, the interrelationships among sub-systems, duplication of efforts in preparing, maintaining and supplying the systems outputs and revealing uses and distribution of reports that may be unnecessary and can be questioned by the analyst in the light of the fairly complete picture of the system he has developed through the summary work sheets.

6.4.2 Evaluation Phase

Based on the information collected in the previous phase, the analyst evaluates the system to determine how cost efficient and cost effective, to what extent present system meets the requirements of the operations. Subsequently he makes recommendations— revision, elimination, maintenance, and modification of existing methods, etc.— based on specific determinants. These may pertain to requirements, that are germane to successful management of the system, inputs/outputs, personnel (size and capabilities, additions needed, reassignment of jobs fitting levels of competency), equipment (repair, replacement or acquisition of new and modern equipments) etc. In this context, the tools used by the analyst include goals enunciated in the planning stage, existing procedural manuals, worksheets prepared for inputs/ outputs. The recommendations are made in the form of a report for the benefit of the management.

6.4.3 Design Phase

In designing a new system, the same data used in preparing the evaluation report of the existing system are used in the design phase that culminates the systems study. Thus, the report is the starting point or basis for design, as the analyst, by now is familiar with the strengths, weaknesses, opportunities and threats to the existing system.

The steps involved in the design phase are:

1) Review of the programs and their goals

2) Economic feasibility of unit costs of existing system

3) Verification and Validation of requirements

4) Specifications of inputs / outputs

5) Formulation of objectives of new design

6) Designing of procedures for achieving objectives — provision of details, flow charts, procedures, etc.

7) Designing of printed forms.

8) Final steps in design

- Prepare a flow chart of the new system in sufficient detail.

- Estimate the cost of installing the new system and its operating cost.

- Comparison of the old cost of the system with that of the new.

- Determine the staffing requirements of the new system

- Preparation of a summary report for library manage ment outlining the features of the new system.

- Preparation of a detailed procedural manual and time schedule for conversion to and installation of the new system.

6.4.4 System Installation

It is the responsibility of the analyst to install the system in co-operation with others as it was he who designed the system. Installation could be done by one of the following ways:

* Complete change over basis with a little break in service during the transition

* Simultaneously as a parallel programme with both old and new systems being concurrent for a pre-determined time

* Step-by-step or gradual basis where portions of the new system are implemented within the old system.

6.4.5 System Follow-up

There should be system follow-up action to monitor progress and for getting a feedback. This is essential as it would facilitate making necessary revisions and adjustments in operations, forms and staffing. This follow-up is preferably done after about a month and should be reviewed periodically and modified on the basis of the feedback received.

6.5 LIMITATIONS OF SYSTEMS ANALYSIS

While System Analysis has a great potential use in libraries, one should not overlook its limitations. Some of the limitations are discussed below.

1) Emphasis on Quantification

Systems Analysis at present is an art based on rather gross, primarily quantitative techniques. While applying quantitative techniques to institutions which produce tangible products and profits is one thing, attempting to apply the same to a service organisation like a library is quite different. Until or unless these quantitative techniques are refined to a point where they can take into account subtle qualitative factors such as; user satisfaction, quality of cataloguing, and effectiveness of selection policies, the main use of Systems Analysis in libraries will be limited to areas of processing activities such as ordering and receipt of materials, and physical aspects of cataloguing.

2) Limited Assistance in Decision-Making

Systems Analysis purports to be a rational, totally objective approach to the analysis of operations and problem-solving, while it is actually not. The system analyst uses his judgment and intuition in deciding which facts to gather, how to interpret them and what alternatives should be developed for consideration. Managements must be aware of this and be prepared to deal with the problems that may result. As a matter of fact, Systems Analysis does not make decision-making process easier, if anything, it makes it more difficult.

3) Inability to stand the test of Time

Ironically, Systems Analysis itself is affected adversely by change, the very force for which it was developed. A detailed formal systems study will usually accumulate a great detail of data which often requires considerable time to assemble and analyse. The result of a systems effort is analogous to a snapshot which reflects or represents reality at a point of time and may be incorrect at a latter date.

4) Expensive

A full-scale formal system study is costly, often descriptive and time-consuming. Unless there is sufficient promise that an effort will result in savings that are commensurate with the effort, a formal systems effort should probably not be undertaken. Unfortunately, it is difficult to know this in advance.

6.6 APPLICATION OF SYSTEM ANALYSIS

In the earlier sections, an overview of Systems Analysis emphasising on its need and value, and methodology involved have been highlighted. While the content is apparently theoretical, the ideas have been so presented as to facilitate the information professionals to think in a systems-oriented way in order to work out practical solutions to the problems they encounter. At the same time, it must be understood that Systems Analysis and thinking is never a panacea or a substitute for ingenuity in the solution of practical problems: what it achieves is the appropriate theoretical framework for thinking about problems.

According to Fasana, "... libraries are in trouble and have been for quite sometime ... Greater diversity of opinion exists as to the primary cause or causes. In addition, a shift has occurred in the nature of causes cited. While in the 1960s, the causes were changing structure of knowledge and rapid development of interdisciplinary fields, information explosion; proliferation of new libraries and the increase in size and complexity of older libraries; in the 1970s, the causes include library management, or more precisely, the lack of librarians, with basis management training; economic recession; need to make libraries more immediately responsive to the changing needs of their users; and application of newly developing technologies, such as, computers, telecommunication to library procedures".

In other words, the basic problem confronting the libraries is the impact of rapidly accelerating change on an institution which has traditionally been slow moving and conservative. Any solution, therefore, must first attempt to understand the nature of change and then to develop a methodology to face the changes.

Systems Analysis has proved invaluable in analysing complex organisation and solving problems resulting from organisations in conflict with an environment dominated by change and the uncertainty that inevitably, accompanies change. But, the use of Systems Analysis in libraries has been limited. Increasingly, however, in recent times, libraries are becoming aware of its potential usefulness to analyse and solve their problems.

6.7 APPLICATION OF SYSTEMS ANALYSIS IN LIBRARY FIELD

The totality of activities within an information unit forms a system which exists to provide information and access to information to its users. The technique of systems analysis can be used to study this system and its subsystems in order to demonstrate the inter-relationships of the component parts, their effectiveness or otherwise, and whether there is a need for any modification or replacement. It is also of use in design and implementation of new systems. Due to the complexity of information systems, and because information staff usually cannot down tools in order to carry out a full analysis, most systems investigations have been into particular activities and technical processes. Some studies have been made of the relationship between two or three subsystems, but there is a lot of work still to be done in this field (Manson). Following are examples of how systems analysis can be of use to librarians.

6.7.1 Formulation of Library Objectives

The quantitative techniques used, the rigorous attention to detail, and the critical examination of facts, characteristic of systems analysis,encourage and enforce systematic, disciplined thinking about operations and organisations. Such a critical, analytical attitude is fundamental to modern management and is an essential first step in understanding complex problems. For example, the objectives of an organisation should be the starting point in the identification of problems and the evaluation of an organisation. Objectives should be clearly stated and reflect a realistic attitude on the part of management. Too often library objectives are ambiguous, out of date, or unrealistic. User requirements for libraries have changed radically during the past twenty years and the importance of information in our society has increased enormously. Yet library objectives, resources and techniques have changed little.

Unless objectives are stated explicitly, it is impossible to develop measures of performance. Unless effective performance can be demonstrated, it is difficult to justify continued levels of financial support and impossible to argue for increased support to provide new or additional services. The ability to demonstrate effective performance assumes critical importance in a period of economic recession (Fasana).

A systems analysis must always start from the objectives of the system, and then look at the functions of the system and how these are carried out. The relationship of the system to other systems must be determined so that the necessary constraints are observed. A useful approach is the "critical examination" of each activity within the system. Each activity is defined, then the following points are examined.

Is this activity necessary or can it be avoided? If necessary, what are the methods of doing and is there any better way of doing ?

When the activity is performed and is there a better time?

Who performs and is there any other person/group who can perform better?

At the same time performance data can be collected e.g. time spent on each operation, volume of work, rates of pay, etc.

In the next stage the system is analysed. This can be done by drawing up such things as organisation diagrams and flow charts. Process flow charts can demonstrate the physical movement of materials, and logical flow charts can show where decisions are made, and their effect on the subsequent parts of the process. From the timings of the activities, staff costs are determined, material and other costs are added to obtain a total cost. Cost of any alternative methods can also be estimated for comparison (Mason). This systematic analysis aids in either formulation of new objective or in the modification/refining of the formulated objectives to suit with challenges of change.

6.7.2 Library Management and Systems Analysis

Indisciplined thinking is reflected in many library operations. It is not uncommon to find that operations in libraries have no reason for continuing. They exist because no one has questioned or evaluated them. Continual evaluation and modifications of procedures is required to reflect current, changing needs. This requires a querying, analytical attitude on the part of librarians at all levels. Similar problems exist in the areas of planning, control and decision making. As organisations grow, the number and kinds of decisions that must be made proliferate and the consequences of these decisions become more critical. For example, a seemingly simple decision about what information to include on an acquisitions order form can have profound effect on cataloguing operations. Unless a librarian can analyse the nature of a decision and have facts available in a form that he can understand and use, he is forced to rely on personal experience and intuition which is often insufficient to meet the needs of modern organisations. Decisions based on fact and proper analysis, coupled with institution and experience, are inevitably more consistent, reliable (Fasana).

Systems analysis comes into picture if and when decisions are made to modify the system, or to introduce a new system. The stage of system design is carried out, although the major part of the thinking out of the design will usually have been done during the analysis stage. The implementation and evaluation of the new or modified system is carefully controlled because, however good the design is,there will always be unexpected factors arising, usually at the interface between the new system and other existing systems (Mason).

6.7.3 Role of Systems Analysis in Library Automation

Library automation has demonstrated that libraries will need a great deal of special technical assistance in designing and planning systems and using new technologies. This assistance can be provided in part by using trained technicians and specialists from other disciplines. Controlling and coordinating these non-library specialists is difficult, but highly essential, because the system that will be developed will ultimately have to be taken over and operated by librarians. The need, therefore, for librarian to gain experience and some level of expertise in systems analysis to guide the design and development of automated systems and then to operate them is becoming increasingly critical (Fasana).

In an overall appraisal of the utilisation of systems analysis preceding library automation, it seems a fair conclusion that systems analysis is becoming routine in libraries, particularly in instances where automation is seriously considered or thought probable. Even when the use of the computer is not preconceived as a likely result, machine alternatives are routinely considered. As Cox states "automation in libraries is virtually inevitable due to increased demands for service. Other factors including the large volume of materials handled and available technological aid in the form of computers are also contributing to the rapidly increasing number of applications of automation in library technical processes. In any case, systems analysis, as a prelude to library automation is an inevitable common place fact of life in libraries (Carter)".

Critical Examination

To illustrate a combination of systematic analysis and creative thought a techniques known as "Critical Examination" is outlined below:

Critical Examination

Facts	Alternatives	Consideration for developing
What is achieved? Why How is it achieved? Why? When? Why? Where? Why? Who Why?	What else could be? How else When else? Where else? Who else?	

This is used typically in a process improvement situation where one starts with a rigorous questioning of what the process is designed to achieve, and why before looking at how it is done, how or thinking how better be done. The first two columns provide the framework for a systematic and rigorous analysis of the existing system - or the proposal, if the technique is applied at the design stage. They embody a searching use of the question WHY? Both to look back at causes and to look forward to purposes. They are designed to give a thorough understanding of the present situation, its strengths and weaknesses. The third column represents the creative phase in which opportunities for change are generated. The approach is that of brainstorming on each aspect of the system in turn and it is usual to assist the process by means of a check-list of simple trigger-words such as eliminate; avoid the need; substitute; modify. Evaluation of the ideas is deferred to the next stage and the 4th column provides the basis for this (Kemp).

6.7.4 Book-Ordering System

Systems Analysis was used in an investigation of alternatives to a manual book-ordering system for the University of Michigan Library. Problem with the existing system became visible when planning for the future was contemplated which involved increased acquisitions requiring additional staff and facilities. Hence, system objectives and performance indicators (cost per order) were specified and alternative system designs were considered. The proposed mechanised alternative and steps of the implementation process were studied in detail.

The Systems Analysis required nearly two years from the stage of problem definition to implementation. This resulted in a new system capable of processing a 33% increase in workload with only one new staff member, no facility increase, and most important— staff sentiment favourable to the new system. The performance evaluation disclosed the pragmatic difficulties that can be encountered in comparing a new system with a replaced one. Representative costs for the new system were not ascertained as it was felt that a 1-year period was too short. (Thomson and Muller).

6.7.5 Inter-Library Lending System

Another analysis examined two alternatives available to an inter-library lending system: (a) Loan of original library documents that must be returned and (b) the provision of retention photocopies of requested materials (Spencer). The report of this analysis is most detailed with respect to the data collection and analysis procedure employed to obtain performance data for the two alternatives.

In accordance with work measurement procedures, the work applicable to each alternative was determined at the task level of specificity as follows: appropriate forms were designed for employee self-administration, data sample sizes were computed, and data collection procedures were developed. The alternatives were compared on unit-cost - per - request received and unit-cost - per- filled collection variables. The data showed almost equivalent costs for the two alternatives, and they demonstrated the cost sensitivity of this multi-task, labour-intensive operation to : a) Wage changes; b) the quality of input citations received which affected verification and document location times; and c) record-keeping procedures. Although the report does not indicate the decision reached on the data, the study provided one Regional Medical Library that operates a high volume lending service with concrete knowledge of comparative operating costs and a factual basis for policy decisions.

6.8 *ASLIB* SURVEY

An ambitious study conducted by Aslib illustrates another type of application of Systems Analysis. Initially concerned with the various uses that are made of bibliographic data elements in library operations, Aslib researchers intensively examined the records and record keeping procedures employed in representative public, university and non-commercial special libraries (Pauline Thomas and Harry East). They developed a standardised description of work procedures and activities that are associated with the need for and use of various bibliographic and administrative data elements. From this experimental information about prevailing practices, they designed a procedural model for operational subsystems (acquisition, processing customer services and maintenance), of a library that demonstrated the possible performance of complete sets of activities with a minimum number of forms [illegible] les.

The model was applied hypothetically to practice and procedures in an actual library which revealed sites amenable to the reduction or elimination of work . In the next stage, work procedures in a college library were examined in terms of the procedural model at a task level of work specificity to show how work can be analysed, not only to recognise information needs but also to obtain data for such purposes as cost analyses, job analyses, and training programme development. The Aslib reports recommend that the model be viewed as a guide and not as a description of a single rigid option.

6.9 LET US SUM UP

Systems Analysis as a management tool is valuable in analysing complex organisations and has been used successfully in business, industry, government, etc and in identifying and solving problems. The strategy of problem-solving prescribed by Systems Analysis is applicable at many levels of operation that can be circumscribed as 'Systems' for study purposes. However, the demand of Systems Analysis are tough in that they require comprehensive articulation of the problem, an unambiguous statement of objectives accompanied by concrete performance measures, realistic alternatives for overcoming the problem at hand, rational decision-making, implementation of the programme designed, and performance assessment. It is not only difficult to meet with these demands, but also it is time-consuming and consequently an expensive proposition. In addition, knowledge, skill, competence, imagination and attitude required in people conducting such system studies is of a high order, and also requires the cooperative framework of many individuals at different steps.. In other words, it may be said that a systems study can be successful only with the joint and integrated efforts of different groups of individuals. Nevertheless, the most useful contribution that Systems Analysis will make to libraries and information centres in the immediate future will be in the areas of management, organisation and adaptation to change.

Systems Analysis is applicable at many levels of operation that can be circumscribed as "Systems" for study purposes. It has been proved beyond doubt that System Theory and approach have a strong influence on various fields of study covering the entire spectrum of library management : — Planning and Designing of Information Systems including computer-based information systems; Costing and Economics of Information Systems; Staffing; Evaluation of library and information systems, staff, future policies and direction, Bibliographic control, Collection Development; Library Automation, including automated acquisition, automated serials control, automated circulation including inter-library cooperation; Human-Computer interface design; Selection of Software Packages, etc.

Another interesting point is that Systems Analysis as a management tool is applicable to school libraries, college libraries, university libraries, special libraries, large library systems operating at the national and international level.

At the same time, it must be stressed that System Analysis work is complex, dynamic, costly and time-consuming, and results can never be guaranteed. However, Systems Analysis can and should be used in any situation where there is a need to measure performance and a reasonable possibility of being able to develop more efficient routines.

Thus, Systems Analysis has already been proved useful in libraries, first by fostering a critical systems approach to operations and problems and, secondly by providing libraries with new techniques useful in analysing, evaluating and understanding library operations. The future of Systems Analysis in libraries is promising, but will not be realised without effort on the part of librarians. Nevertheless, it should be realised that Systems Analysis is a tool or extension of management and, therefore, must be controlled by management and not allowed to control or replace management.

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6.11 ASSIGNMENT

Critically examine various steps involved in designing and planning of automated library system using systems analysis as a tool.

6.12 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Define the terms 'System, Analysis, and System Analysis' and comment on the need for Systems Analysis in the libraries and information centres.

2) Describe briefly the methodology involved in a formal systems study. Comment also on the limitations of systems analysis.

3) Draw a figure showing the logical sequence of functions to be performed in a systems analysis study.

4) Discuss with illustrative examples the application of System Analysis in libraries and information centres.

II. SHORT NOTES

a) System Design

b) System evaluation

c) Phases in Systems Study

d) *ASLIB* Survey

UNIT - 7 : EVALUATION OF INFORMATION SYSTEMS AND SERVICES

Structure

7.0 AIMS AND OBJECTIVES

The aim of this unit is to provide a framework for Evaluation of information systems and services with a special emphasis on the various evaluation measures and their applicability to information systems and services.

- After reading this unit, you should be able to
- get an overview of the subject of Evaluation
- recognise the need and value of Evaluation
- become familiar with the framework for Evaluation of Information systems and services
- identify the criteria/ measures used for Evaluation.

7.1 INTRODUCTION

In this unit, you are introduced to the concept of evaluation in the context of information systems and services. In the earlier units of this block, the techniques of Systems Analysis and its applicability to Management of Information Systems and Services have been discussed. Evaluation, one of the phases in a systems study, is discussed here and includes details such as framework for evaluation, evaluation measures and their applicability.

7.2 EVALUATION - IMPORTANCE, OBJECTIVES AND THE FIVE LAWS

7.2.1 Importance of Evaluation

Information is an all pervasive resource in every human activity and helps in establishing a continuum from past to the present and ultimately the future. The natural consequences of all activities tends to generate large amounts of data/information. This information is recorded and stored only when it is expected to have potential importance. But, its importance may decline with time necessitating a weeding process. This is easily said than done as it may be easier to retain than to throw out.

As Doyle puts it "...All this is, perhaps, a negative consequence of the nature of information, and is the price we pay for having as many units of information as possible in a state of availability and readiness for use". This results in a peculiar phenomenon of "poverty in the midst of plenty" as information accumulated, but not organised. It impedes retrieval. In other words, information may be available but not accessible which is more frustrating than having no information. It is to eliminate or ameliorate this situation that information professionals have resorted to organisation of information into some meaningful grouping of topics for retrieval as and when necessary.

In view of the emphasis on information retrieval during the fifties and sixties, numerous methods for accessing information were designed. Consequently, librarians and information scientists were placed in a dilemma regarding the choice of a particular method. In other words, evaluation in regard to the workability of the new methods became a necessity. The coming of the computers into the information scene complicated the situation further as tall claims were made. However, Bar-Hillel rightly said in 1960 that:

"the prospects for efficient use of computers for information retrieval have so far been greatly hampered by inept theorizing by pointless attempts to "apply" prestige-carrying scientific, and especially mathematical, disciplines ... and by greatly underestimating the intellectual effort required to arrive at a good abstract, a good index set, and good judgment as to the closeness of topics ..."

In other words, it became obvious that claimants of novel ideas should prove their worth by evaluating them in real-life situations. At this juncture, one question that one may ask is as to why evaluative approaches were not attempted extensively before. The answer to this would be that changes in the information environment were slow and gradual, giving sufficient time for the traditional methods to adapt themselves to the new requirements. But, this has changed considerably, in recent times, necessitating appraisal of new methods.

The evaluation is also essential to assess the level of performance and if necessary to look for ways and means of improving the activities and services in order to attain the objectives.

7.2.2 Objectives of Evaluation

It has been said that evaluation of system/services/activities is done with the objective of improvement. Specifically speaking, the purpose of evaluation may be :

* To show at what level of performance the system/service is operating
* To compare performance with other libraries
* To justify the system or service's existence - - by an analysis of the relationship between benefits and cost.
* To identify possible sources of failure or inefficiency in the service with a view to raise the level of performance.

Echoing similar views, Weiss argues that most evaluative decisions relate to whether or how a library should

* Continue a program
* Institute similar programs elsewhere
* Improve its practices or procedures
* Add, drop or change specific programme strategies and tech-niques
* Allocate resources among competing programmes
* Accept or reject a program approach or theory

Thus, one can see that every system/service is evaluated at four levels in relation to efficiency, effectiveness, cost-effectiveness and cost-benefit wherever and whenever possible.

Evaluation of information is also essential to identify the relevance of existing practices in the changing environment and availability of limited resources. This will be useful and provide necessary information for decision making and contribute in development of an existing activity. The evaluation could be of collection, performance, budget, expenditure, service, etc. Dr S.R. Ranganathan's Five Laws can be adopted as principles for evaluation.

7.2.3 Ranganathan's Five Laws as Evaluation Principles

In the context of evaluation, perhaps, one can adopt and use Ranganathan's Five laws as Evaluate Principles. The following are the Five laws and their implications in regard to the process of evaluation.

* BOOKS ARE FOR USE

  Evaluate collection and services - - carried to its logical conclusion. implies consideration of Cost-effectiveness i.e. Cost per use of Services

* EVERY READER HIS / HER BOOK

  Assessment of availability and accessibility

* EVERY BOOK ITS READER

  Assessment of exposure as well as accessibility

* SAVE THE TIME OF READER

  Internal efficiency of the library to make bibliograph-ical resources accessible in ways that are most conven ient to the user, thereby increasing user satisfaction and simultaneously minimising time loss to user.

* LIBRARY IS A GROWING ORGANISM

  Is the library adapting to the changing social conditions and technological developments?

7.3 DEFINITIONAL ANALYSIS

In attempting to discuss the subject of evaluation, it would be helpful to provide definitions of them:

a) The purpose of Evaluation is

   * The process of determining to what extent the objec tives are actually being achieved

   * Providing information for decision making

   * The comparison of performance to some standards to determine whether discrepancies existed

   * The systematic investigation of the worth or merit of some object

As a matter of fact, evaluation serves different functions:

* In formative evaluation, it is used for the improvement and development of an ongoing activity or programme

* In summative evaluation, it serves for accountability, certification, continuation or selection

* A third function is psychological or socio-political. More than one function can be served - to motivate, increase knowledge, gain support, and promote public relations.

Thus, one can see by implication that evaluation involves: Focusing the evaluation, designing the evaluation, collecting information, analysing and reporting information, managing the evaluation and evaluating the evaluation. Few terms used in evaluation are explained in the following paras:

b) **Performance** is an indication of how well a service or activity is performed and can be measured in terms of the input costs and output in terms of quantity, quality, timeliness, availability, accessibility, etc.

c) **Effectiveness** is measured from the perspective of users, which include user satisfaction with a service; amount, purpose and consequences of use. Perhaps, improved quality, timeliness, and availability would result in greater user satisfaction and increased use of services.

d) **Measure** is generally used to mean any process describing in quantitative values : things, people, events, etc. It also means the value being measured.

7.4 EVALUATION CRITERIA / MEASURES

The objectives of evaluation , especially exposure/accessibility goals, provide an overall framework within which the following criteria have been developed. The key terms used in the framework are

i) **Cost** - refers to the input of resources to a system in terms of monetary units : Direct, Costs,Effort involved (Cost of User's own time), etc.

ii) **Response Time**

iii) **Quality** - Coverage of collection or database completeness); Recall ; Precision ; User Effort ; Novelty; Accuracy of data

iv) **Generic Measures** - Input cost measures, Output Measures, Effectiveness Measures and Domain Measures.

Lancaster has given examples of possible criteria applied to various services in the following table :

Table-1: **Possible Performance Criteria for Library Services**

Criteria	Technical Services	Public Services
QUALITY	1. Selection and Acquisition. -size, appropriateness, and balance of collection 2. Cataloguing and Indexing - accuracy, consistency, and completeness	1. Range of services offered 2. Helpfulness of shelf, shelf order and guidance 3. Catalogue - - completeness, accuracy, and ease of use 4. Reference and retrieval - - completeness, accuracy and percentage success 5. Document Delivery - Percentage success
TIME	1. Delays in acquisition 2. Delays in cataloguing and other processing 3. Productivity of staff	1. Hours of service 2. Response time 3. Loan periods
COST	1. Unit cost of purchase 2. Unit cost of process - Accession - Classify - Catalogue	1. Effort to use - Location of library - Physical Accessibility of collection. - Assistance from staff 2. Charges levied

In the succeeding sub-sections, the different types of criteria/measures are discussed in detail.

7.4.1 Quality Measures

While cost and time criteria are obvious, quality measures are less obvious. Two major quality measures of success as applied to information services are :

- Does the user get what he is seeking or not ?
- How completely and /or accurately does he get it?
- In other words, the measures pertain to coverage, recall, precision, etc.-

i) Coverage:

Coverage is a measure of the completeness of a collection or database. It is related to recall in that it is likely to be a concern only to the user who needs high recall i.e. a comprehensive search.

ii) Relevance:

Whenever one talks of information retrieval, one term which assumes significance is " relevance". But then, the question -" What is relevance" is difficult to answer. Yes - No, either - or approach to relevance is index term assignment is difficult. Thus, a term can be assigned to a document on a weighted basis, the amount of weight depending on the probability that a searcher using that term would find that document relevant. Maron called this new approach as " Probabilistic indexing".

The idea of measuring relevance spread to the Cranfield project. Golfman was suggesting that relevance is not intrinsically a measure. because it is not additive. So the question turned not to " why relevant", rather "how relevant". But, in 1967, Cuadra and Katter published a paper entitled "Opening the Black Box of Relevance" wherein they reported the effects of varying the questions given to relevance judges by informing them what the retrieved documents are used for.

For example:

* Use in stimulating ideas, creative approaches
* Use in relation to a specific task
* Use in preparing an exhaustive bibliography

and the authors concluded " ... Thus, it is possible to obtain higher or lower relevance scores simply by telling judges how documents are to be used". This is essential as otherwise judges would make their own assumption leading to variations within the "black box of relevance". Nevertheless, the concept of relevance continues to be used as can be seen from the fact that relevant judgments are sought for from users, in the context of SDI (Selective dissemination of Information).

iii) . Precision:

Precision is the ratio between the relevant retrieved and the total retrieved documents in a literature search. As a matter of fact, it is the measure of the work still to be done in screening out irrelevant material at the next level of search. For example, if in retrieving 8 wanted and 92 unwanted), we say that the precision ratio is 8/100 or 8%.

Similarly, if an index retrieves a total of 50 references in response to a question, out of which 40 are relevant then the precision ration is 40/50 X 100 = 80%

In the context of evaluation, the following common frame of reference would be useful:

	Relevant	Not Relevant	Total
Retrieved	a Hits	b Noise	a+b Total Retrieved
Not Retrieved	c Misses	d Correctly rejected	c+d Total not Retrieved
Total	a+c Relevant Collection	b+d Not Relevant	a+b+c+d Total

$$\text{Precision} = \frac{a}{a+b} \times 100$$

$$\text{i.e.} \quad \frac{\text{Relevant retrieved}}{\text{Total Retrieval}} \times 100$$

It may be asked as to why irrelevant material are retrieved in relation to a query. They are usually retrieved because they contain combination of words, terms, or phrases that matched those in the search statement. In other words, retrieval of irrelevant material is unavoidable. Further, studies have shown that parameters such as library size and topical specificity influence the number of irrelevant retrieval.

iv) Recall

On the other hand, Recall is the ratio between the number of relevant documents and the total relevant in the file or system. For example, using the common frame of reference, Recall may be shown, as follows:

$$\text{Recall} = \frac{a}{a+c} \times 100 \quad \text{i.e.} \quad \frac{\text{Relevant retrieved}}{\text{Total relevant}} \times 100$$

For example, if there are 100 documents relevant to a particular question in a file or system and if 60 are retrieved and 40 are missed, then the recall ratio is

$$\frac{60}{100} \times 100, \text{ i.e. } 60\%$$

While this may be a useful measure, there is the problem of determination of the total number of relevant documents in the file/system unless one scans the whole file/system completely. For large collections, this is "exceedingly impractical". But, Salton suggests a number of alternative methods for this purposes. They are :

a) Use of sampling techniques
b) Designation of source documents
c) Scanning of condensed formats indexed by one of the "and" words in a search request.
d) Conducting a number of searches using the same search request but different search methods - - word systems, thesaurus, statistical phrase, etc.

Perhaps, the measure of the completeness of a search in a database is referred to as Recall ratio.

v) **Novelty**:

Novelty refers to the newness of information supplied by a service and is of importance in evaluation, especially the Current Awareness service. It may be considered as an extension of precision, since it represents the percentage of relevant items retrieved during a search that are new to the requester. The evaluator can determine the novelty ration by using two different formulae - - by either dividing the new and relevant reference by the total references retrieved or by dividing the new and relevant references by the number of relevant references retrieved. For, example, if in a search for which precision was 60/80 (0.75) and if 20 of the relevant items were new to the requester, then the novelty ration could be calculated as 20/80 (0.25) or as 20/60 (0.33).

7.4.2 Generic Measures

There are four generic types of measures for the evaluation of information systems/centres They are :

* Input cost measures
* Output Measures
* Effectiveness Measures
* Domain Measures

While information centre management can have direct control over input cost and output measures, and to a lesser extent on effective measures, it has absolutely no control over the domain measures. The management concerned can change the situation through training, firing, re-hiring, etc.

i) Input Cost Measures

As the name suggests, it is the overall cost of all resources - Capital, staff, equipment, facilities, information, supplies, administrative and support staff, etc - - applied to the operational functions and services.

i) Amount of resources
ii) Attributes of the resources
iii) Amount of money applied to the service

The following table indicate clearly the quantities and attributes of the resources.

RESOURCES	AMOUNT	ATTRIBUTES
Manpower	No. of people	Level (Professional, Semi-professional, Clerical)
	No. of hours worked	Competence (Knowledge, skills, attitudes) Education Experience
Collection	No.of Titles in the collection	Type of Material (Books Periodicals, Reports, Audio-visuals, etc.)
	No. of Titles purchased	Type of Media (Print/ Paper, Micro-form, Electronic)
Finance/Cost	In Rupees, Dollars, Pounds Sterling	Funds Allocation Application of Funds Fixed Vs Variable

ii) Output Measures

Similar to input, output measures refers to the quantity of output and attributes associated with output such as quality, timeliness, availability and accessibility.

1) *'Output quantities* pertain to operational functions and services and involves the numbers of transactions or items provided. For example : Number of documents photocopies provided Number of searches made, Number of documents classified/catalogued, etc.

2) *Quality* measures are applicable to operational functions and services. For example : accuracy of classification/cataloguing, relevance of search outputs which perhaps would include recall and precision, level of excellence of activities, etc. Generally, the quality measures are applied to specific units of output and not for the output as a whole. Where it is not possible to measure quality directly, scale values are used.

3) *Timeliness* is a measure appropriate for services. This would involve establishing a relationship between the response time (of the system) and the required time (of the user). Obviously, if the response time is earlier than the required time, the user is happy. If it is later than the required time, the user will be very unhappy. Like in the case of quality, timeliness can be measured in relation to specific units of output.

4) *Availability and Accessibility* is concerned with the distance of the service/ information centre to the users, or in terms of a surrogate measure such as time. For example, the amount of waiting time for a service is an indicator of service accessibility. Physical availability and accessibility of the item is another important factor for output.

iii) Effectiveness Measures

These measures relate to the effect of the services on the user's perceptions, such as, amount of use, purpose and consequences of use. It is believed that the degree of effectiveness of an information centre/service can be gauged by how much and how frequently it is used. This would be reflected in the number of visits made by the users to the information centre and by the quantum of documents circulated.

Individually speaking, each service and unit of use has associated attributes that could affect the extent of use. These relate to user's perception of service performance, his expressed satisfaction level, his perception of importance of services provided, the purpose for which they are used, and consequences of their use.

iv) Domain Measures

As the name indicates, domain measures pertain to the environment of the information centre, and including user population and satisfying of their informational needs. But, as mentioned earlier, the information centre management has almost no control over domain measures. However, knowing about them facilitates managerial decision-making.

7.5 ECONOMIC CONCEPTS OF EVALUATION

One may also view evaluation of information systems from an economic point of view which would involve evaluation of the system in terms of user satisfaction, as well as in terms of its worth i.e. whether or not the services provided justify the cost.

Thus, economic concepts relevant in the evaluation of information systems are:

* COST - - which refers to the input of resources to a system in terms of monetary units (Section-A)

* PERFORMANCE - - relates to attributes directly controlled by the system such as, Recall, Precision, Speed or Response, etc. (Section-B)

* BENEFITS - - are the consequences of system performance in terms of value return on investment, effect on the behaviour of user. etc. (Section-C)

* VALUE - - indicated by international contacts, opening of new viewpoints, time and cost saved and hence duplication of effort avoided. The value also depends upon reliable and updatedness of the output.

* COST- EFFECTIVENESS EVALUATION - is impossible without prior knowledge of the performance and cost of the system. It shows whether performance can be improved at an acceptable cost, or at no costs, can be reduced without unduly affecting performance. While looking at the cost effectiveness, quality is not compromised.

* COST-BENEFIT EVALUATION - - is a method which involves finding a way of expressing different costs and bene fits in common monetary terms. For eg, Ratio of services provided at total cost; Ratio of total services expenditure to users.

It may be observed that while economic concepts of cost and performance can be related to the input cost and output quantities, benefits and value can be correlated with the effective measures mentioned earlier.

7.6 APPLICABILITY OF EVALUATION MEASURES

Evaluation of Information Systems and Services is not a recent phenomenon, but started way back in the fifties. While many evaluative studies have been conducted, the field seems quite hazy as many have made critical observations on the methodologies and techniques used. Many a person have questioned the validity of the various evaluative measures used in assessing retrieval effectiveness. As a consequence, new measures have been evolved. At the same time, it must be mentioned that evaluation measures by themselves do not always provide sufficient information. However, relationships existing between them may be good indicators for evaluating Information systems and services. In the succeeding sub-sections, the applicability of the various evaluation measures to information systems and services is discussed.

7.6.1 Relevance / Recall / Precision

Relevance is considered as one of the important criteria underlying existing performance measures and is also the most debated in information retrieval research. There does not seem to be any consensus among the experts on the question of relevance of Relevance. In relation to most of the evaluation studies, Relevance was applied to stated requests. But, it has now been realised that the user's requests do not reflect their information needs. Therefore, the current view seems to be that relevance should be judged in relation to needs rather than restricting to stated requests. But, whether this would be possible in an operational environment in relation to each stated request is a controversial matter.

On the other hand, recall and precision which are relevance-based measures are well known, commonly accepted and widely applied in all evaluation studies. As a matter of fact, they are considered as traditional measures of effectiveness. Between themselves, recall and precision have been found to have an inverse relationship with each other. While recall-precision measurements have dominated in early evaluation studies, the main assumption that the average user is interested in retrieving large amount of relevant materials (producing a high recall performance), while at the same time rejecting a large proportion of the extraneous items (high precision performance) may not always be satisfied (Salton, 1992).

Another point made by Salton in this context is that recall, in particular, is apparently incompatible with the *Utility - Theoretic approach* to retrieval. In essence, it means that retrieval effectiveness is measured by determining the utility to the users of the documents/ information retrieved in answer to a user query. It is quite possible that documents retrieved may be relevant to a user query, but at the same time useless. On the other hand, if the system is optimised in some cases, by bringing a single relevant document to the user's attention, the recall value will be quite low. This would mean that from the viewpoint of utility, precision measure alone may suffice.

This apart, recall may be difficult to implement because it would require the knowledge of all the relevant documents in the collection with respect to each query. This requirement, perhaps, would be impractical in the case of large operational systems.

Precision, on the other hand, has been widely used as a measure of retrieval effectiveness, successfullly. But, in interactive information retrieval, while precision was not a good indicator for information retrieval performance, recall was considered more important in the user's evaluation of information retrieval success. This necessarily would have implications for future IR evaluation and proper interpretation of previous findings related to precision. (Su,1992).

7.6.2 Generic Measures

The generic measures used for evaluation are the input cost measures, output measures, effectiveness measures, and domain measures (Section 7.4.2). While the first two types of measures are concerned with information centre operations and help to establish the performance of resources, the effectiveness measures are those involving the impact of the information centre services on the user's perceptions. On the other hand, domain measures involve the descriptions of the environment in which the information centre is placed.

i) Input Cost Measures

While it may be possible to identify individual operations and services, difficulties crop up when one tries to cost the resources expended in relation to each operation and service. For example:

a) There is the problem of distributing costs pertaining to overheads on individual operations/services.

b) Calculating manpower costs poses problems as one and the same person may be involved in more than one operation and service and it would not be possible to estimate clearly the amount of time spent by him relation to each activity.

c) Since, operations are meant primarily for the generation of services, costs involved on operations should appropriately be transferred as associative costs while costing services. This is easily said than done as one and the same operation (or operations) are inputs for the generation of a large number of services and hence it would be difficult to estimate the exact associative cost of each of the services. In addition, there is the question of depreciation and opportunity costs. In other words, costing of operations and services is not an easy task as one would like to imagine.

ii) Output Measures

These pertain to the quantity of output of service and operational functions, and each unit of output has inherent attributes associated with it such as quality, timeliness, availability, and accessibility. While estimating quantity may not pose serious problems, determining quality is problematic as it is difficult to identify and measure quality attributes for many services. Further, quality measures such as relevance of search outputs, or level of excellence of activities are difficult to determine as a certain degree of subjectivity (of the evaluator) would be involved. In addition, quality can only be measured for specific units of output and not for the output as a whole. The same is true of timeliness.

While availability is, perhaps, measurable in relation to a service as a whole, perception of accessibility from the user's viewpoint is difficult to gauge. This has implications in that the user's perception will have a direct impact on the amount of use which is an effectiveness measure.

iii) Effectiveness Measures:

The amount of use - - an effectiveness measure - - is influenced largely by the service attributes such as quality, timeliness, availability and accessibility i.e. the output measures.

While specific values cannot be assigned or measured in relation to user's perceptions of service performance, user satisfaction, importance of services, general ratings are possible. Further, this delves into the realm of subjectivity of the users concerned. Hence, it would be extremely difficult to evaluate a system in terms of user satisfaction and in terms of its worth - - which include the economic concepts, benefits and value. Benefits of services rendered by a non-profit making organisations like a library are hard to measure as it involves the determination of the degree to which they contribute towards the attainment of specific individual goals like :

* Usefulness and influence on usr's activities and programs
* Increase in revenue and profit
* Improvement of personnel performance and productivity
* Increase in individual creativity
* Reduction of time and money invested in acquisition of information
* Cost reduction through elimination of unnecessary research, etc.
* Attainment of social goals like - - improvement of living and working conditions within a society ; elevation of general level of education, etc.

Cost-benefit studies can be used for effectiveness measure studies.

iv) Domain Measures

Domain measures are difficult to control by managers and hence have limited applicability in evaluation of information systems and services.

7.7 EVALUATION OF INFORMATION SYSTEMS & SERVICES

As mentioned in earlier sections, evaluation of information system or service is essential to identify how effectively the system or service is meeting the goals and objectives identified at planning stage. It is also necessary to identify the areas or functions or activities are to be evaluated in order to improve them or to take corrective action. The evaluation is not an easy job as techniques for measurement or evaluation are not developed. Evans suggests that none of the current evaluation methods consider total library performance and it is critical to make valid evaluation. Therefore, prior to evaluation, it is necessary to have discussion of the purpose, method of evaluation and reasons for evaluation. It is necessary to keep in mind that the same evaluation techniques or methods may not be relevant to all the functions or activities. This is an ongoing process. It may be essential to remember that a single measure may not stand the credibility. More details regarding the evaluation of information systems and services is discussed in the following Sections.

7.7.1 Framework for Information System / Centre Evaluation

This framework involves three dimensions - (a) concerns evaluation of information centre service perspective, user perspective, user's organisation perspective; (b) relates to functions which consist of activities necessary to perform functions and resources necessary to perform the activities; and (c) concerns inputs and outputs for each function or service and activity.

7.7.2 Evaluation of Information Services

Information Services can be evaluated using the criteria/ measures discussed in Section 7.4. Therefore, keeping the criteria in mind, a set of questions have been suggested in relation to the information services by taking examples of Reference Service and Current Awareness Service.

a) Reference Services:

Whenever the term "Reference Services" is mentioned, different people have different interpretations. To some, reference services are of two types - - *Short Range* Reference Service and *Long Range* Reference Service (Ranganathan). To others, there are four types - - *Directional questions* which require only a location of a particular item, source or service ; *Ready Reference Questions* which require a single, factual and uncomplicated answer from a standard reference work ; *Specific Search Questions* which require more information on a subject and are generally answered from one or more books, articles, bibliographies or encyclopaedia; *Research Questions* which require more information on often complicated questions and which are answered from sources contained both within and outside the library.

Based on a survey of studies undertaken the following questions have been suggested (Lancaster 1991) for the evaluation of
reference services :

* To what extent is the potential clientele aware that refe-rence services are provided.
* To what extent is the library effective as a source of reference information?
* How many and what type of questions does the Reference unit receive?
* What proportion of the questions does the staff of servi-ces attempt to answer?

* What proportion of questions are answered?

* What proportion of all the answers given are complete and correct?

* What are the recall, precision and novelty ratios in regard to the reference services individually and overall?

* To what extent are the users satisfied with the answers given?

* What is the response time?

* What is the user effort involved in the context of Refer ence services?

The above questions (not necessarily in the same order) may be used for evaluating reference services. It may be necessary at times to sub-divide each question into a number of sub-questions to get the appropriate responses.

b) Current Awareness Services / Current Awareness Bulletin:

Current Awareness Services are devices meant for the speedy announcement of newly acquired information or documents in which timeliness is the essence. Current Awareness Bulletin (CAB), a Current Awareness Service, is an expensive service and therefore a fit candidate for evaluation. It has to be done periodically to ensure that its performance is satisfactory.. For this purpose, answers to the following questions have to be sought from the users/clientele:

i) Are you receiving the CAB being issued from the infor mation centre?

ii) Which CAB do you receive and how frequently do yourefer to a specific issue?

iii) What is the last CAB you have referred to ?

iv) Approximately how many issues back was the last bulletin to which you referred?

v) How much time did you spend using the bulletin ?

vi) How many items did you read ? For what purpose were they useful ?

vii) In what ways was the last CAB beneficial ?

viii) If the CAB was not provided, how would you have iden tified the needed sources?

ix) What would it have cost you to use the other refe-rence source?

x) Rate your level of satisfaction in regard to: Currency of entries in the CAB

Coverage

Quality of reproduction

Format

Delay of receipt, etc.

xi) What is your opinion regarding the importance of the CAB?

xii) Any other comments you wish to make ?

Perhaps, it would be useful to make a periodic evaluation of the information centre and its services, which is likely to provide an opportunity to management to take necessary steps for improvement, if necessary.

7.8 PLANNING APPROACHES TO EVALUATION

There are three planning approaches to evaluation

a) Plan in great detail before you begin. Specify each step: who would collect the information, when, where, and how ? What are the methods of analysis to be adopted ?

b) Plan as you proceed, following the evaluation as it leads you. Don't decide anything in advance, but take decisions as and when necessary.

c) Adopt the "Middle of the road approach". Plan first with care, but make deviations if warranted. Be ready to take advantage of changes and respond to emerging needs.

7.9 STEPS IN AN EVALUATION PROGRAMME

Briefly speaking, the steps in an evaluation programme are:

i) *Defining the purpose and scope* of evaluation entails the preparation, to assess the capabilities and weaknesses of the system / service / product, (recording overall performance, coverage and processing, cost, response time, quality, cost-effectiveness, cost-benefit, etc)

ii) DESIGNING THE EVALUATION PROGRAMME involves the prepara-tion of a plan of action (Data identification, Data collection procedures, Analytical methods to be used and interpretation of results)

iii) EXECUTION OF THE EVALUATION PROGRAMME involves actual collection of data based on the design finalised in the earlier step

iv) ANALYSIS AND INTERPRETATION OF RESULTS involves the application of the evaluation measures, identification of the characteristics of the system - -its strong points - - , and preparation of the report by the evaluator with recommendations on the steps to be taken for improving performance.

v) IMPLEMENTATION OF RECOMMENDATIONS by modifying the system (Lancaster)

7.10 LET US SUM UP

Evaluation of information systems and services is a necessity if they have to function efficiently and effectively as information providers. However, they should be done on a continual basis as those done once in a way may solve immediate problems with little or no impact in the long-range. But, for evaluation, measures or criteria are needed. These, however, by themselves do not always provide sufficient information for operational decision-making, designing, planning and so on. For example, being aware of or knowing the input costs or output quantities would not be as meaningful as considering them together i.e. cost per transaction or number of transactions per input cost. Hence, it would be worthwhile to identify relationships among measures which, in their turn, would be good indicators for evaluating Information systems. For example : relating of output to use will be effectiveness indicator; and relating use or potential use to domain will be impact indicators.

To conclude, evaluation is a form of inquiry where the end product is information. While information is power, evaluation is powerful.

7.11 REFERENCES

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7.12 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Define the terms - "Evaluation, Performance, Measure, Effectiveness" and discuss the need for evaluation of information systems and services.

2) What are the criteria that can be used for evaluation studies ? Briefly give details.

3) Discuss the applicability of evaluation measures to information systems and services.

4) Describe a framework for information centre evaluation.

II. SHORT NOTES

a) Evaluation measures

b) Cost-Benefit evaluation

c) Precision

d) Recall

e) Relevance

UNIT - 8 : MANAGEMENT INFORMATION SYSTEMS (MIS)

Structure

8.0 AIMS AND OBJECTIVES

In this unit we discuss the concept of management information system and its relevance in the management of library and information services.

After studying this unit you will be able to

- explain the concept of Management Information System (MIS) and its elements, functions and characteristics
- explain the need and functions of MIS
- describe the designing on MIS
- apply MIS for L&I Service Organisation

8.1 INTRODUCTION

Each and every one of us require a wide variety of information in order to carry out our daily operations. We all spend a large part of our working as well as personal time on collecting, searching for and absorbing information. Thus all of us manage information whether knowingly or unknowingly.

Information processing is a major societal activity. Information plays a crucial role in our personal lives as well as in the working of organisations. Various studies conducted in the early 70s showed that nearly 80 percent of a typical executives time is spent in the processing and communication of information. The sources from where information is collected and the format in which information is stored are also widely varied. In an organisation a number of people not only need a wide variety of information, but they also generate information. For achieving of efficiency and effectiveness in the functional units as well as in the entire organisation efficient management of information is essential. However "management of multifaceted and massive information" in any organisation, be it an industry, business firm, service industry like library and information service is not an easy job.

The emergence of computers and the rapid developments in information technology has given a new orientation for information processing and dissemination. This led to the emergence of industries which market information rather than physical products and services. Under these circumstances (MIS) Management Information Systems concept has emerged.

8.2 MANAGEMENT INFORMATION SYSTEM (*MIS*) DEFINITION, ELEMENTS AND FUNCTIONS

8.2.1 Definitions

There is not consensus on the definition of the term "MIS". Let me here outline some of the familiar definitions of MIS. It may help you in understanding what an MIS means as well as its usefulness in the management of information.

According to Lucy 'MIS is a system to control data from internal and external sources into information and to communicate that information in an appropriate form, to managers at all levels in all functions to enable them to make timely and effective decisions for planning, directing and controlling the activities for which they are responsible'. His emphasis was on the use of information and not how information is produced.

Sein considered MIS as "an integrated system for providing information to support the planning, control and operations of an organisation. It aids operations, management and decision making by providing past, present and future oriented information about internal operations and external intelligence. It provides information in a timely fashion".

For Kelly "MIS is the combination of human and computer based resources that results in the collection, storage, retrieval communication and usage of data for the purpose of efficient management of operations and for business planning". For him means of production is only secondary.

Now-a-days MIS is used exclusively for computerised information systems. This system comprises of hardware, software which accepts data, stores, processes and retrieves information. The information is selected and presented in a form suitable for decision making, planning and monitoring of the organisation activities. MIS may, thus, be is an integrated, user-machine system for providing information on to support operations, management and decision making functions in an organisation.

8.2.2 Elements of MIS

MIS is comprised of three elements, viz., Management, Information and Systems. Let us examine these elements in detail.

1) Management

We all know that there are different levels of management in an organisation. The lines of demarcation between these levels at times are, not absolute, but broadly one can distinguish these levels within an organisation. In 1965 Robert Anthony described three levels of management operating in the functioning of business enterprise. These layers are described in terms of a triangle in Figure-1.

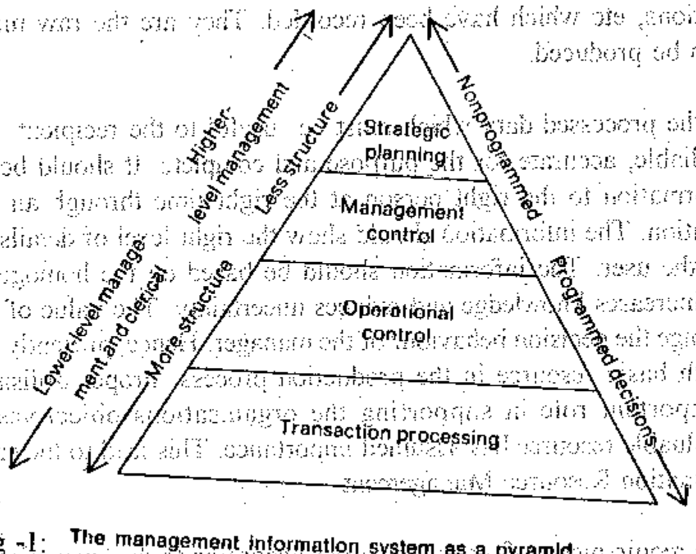

Fig -1: The management information system as a pyramid

These are:

i) *Operational Control* : This is the first layer on the base layer in the triangle. This indicates the processes performed to control the basic product or services produced by the company. In the manufacturing sector this refers to the processes that move the product from one assembly point to the next and the actions that take place at each assembly point. In the context of our Library and Information Services (LIS) this may refer to acquisition, accessioning, cataloging, classification and shelving of the books, etc. The time frame for these activities is a day-to-day affair.

ii) *Management Control* : This second layer of management includes processes or functions that facilitates the management of the processes delegated to the operational level. Production scheduling in a manufacturing unit is an example of this level whereas in LIS this may refer to the scheduling of operations of various activities mentioned in the preceding level of management. This level of management generally plans for a week or a month.

iii) *Strategic Planning* : The top layer is management involved in strategic planning processes. This refers to the decisions as to what to produce now and for which markets and what to produce for the future markets. In our LIS context this may refer to acquisitions policy, the clientele for whom the services should be targeted, the type of services to be provided, the allocation of financial and personnel resources for different services, etc. The top level of management generally plans for a longer periods, say for three to five years. These three layers have perfect coordination and also two way communication.

2) Information

This is the second element in MIS. Managers need a wide variety of information on a wide range of physical resources, markets, technology etc. We all know that top management rarely observes operations directly. They attempt to make decisions, prepare plans and control activities by using information they obtain either from formal or informal sources.

Data is gathered from the internal sources or external sources. Data means contains facts, events, transactions, etc which have been recorded. They are the raw material from which information can be produced.

Information is the processed data which must be useful to the recipient. Information should be relevant, reliable, accurate for the purpose and complete. It should be possible to communicate the information to the right person at the right time through an appropriate channel of communication. The information should show the right level of details and should be understandable to the user. The information should be based on the homogeneous data. Relevant information increases knowledge and reduces uncertainty. The value of information lies in its ability to change the decision behaviour of the manager. Hence, presently information is considered as a fifth basic resource in the production process. Proper utilisation of this resource plays an important role in supporting the organisations objectives. Thus the management of this valuable resource has assumed importance. This lead to the emergence of the operation of Information Resource Management.

The information requirements of managers varies according to the level of management. Though it is difficult to demarcate precisely the information requirements at each level, their functions at each level helps in specifying their information requirements.

The information required at management of operational control is more or less precise and structured. The information required at this level is largely internally available. The information should provide detailed and accurate data and should be current data rather than historical data. On the other hand information required for strategic planning is collected from external as well as internal sources on wide variety of subjects. Since they plan for the future they require historical or old data as well as the information that helps to project the future. They are not bothered about details but are concerned with the aggregates.

The information required at the top level is mostly unstructured and unpredictable and also used for planning purposes, therefore stresses the future. It is somewhat different when compared to the information required at the operational level. The information required by the second level of management, i.e, management control, falls somewhat in between the requirements of these two levels of management.

Internal information is the by product of the normal operations of an organisation. It is generally historic or static in nature and may comprise of processed as well as unprocessed information. External information, you know, is gathered from outside the organisation. Again this could be processed or unprocessed data. Each level of management may make use of both external and internal data, but at each level new data may be added.

3) Systems

As students of library and information systems the terms 'systems' is not a new concept for you. So there is no need to go into the details of this term. It is sufficient to state that a system "is a set of management of things so related or connected to form a unity or organisation". An information system is concerned with the form or "how" something is being accomplished. it can suggest alternatives which can improve the use of facilities.

Physical system, on the other hand, is the process itself and is concerned with the context or "what" is going on.

A management information system comprises both physical and information systems. In order to develop MIS for an organisation just one should know about the physical systems or processes that occur with the organisation. Then only it is possible to develop information systems to support the processes. Information can be gathered from formal as well as informal sources. The information system could be formal as well as informal. MIS suggests a formal, explicit system.

8.2.3 Functions of *MIS*

MIS refers to data that has been organised in a meaningful way. Its purpose is to organise the data into information and provide relevant information to the different levels of management to achieve the goals of the organisation. Thus the functions of the MIS are strictly based on the organisational goals. MIS not only supplies information, but explores alternatives and provides support to the management. It also helps in taking decisions without intervention of higher level of management in routine operations.

MIS provides the basis for the integration of organisational information. Individual applications within information system are developed for and by a number of users. They need to be integrated, otherwise the individual applications is inconsistent and incompatible.

An effective MIS shall have the ability to retrieve the data generated as a result of transactions or operations and use it for production of required information for different purposes at different levels.

8.3 WHY SHOULD MANAGERS KNOW ABOUT *MIS* ?

There is a general view that while *MIS* is dealt by systems specialist or some other group, then why should the managers know about MIS - its, nature, functions, designing and implementation? Let us see the reasons as to why managers should know about MIS.

1) MIS is one of the fundamental tools for problem solving and decision making.

2) Managers use MIS to make their demand decisions affective.

3) In order to make MIS effective the managers have to participate in the design and use of MIS.

4) Only when he knows and uses MIS, will the manager be able to recognise the flow of data and information in the existing MIS. Then he can suggest remedies for improving the effectiveness of the existing MIS or suggest through overhaul of the existing MIS.

8.4 CHARACTERISTICS OF *MIS*

Some salient characteristics of *MIS* are outlined here so that you will be able to understand what MIS means.

1) *Management Oriented*: This is the most significant characteristic of MIS. The system development starts from an appraisal of management needs and overall business activities. The system is designed from top down. Middle management or operational management could be the focus of the system. But this initial application can be integrated into a strategic planning subsystem for the top management.

2) *Management Directed*: Management is not only responsible for setting system specifications but continues to review and participate in the operation of the system. Effective review activity is possible with *MIS*.

3) *Integrated*: MIS is an integrated system that blends information from several operational areas.

4) *Common Data Flows*: Due to integration duplication in data capture, storage and dissemination is avoided. Data is captured once and is utilised for application in related functional areas whenever and wherever it is required.

5) *Sub-systems*: When the operations of the organisations are becoming complex, a single centralised system cannot effectively serve the needs of all the managers. Hence different subsystems are built to serve the different functional areas. Eg. marketing *MIS*, Financial *MIS*.

6) *Flexibility and Ease of use*: Though *MIS* is planned for present and the future, but it may be difficult to satisfy all the future requirements. So the MIS should possess flexibility to accommodate future needs. The system should be simple so that users can use it with considerable ease.

7) *Database*: A good database is essential for the successful operation of MIS. Avoidance of duplicate data files and building up a centralised data file which can be accessed by any system or sub-system improves the efficiency of *MIS*.

8) *Distributed Data Processing*: Geographically separated units can resort to data processing independently with interlinking or networking facility.

Thus *MIS* makes a wide range of data available to managers. *MIS* data is usually available in the form of a report or via online retrieval.

8.5 PLANNING AND DESIGNING OF *MIS*

In the early stages of *MIS* applications were initiated and implemented as separate entities since the aim was to satisfy a particular users needs. Though this has placed heavy demand on the *MIS*, did not satisfy the customers. In fact it required more resources in terms of data acquisition as well as computers for processing. The rising costs of data processing necessitated resource planning for a short period, say for one year. This also could not fully meet the future requirements of management. It was realised that long range planning for a period of three to five years is necessary to formulate and direct the strategy of *MIS* to support effectively the operations of the organisation.

8.5.1 Planning of *MIS*

While formulating a long range plan for *MIS* it is necessary to consider the following points :

1) *MIS* plan must be consistent with the corporate business plan. It is necessary to know the future direction of the operations of the organisation for developing a meaningful MIS plan.

2) Management involvement and commitment are essential since they can specify their information needs better. In order to obtain their involvement a steering committee could be formed. All the key users of information services should be included in this committee. The committee shall oversee and review *MIS* plans and developments. An advisory group could be formed for each of major application subsystem areas. This group should include the key *MIS* personnel involved in system development.

Planning *MIS* is not a one time operation but a continuous process which has to be reviewed and updated continuously. Though a specific department is responsible for developing the *MIS* plan, this department acts only as a catalyst or agent for selecting the planning methodology and to ensure that planning takes place according to that methodology and is consistent with the corporate guidelines. All the managers of key departments also have the responsibility for providing the direction to the planning of *MIS*.

8.5.2 Designing *MIS*

For designing *MIS* for an organisation it is necessary to know the following management traits :

1) Management functions and levels in the organisation. The information requirements of managers depends on the functions they perform as well as the level in the hierarchy

2) Changes in the environment can bring significant changes in the information requirements of individual managers.

3) Management decisions have different levels of predictability.

4) Managers have different decision making approaches and styles.

5) Some management decisions are more structured whereas some are unstructured.

1) Approaches to *MIS* Design

a) *The by-product approach*: Here MIS is a by-product of the data processing. A lot of data is generated in the day-to-day operations of the organisation and this data is used to cater to the information requirements of the managements. Reports produced according to this approach are by-products of the data processing activities and reflect mostly static requirements. Often these reports are voluminous. Hence their utility for strategic management is limited. However this approach could meet the information requirements of managers at the operational level.

b) *Null Approach*: In order to overcome the by-product approach the null approach comes in hand. This approach is adopted. The activities of an organisation, especially undertaken by the top management are dynamic. This approach provides an interactive system with user-friendly query and report generation facilities which could meet the dynamically changing requirements of strategic management, with considerable ease.

c) *Key Variable Approach*: Certain attributes are crucial for assessing the performance of its operations as well as for taking decisions and planning the range of activities. For example, the information regarding the availability of alternative products may be important in marketing a product. The key variable are identified and *MIS* is designed to provide reports on the values of these variables. Exception report could be generated where the value of a variable is reported if it lies outside some predetermined normal range. Here the emphasis is on providing information selectively.

d) *Total Study Processes*: This approach concentrates on matching the information requirements of management and the information that could be provided by the existing MIS. Assessment of information requirements of an organisation through extensive interviews or surveys helps in identifying the short comings of the current system and helps in formulating a plan for filling up the gap. Our user studies fall under this category. This approach is no doubt comprehensive, but costly besides collecting large amounts of data which in turn possess problems in processing it.

e) *Critical Success Factory*: This approach is based on the assumption that an organisation has certain objectives and specific factors are crucial in achieving these objectives. It defines the subsidiary goals, critical success factors and assumption and analysis the information to find out the critical information factor which is necessary to measure success in achieving these. This approach is information oriented rather than data-oriented. It is very useful in the designing of systems for the provision of information control required to monitor the state of the critical success factor.

All the above approaches to the designing of *MIS* shows some problem or other. The total systems approach to design *MIS* could be very effective in designing an integrated *MIS*. In reality *MIS* tends to evolve overtime and it is too complex, if not difficult, to design a unified system as an initial project.

8.5.3 Guidelines for Effective Design

The following factors may be taken into consideration for effective design of *MIS* (Stoner and Freeman)

a) Users must be included in the design team;
b) The money and time costs of the system must be given weightage;
c) Alternatives to inhouse software development must be considered;
d) Relevance and selectivity of information must be favoured over the quantity;
e) The *MIS* should be pre-tested prior to installation; and
f) Adequate training and written documentation for the operations must be provided.

Stover and Freeman have identified four stages for designing a computer-based *MIS*. They are

a) *Preliminary Survey and Problem Definition Stage*: A task force is to be formed to design MIS. In this stage the organisation's capabilities and strategic goals are assessed. Further external factors relevant to the organisation's functions are identified. With this assessment, definition of information system, the organisation needs can be divided. The objectives of information is determined.

b) *Conceptual Design Stage*: In this stage specific performance requirements can be developed. These requirements are considered in the context of organisational objectives, capabilities and needs. At this stage tasks are delegated, information about the requirements is communicated.

c) *Design Stage*: The performance specifications of new *MIS* are stated. A model of the system is created, tested, refined and reviewed.

d) *Implementation Stage*: In this stage formal requirements are determined and the required equipment, funds, space, etc are provided. Necessary training is provided to implement the *MIS*. Design and testing of the software for the *MIS* is completed.

8.6 PHYSICAL COMPONENTS OF *MIS*

It was already mentioned that an *MIS* needs a database, hardware, software procedures and personnel.

8.6.1 Database

The database is considered to be the mortar of *MIS*. Since the objective of *MIS* is to transform data into meaningful management information. A strong database is essential for an effective *MIS*. Broadly speaking database is a collection of data that is processed, shared and used for multiple purposes.

Management needs a wide variety of data from internal as well as external sources. The data generated internally through transaction processing is voluminous. For strategic planning environmental data from external sources have to be captured - on a wide variety of parameters. Data collected shall be stored and retrieved whenever the management need it. But data collection, maintenance as well as retrieving costs money. Hence careful planning is required as to what goes into the database. Inter departmental cooperation is essential in deciding what to store in the data base. The accuracy of data has to be ensured so that right decisions are taken based on this data/information. It is necessary to ensure data secrecy as well.

In order to avoid duplication of data capture to serve different functions data is structured independent of the applications for which it is put. Thus each sub-system can utilize the database to meet its information needs and avoid duplicate files or subsets of database. Database serves as a permanent store for the results of transactions.

8.6.2 Hardware

The selection of hardware depends on the volume of database as well as the speed with which the data has to be used. The distributed data processing and multi-user environment influence the type of hardware to be selected. The modern networking concept has brought revolution in information communication. But the rapid technological developments in the fields of computers and telecommunications have widened the variety of equipment available so that each can select the suitable equipment according to the needs.

Present microcomputers are capable of handling large data at a higher speed. They may be used both for stand alone or networking of the systems. Eg. for distributed data processing computers with networking facilities may be used.

8.6.3 Software

An effective *MIS* should have the ability to retrieve data from its database and use it for the generation of the necessary information for different purposes. The selection of suitable software plays an important role in achieving this objective. Software is a set of computer program instructions that direct the operations of the hardware.

The advent of database management systems (DBMS) has a positive influence on MIS. The software that creates, maintains and handles access to data is called DBMS. The programs controlling the database is handled by DBMS software. This protects the database from direct contact with the applications programs which carry out various functions like stock control, sales ledger updating, payroll processing etc. It ensures that data is controlled, consistent and available. A DBMS defines and organises data, processes data and retrieves data on request.

DBMS ensures data independence thereby avoiding duplication. It offers flexibility in assessing data in different ways for different purposes and helps in obtaining a total view of the organisational information.

8.6.4 Procedures

Procedures for processing and retrieval of data have to be clearly presented in the form of booklets or manuals. These should include instructions for recording data, processing and retrieval of information.

8.6.5 Personnel

The planning and maintenance of *MIS* is a highly specialised job. The personnel working in the department have to have both technical skills as well as managerial competence. The person at the top of *MIS* has to build a close rapport with the users of the system, as well as the top management of the organisation to ensure the effectiveness of *MIS*. Thorough familiarity with the organisational objectives is essential to plan and maintain a dynamic *MIS* for the organisation. The man at the helm of *MIS*, thus should have strategic skills as well. His position in the organisation hierarchy also should be high. Then only he can command the respect of the users and implement the *MIS* effectively.

The personnel working in *MIS* should constantly interact with the users. Motivation and training of them is essential to keep them up-to-date with the changing informational requirements and latest technological developments in IT. Interchange of personnel within the *MIS* and operating areas of the organisation is considered to help in understanding the problems in the operational means and the problems in the planning and maintenance of *MIS*. However the rotation should not result in dumping the *MIS* with disinterested workers. They should have an aptitude and interest in systems work.

The following diagram shows the components of *MIS*.

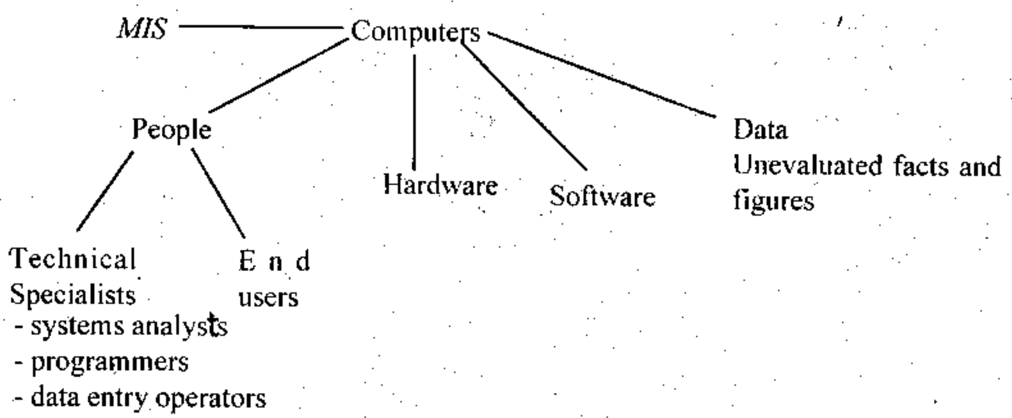

Fig.:

8.7 PROBLEMS OF *MIS*

Since MIS is planned for the future also, it is difficult to foresee accurately what the system could achieve. Naturally it encounters some basic problems for any organisation it is supporting.

1) What should be stored in the corporate database? Too much data increases costs besides increasing the level of redundancy as well as delay in access time. On the other hand too little data may not provide effective support to the management decisions. It is difficult to identify the data to be input into database.

2) Change in the requirements of reports - The existing design of *MIS* may not be able to meet the ever changing requirements, in spite of its flexibility. Therefore, the form of the reports need to be modified and redesigned to cater to changing needs.

3) Dynamic nature of organisations and the environment in which they operate also influence *MIS*. It is not always possible to foresee this dynamic situation while designing *MIS*.

4) Managing the data for multiple service centres functioning through geographically distributed branches is difficult.

8.8 *MIS Vis-A-Vis* OTHER SYSTEMS

The information is organised by various organisations for different purposes. Based on the purpose they have been named. Their scope may differ with *MIS*. These systems are examined here.

8.8.1 Data Processing Systems and *MIS*

A data processing system (DPS) processes transactions and produces reports to support routine operations. *MIS* is a concept and orientation towards which an information system design moves rather than an absolute state. *MIS* also includes transaction processing. The difference between *MIS* and DPS is the capability to provide analysis, planning and decision making support. An *MIS* orientation provides the users access to decision models and methods for querying the database on an ad hoc basis.

8.8.2 Information Resource Management and *MIS*

With the recognition of information as a resource it is realised that it needs to be preserved, protected, controlled and planned as the other valuable resources. Information is no more considered as a free goods and is a costly resource. Information Resource Management (IRM) includes traditional data processing, telecommunications and office automation. The concept of IRM broadens the scope of *MIS*.

8.8.3 Decision Support Systems (DSS) and *MIS*

The DSS assist managers with unique, non-recurring, strategic decisions that are relatively unstructured. These situations exist mostly at tactical and strategic levels. This is not a comprehensive system, whereas *MIS* intends to meet the information needs of different levels of management at all times. *MIS* lays emphasis on generation of reports mainly used by lower and middle management for solving structured problems. DSS on the other hand lays emphasis on model building for solving in semi-structured and unstructured situations.

8.8.4 Executive Information Systems (EIS) and *MIS*

The aim of EIS is to assist the top management to have a quick feel for key issues without being overloaded with details. They should however, have quick access to detail whenever required. EIS focuses attention on identifying opportunities and problem areas. This system is useful to make highly unstructured decisions based on information from a wide range of sources.

8.9 REASONS FOR *MIS* NOT BEING EFFECTIVE

In spite of the best efforts put in planning and designing on *MIS*, we often find that the *MIS* in many organisations is not as effective as it is intended to be. Many factors may contribute to this ineffectiveness. Some of these are :

1) Lack of management involvement and support with MIS

2) Lack of appreciation on the part of management about the importance of information and the potential of MIS to meet the requirements.

3) Information specialists lack the knowledge about management functions and the objectives of the organisation.

4) Undue concentration on transaction processing system. This leaves very little scope for providing strategic information due to the constraints of time as well as finances.

8.10 APPLICATION OF *MIS* IN LICs

8.10.1 *MIS* for LIS

Library and Information Centres are service organisation. The application of *MIS* to these service sectors pose certain problems. In this section you will learn about the problems and prospects of *MIS* application to these organisations.

I) Library and Information Centres

You know that library or information centre is a collection of books, periodicals, reports, files, records etc which can be accessed whenever required. With the advent of on-line databases the library and information centres (LICs) are also providing access to numerous databases across the globe.

A library system comprises processes that facilitates the flow of necessary information/ document whenever it is required. Now with the entry of information brokers we have organisation exclusively providing information services on a wide variety of disciplines.

II) Library Assets

Management of libraries and information centres with a large multi-type metropolitan system is a complex job. The assets of the library consists of both tangible as well as intangible assets. The library premises, stock, installed hardware, etc are the fixed tangible assets of LICs. Knowledgeability and professional skills of library personnel are current intangible assets which directly influences the level of use and customer satisfaction. Specialist databases created, publications, reports, etc are its current tangible assets. The managers of LICs have to manage a wide variety of assets, viz.

1) *Stock*: The nature and coverage of a library's everyday's stock is important in improving its utilisation. If the major part of the stock is old and outdated it cannot attract users. Updating the stock as well as its proper maintenance like classification, shelving are important in attracting the clients

2) *Property*: The building, furniture and its upkeep plays an important role in its image building as well as in attracting new clients.

3) *Professional skills*: The competence and professional skills of the LIC plays a major role in the organisation of its services by providing easy accessibility to the available information/documents. The good will of a LIC depends mostly on the competence of its professional personnel.

4) *Database*: Nowadays the emphasis is on the availability of data the raw material for information. The quality and coverage of database assumes importance. The management of this is not an easy job.

5) *Information Technology / Information Systems base*: In the present state of information explosion the emphasis is on the timely availability of relevant and precise information,. This naturally calls for the use of modern equipment like computers, photo copiers, micrographic equipment etc. Networking facilities with national and international databases has assumed greater importance.

6) *Heritage items*: Management of unique, difficult to replicate items forms an important activity of management of L&ICs. Eg. Turn-of-the-century photographs, diaries and letters of famous men and women, rare monographs, special collections like political pamphlets, emblems, newspaper collections, theme materials like theatre, history, biography, bibliography, interviews, memorabilia. The rarity or scarcity factor provides attraction to the users.

7) *Multi-media* : information products like microfiche, computer discs, records, etc.

Thus the managing the multifaced assets and providing multipurpose services to the clients necessitates the planning and designing a management information system for the management of library and information centres.

III) Requisite of Library and Information Centres for *MIS*

Library and information centres should provide

1) Facilities for handling ad hoc enquiries. It should provide access to borrowers records so that it is possible to know the details of the item on loan.

2) Facilities for standard report generation :

   a) Circulation statistics giving the details by item, by category, by subject, by borrower, etc.

   b) Stock Statistics : Information on items currently overdue notices, items on hold, items on circulation, item-activity report.

   c) Borrowers - When have they last used the services, no. of items reserved, verdues, etc.; patron activity reports, memberships cancelled or lapsed, new borrowers etc. Facilities for offering analysis of data will help in analysing the trends and establishing relationships.

3) Management information modules for creation of ad hoc and user defined reports.

4) Financial and budgetary control systems. Allocation of funds on different services needs special attention especially in the context of scarce funding.

IV) *MIS* Modules for Library and Information Centres

In the management of Library several transactions takes place. This results in the generation of various modules forming part of management information system for libraries. Some of these modules are.

Stock (books, periodicals etc) acquisitioning;
Human resources;
Membership;
Plant and Equipment;
Performance;
Inventory;
Services;
External and Internal environment.

The *MIS* must be able to provide information that assists in evaluation of performance; motivation among the staff; information regarding the activities.

The following diagram shows sample type of information required/supplied through *MIS:*

1. Membership
   - New Members
   - Withdrawals/Cancellations
   - Current Membership

The above information is available both current and period-wise.

2. Stock
   - Additions
   - Deletions
   - On loan
   - Average cost of the book
   - Average age of the book
   - Mutilated and Weeded

Again this information is available period-wise and type of collection-wise.

3. Finances
   - Committed
   - Actual
   - Expenditure
     - Opening costs
     - Salaries
     - For materials
   - Exchange Rate
   - Receivable

4. Human Resources
   - Qualifications
   - Skills
     - Professional skills
     - Personal interest
   - Leaves
   - Salary
   - Performance Appraisal
   - Personal details
   - Positions vacant
   - Recruitment plans
   - Awards/Punishment, etc.

5. Internal Environment
   - Coordination & Control
   - Policies
   - DM Groups
   - Reward system
   - Procedural Manuals

Fig-2: Bibliographic Organisation Scheme

With the data input variety of information can be generated and supplied to help in taking better and faster decisions. Expecially in the context of computer-based MIS, the information which is very difficult through manual methods can be generated and supplied to the managers for effective management. Unfortunately, MIS has not been prominent in LICs. Because the main focus of the LICs so far has been on controlling the transactions like book ordering, circulation control, etc. The demand for the library and information services of late is increasing whereas the resources available providing these services are limited. In fact the recognition of information as a resource has put pressure on the managers of LICs in meeting the demand. Hence the need to have an MIS in this field has been increasingly felt.

8.11 LET US SUM UP

Management information is an integrated system which provides support for management activity, operational control and decision making. The structure of *MIS* is based on the functions of the organisation which use information. The information requirements of the management depends on the levels of management. Broadly three levels of management are identified. The managers at the first level deal with operational control. The information requirements are mostly met from the internal sources. They require detailed data on the operations and their requirements. Top management who deal with strategic planning. They need a wide variety of information, mostly drawn from external and internal sources and the frequency of use of information is quite low. they need aggregate information rather than details. In between lies the second level of management whose job is management control and then information requirements also lie in between.

Generally *MIS* is an integration of subsystems serving the functional needs of various departments in the organisation. The physical components of *MIS* are hardware, software, database procedures and personnel. *MIS* planning must be consistent with the objectives of the organisation which it is to serve. *MIS* planning is a continuous operation. In the for service sector *MIS* has to take into consideration the special features of the service organisation. *MIS* for library and information centres helps in improving the efficiency of its services to the clientele within the parameters of physical and financial resources.

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8.13 ASSIGNMENT

1) Outline the different levels of management and their information requirements.

2) Prepare a model MIS for your Library/ Information Centre.

8.14 MODEL EXAMINATION QUESTIONS

I. ESSAY QYESTIONS

1) What are the levels of management ? What type of infor-mation do they need at each level ?

2) What are the approaches for designing an MIS ?

3) What steps are involved in planning *MIS*? Discuss in detail.

4) Is there a need for *MIS* for library and information centres? If so, why ?

II. SHORT NOTES

a) Elements of *MIS*

b) Characteristics of *MIS*

c) Information Resource Management

BLOCK-III: MANAGEMENT OF INFORMATION AND FINANCIAL RESOURCES

In Block-II you have been introduced to the Systems Study. The present block focuses on the management of documentary and financial resources and also deals with costing and marketing of information services. There are four units in this block.

Unit-9 deals with Collection Development. Collection development is an important process in the libraries wherein a variety of materials are brought in to meet the demands of the users. The collection development plays a vital role in systematic and healthy growth of libraries. Therefore, you should know how to frame a collection development policy, various methods of collection development and the methods of maintenance, especially non-book materials in libraries.

Unit-10 deals with the Budgeting Process and Methods. Budgeting is an act of balancing anticipated receipts and planned expenditure for a defined fiscal period(s). The unit covers various steps involved in formulation of a budget, budget preparation, budgeting techniques, etc.

Unit-11 discusses about Costing and its application to LICs. The LICs now-a-days recognised the need for the scientific management of resources and are adopting the techniques such cost analysis, cost-benefit analysis, cost-effective analysis, etc. Cost analysis also helps as a planning tool for budget preparation.

Unit-12 examines the marketing strategies with reference to library and information products and services. Information has been recognised as a resource and a commodity by the consumers. Marketing in library and information field is user oriented rather than product oriented. The users of LICs are heterogeneous in nature and their needs are varied. Therefore, the marketing strategy in this field requires proper analysis of the needs and demands of users.

UNIT - 9 : COLLECTION DEVELOPMENT AND MANAGEMENT

Structure

9.0 AIMS AND OBJECTIVES

This unit aims to explain the collection development and management of various types of documents in the libraries / information centres.

After studying this unit, you will be able to

- describe the collection development policy
- differentiate between Selection and Acquisition
- describe the various types of documents and their selection and acquisition
- explain various methods of collection maintenance
- acquaint with the procedure of conservation and weeding of ducuments.

9.1 INTRODUCTION

The main purpose of library is to provide documents/information services to the clientele either on demand or in anticipation. In other words, the library should be in a position to fulfil the needs of the users in providing the right information to the right reader at the right time in a right way. For this purpose, the library should build up appropriate collection which ensures information to satisfy the intellectual requirements of the users to the maximum/possible extent. Without the proper collection development it is not possible for any library to provide the required services. The image and strength of the library depends upon its collection. It indicates the growth and development of the library.

The collection development is an important process in the library wherein variety of materials are brought together to meet the demands of the different types of users. The collection development plays a vital role in systematic and healthy growth of library. Therefore, it needs a dynamic and sound policy in this regard.

9.1.1 What is a Policy?

Before going to collection development policy it would be appropriate to know what is a policy? Policies provide guidelines for decision/action that help the institution to achieve its objectives. No organisation can have a policy to cover each and every decision or contingency, but it is essential for its policies to involve all major areas of concern. These policies differ from institution to institution since each of them has different requirements and priorities.

Though policy, guidelines and procedures are used to mean the same, there is a difference between them.

UNESCO Handbook defines the policy as a statement or general principle of intent, that helps ranslate programme objectives into accomplishments by providing administrative guidelines for decision making and implementation.

An objective is a desirable future condition which requires a course of action to achieve. It is a description of what you intend to accomplish.

A procedure is quite different from a policy which documents the best way to execute a specific activity or duty. Policies work as guides whereas the procedures are step by step details of execution. Procedures tell how best to do a certain task; they leave little room for individual judgement.

Policies should be formulated in such a way that they are generally applicable and flexible to meet a number of contingencies and should clearly indicate the intent of the system. Once it is stated, they further assist in planning the long-range management.

The policies have value in a number of ways — they standardize activities, facilitate decision-making, minimise confusion, co-ordinate the actions of various units, and helps in improving operational efficiency. Therefore, a policy statement should be able to provide absolute picture, that it is not misunderstood and misinterpreted. It should be periodically reviewed and updated to suit to the changing needs and objectives of the organisation.

9.1.2 Collection Development Policy

After understanding the policy and its importance, now you should know about collection development policy.

The main aim of collection development function is to ensure the availability of material required by the library users in their research and reading and to fulfill the programmes of host organisation. The various factors affecting the collection development in a library are: purpose and objectives of the library clientele to be served, present collection, availability of financial, human and information resources, current demand and use of information, possibilities of resource sharing, alternatives to purchases, etc. Therefore, it is essential to formulate a good collection development policy for every library keeping in view all these factors and future needs.

Once the policies are explicitly formulated they must be put in a documentary form for providing guidance and consistent implementation. It acts just like a 'Manual' for a software package. It tells the nature and scope of the collection, sets priorities, calls for commitment to organisation goals, eliminates personal biases of selector, helps to maintain consistency, aids in resolving complaints, weeding and evaluation of collection and collection development programme and serves as a public relations and accountability tool, and improves the quality of collection development work.

A successful collection development manual should also state the users to be served, parameters of library's holdings, budget allocation, limitations governing the selection, priorities, subjects and formats covered, evaluation of suppliers, languages and geographical areas to be covered, ways of dealing with ex-changes, gifts, weeding, etc.

In this regard ALA has already prepared ' Guidelines for collection Development ' which can be used as model for preparing the collection development policy manual by individual libraries.

Keeping in view all these factors and implications the collection development in a library consists of the following elements.

1) The objectives
2) Selection policy
3) Acquisition policy
4) Types of documents to be acquired and maintained
5) Conservation of material
6) Weeding/Withdrawal of material

9.2 THE OBJECTIVES OF A POLICY DOCUMENT

This varies from library to library since the different types of libraries have different objectives, users, user needs and priorities.

The objective of a public library is to educate and raise the cultural and intellectual level of the public and hence the collection development must be made on a fairly comprehensive basis for providing information, recreation, inspiration and knowledge as well as guidance in daily life and in co-operative existence.

The objective of Academic Library is to help faculty, research scholars and student community to attain high academic distinctions through their study and research and hence the collection development should be made to cover the programmes of teaching and research in various fields of learning.

The objective of special library is to fulfill the programmes of the parent organisation which are mostly involved in Research. Development and Training activities and hence the collection development should be made to suit and meet the requirements of the activities of the clientele.

The policy document should clearly describe the objectives of the collection development based on institutional objectives.

9.3 SELECTION POLICY

After having known the objectives of the library and requirements of users, the process of collection development activity starts selection and acquisition of materials into the library.

The collection development activity in the library involves two main activities i.e. selection and acquisition. Selection is the act of choosing the documents to be acquired for the library and acquisition refers to the procedure followed to obtain them. These two operations are to be carefully designed and followed in order to develop a healthy collection to fulfil the needs of users in terms of qualitative and quantitative measures. The selection of documents is an intellectual operation and the acquisition is a routine clerical job requiring methodical approach and procedures to be followed to acquire the documents. It means, normally the selection policy provides information useful to decide the items to be purchased and the acquisition policy will cover the issues related to acquiring the books and other material such as types and methods of acquisition which includes purchases, gifts, cooperation, payments, etc. Therefore, the policy guidelines should deal with the various aspects pertaining to selection and acquisition.

Each type of library should formulate a definite book selection policy consistent with its pre-determined objectives of the library. The efficiency of the selection policy will help the library in its collection building with appropriate material. The document selection activity should keep in view the basic issues involved in collection development. They are:

* *Selection of Material:* It involves the nature, form, level and variety of materials to be selected which may include books, periodicals and non-book material.

* *Selection Authority:* It pertains to the actual performance of selection material. It involves the selector with whom the authority is vested to select the documents. It may be librarian assisted by the library staff, or book selection committee, or the members of the faculty, or by a combination of two or more of them - this differs from library to library.

* *Selection according to User Needs:* It involves the user requirements to fulfil their current, retrospective and future interests and preferences. This can be explored through personal contacts, community surveys, analysis and interpretation of library records, and assessed in terms of value, volume and variety.

* *Coverage of Material:* It involves various factors like subject coverage, language coverage, period coverage and area coverage of documents to be procured.

The book selection principles such as 'the right book to the right reader at the right time' (Drury), ' The best book to the largest number of readers at the least cost ' (Dewey), Book selection determined by demand to maximise services (Mc Colvin), etc. may serve as optimistic or idealistic objectives for collection development. But achieving these objectives is not an easy task. There are many practical problems in document selection work like ascertaining user needs, lack of clearly defined boundaries of areas of interest, lack of clear and consistent policy of collection development, lack of priorities in collection development, the heterogeneous nature of literature scatter. etc

Statement of above issues in a policy document will help in right selection of documents.

9.4 ACQUISITION

Once the items are selected and decision has been taken to purchase, the work of acquisition commences with the preparation of order, selection of vendor, the recording of the receipt of the item, and payment. The basic acquisition routines is almost the same in any library with certain variations.

Acquisition means acquiring of reading materials or documents. Document acquisition is the most fundamental activity in pursuit of the objective of collection development in any library. The objective of document acquisition is to optimise and justify the expenditure to acquire the relevant and potentially useful documents with the least possible delay. The major problems of document acquisition are centered around problems of budget, space, appropriateness and availability of selection tools.

A successful librarian has to trade-off among all these problems and objectives since it is an inter-disciplinary area of work within librarianship as he has to perform the para-professional and non-professional activities also in addition to his professional activities. In order to make economical, efficient and effective collection development he has to play the role of purchase officer, accounts officer and to have knowledge and proficiency in accounting, budgeting, book-publishing, etc. Document acquisition work is essentially a business operation and is subjected to business principles, norms and stringent financial audit.

Therefore, the acquisition policy should clearly spell out the acquisition procedures to be followed including the types of acquisition and methods of purchases. It should also have clear guidelines for soliciting and accepting the donations/gifts as well as procedures for exchanges. The discount policy also needs to be stated.

9.4.1 Types of Acquisition

Acquisition procedures require a careful planning of procuring the documents. There are two main types of acquisition of documents.

i) Purchased acquisition, and ii) free acquisition.

i) Purchased Acquisition:

There are several ways of purchasing documents in the libraries. They can be obtained directly from the author, publisher, or printer; or indirectly through a book dealer or agent.

Another method of purchasing documents is 'shared acquisition' or 'Co-operative acquisition'. In this method, a number of libraries form into an acquisition network and share the procurement of documents by each participating library. The sharing will avoid duplication of documents and reduces the financial burden on individual libraries. The sharing can be done systematically by the libraries wherein each unit can procure the documents defined by language or subject or nature or origin or cost.

ii) Free Acquisition:

There are several types of free acquisition of documents in the libraries. Some of them are

i) Exchange
ii) Donations/Gifts
iii) Legal Deposit.

Exchange is sending of documents from one library to another library and vice-versa. This method necessitates something to be exchanged i.e. the books which are duplicates; or serving no purpose, or spare collections, or the documents produced by the organisations. It possible to exchange all kinds of materials including restricted literature. The exchange is based on item and not on cost.

Donations/Gifts are also an important form of collection development in the libraries. Many libraries in the world have grown with the gifts / donations. These donations may be of various forms.

* Bequests of private collections or groups
* Spontaneous donations from individuals
* Regular gifts by embassies, government agencies / departments, commercial bodies, etc.
* Author's copies (preprints or reprints of the documents)
* Requested donations (Press copies or review copies)

Legal deposit is another form of donation/gift. In this method, the producers of documents i.e. manufacturers, printers and publishers are required to send or deposit a fixed number of copies in the prescribed libraries, by virtue of an act or order of the government. Usually, the National libraries or certain authorised libraries will receive such documents. The beneficiaries of legal deposit will posses all the printed documents in the country. Some times, this obligation is not respected due to non implementation of law strictly. It is scrupulously followed in the case of patents, wherein the inventors will oblige to deposit officially with the recognised agencies.

9.4.2 Methods of Purchasing

The major portion of acquisitions in the library depends upon purchases. There are various methods followed within the purchase mode of documents. They are:

* Quotation / tender method
* Appointing approved vendors
* Books / documents on approval
* Dealer Library Plan (DLP)
* Purchase of specific items against specific orders.
* Standing Orders.
* Membership purchases
* Subscriptions

i) Quotation Method:

In this method the quotations are invited for the supply of documents asking the rates of books, rates of conversion (in the case of foreign documents), percentage of library discount. The quotations received are tabulated and got approved by the competent authority to acquire them.

ii) Appointing Approved Vendors:

In this method, the library will assess the vendor's suitability, in respect of supply, time-bound supply, honesty and previous experience, business reputation, turnover for the past few years, discount allowed, etc. and such firms (may be publishers, wholesale dealers, book sellers) will be selected and approved for a specified period for the supply of documents.

iii) Book/Documents On-Approval basis:

Publishers or book sellers send the books to the library for evaluation, physical verification and selection on approval basis. If they are relevant, useful and satisfy the user's needs. The library will select and acquire them.

iv) Dealer Library Plan (DLP):

Under this plan an agreement will be reached between the library and the publisher to the effect that the publisher should send their publications to the library as and when they are published. The library can select or reject them. This plan will continue until the agreement is revoked.

v) Standing Order:

The Library can also place standing order with the publisher. Under this method, the publisher will send specified publications to the library as and when published and the library shall buy them. In most of the cases the standing order will be placed for documents pertaining to specified subject and also sequentially published material i.e. annuals, year books, almanacs, series, directories etc.

vi) Membership Purchases:

Learned societies will accept the membership of their patrons. They periodically publish their research activities, programmes and achievements and communicate the same to its members through the publications. Usually, the members may get the copies either freely or at cheaper rate.

vii) Subscriptions:

The periodicals/serials are generally procured by paying annual subscriptions/ or some times life subscriptions also.

viii) Modes of Payment:

The modes of payment include advance payments, credit supply, payment against delivery, etc. The advance payments made to periodicals and payment against delivery is made for other types of documents. Generally, the libraries pay to the vendor in Indian currency but when the subscribers are sent directly to foreign publishers. The foreign currency is bought from the banks. While making the payment in Indian rupees the libraries either pay as per Good Offices Committee rate or bank rate.

9.5 TYPES OF DOCUMENTS

The different types of information sources which constitute the library collection is also an important component to be taken into account while formulating the policy. The information sources comprise the documentary and non-documentary sources. The libraries are concerned mainly with the various types of documentary sources. There exists a variety of documents in the market. The librarian or information specialist must be well acquainted with their distinctive features so that they can select, acquire/collect, process, maintain and use them properly.

The documentary sources have been broadly categorised into a number of convenient ways depending upon their characteristic features. They can be broadly categorised into two. One is textual and the other is non-textual.

Textual documents present the information essentially in the form of written text to be read. They include, books, periodicals, statistical documents, administrative documents, patents and so on.

Non-textual documents may also contain some text but the information is presented in some other form. They are

* *Iconic documents:* Images, maps, plans, graphs, diagrams, posters, paintings, photographs, slides.

* *Sound documents :* Sound records, sound tapes, audio CDs.

* *Audio-Visual documents:* Which combines images and sound, films, slides, video tapes and discs (CD and DVD).

* *Documents of material nature:* objects, samples, artistic works and monuments, Braille books, teaching kits.

* *Mixed documents* which bring together textual and non-textual documents such as records, educational kits, etc.

* *Magnetic documents* for computer processing.

Another way of classification of documentary source is based on the information contained by them. They are:

i) *Primary sources* which contain the original thought content / information produced by the author. They are journals, conference papers, patents, standards, theses, research reports, trade literature, etc.

ii) *Secondary documents* which are based on primary documents conveniently condensed or interpreted and presented. They are abstracting and indexing journals, reference source like dictionaries, encyclopaedias, yearbooks, almanacs, directories, hand books, geographical sources, biographical sources, bibliographies etc.

iii) *Tertiary sources* which are based on primary and secondary sources and condensed and presented in a more convenient way to organise and control the scattered information. They are textbooks, bibliographies of bibliographies, union lists of periodicals, guides to reference sources, etc.

The primary sources are unorganised and scattered widely. The secondary sources organise the information about primary sources to have a control over the scattered literature. The tertiary sources are well organised than the other two types of sources.

The other conventional method of classification of documents is books and non-book material. They are:

Books	: general and text books, monographs, treatise, etc; serials and reference books.
Non-Book Materials	: Pamphlets, reprints, reports, patents, standards, maps and atlases, etc. Besides, all this print material some non-print material also exists.
Non-Print Material	: Microforms, audio-visual material, electronic storage devices, etc.

Apart from the nature of documents, the physical characteristics such as weight, size, mobility, rarity of documents and other factors will have some influence on the selection and processing.

Books and serials/periodicals are the two wellknown conventional materials acquired by all types of libraries. They are the major components of the library collection. Apart from this general collection, the technological innovations have introduced several new media to communicate the information/message through pictures to view and sounds to listen by using different materials, like paper, films, magnetic tapes, and plastic to carry the information. They include micro film, micro-fiche, sound tapes, computer tapes and discs.

Therefore, it is essential on the part of the library to build up the collection with the appropriate documents to fulfil the aims and objectives of the organisation.

Fo the sake of convenience the documentary sources are discussed by grouping them into th:e major parts - books, serials and non-book material including microforms.

9.5.1 Books

The books form a major part of collection in the libraries. Therefore, a library has to keep pace with the new publications to develop an orderly, wise, judicious, balanced and uptodate collection. This makes the librarians to have knowledge of various sources/tools which provide information about the publications. These sources are of two types — 1) Which lists existing publications, and 2) Which provide information on new and forth-coming publications.

The chief sources of the first category are bibliographies, publishers and book sellers lists, and published library catalogues. They are useful for retrospective searches. The examples are : *BNB, CBI, Books in Print* (American), *American Book Publishing Record, British Books in Print.* They have comprehensive coverage of all the subject documents published in English language. *INB* and *Indian Books-in-Print* are the sources for book selection for Indian publications. As far as reference books are concerned the guides of

A.J.Walford and C.M.Winchell are the best sources which cover reference source pertaining to all the subjects. For the reference sources exclusively on science subjects F.W.Jenkins' Science Reference Sources is useful. The catalogues and bibliographies published by the Library of Congress and British Library are also useful selection tools for books. Accession lists of reputed libraries are also valuable selection tools.

There are several types of sources providing information on new and forthcoming publications which fall under second category. They include national, trade and special bibliographies, the publishers' catalogues and announcements, book reviewing periodicals, etc.

Another major source of information is the subject experts who will have the knowledge of latest developments and publications in their respective fields. Maintenance of regular contact with authors, research institutions, professional associations, helps in balanced collection building with latest documents.

Book exhibitions and book fairs are another source to know the availability of new documents as the publishers exhibit their new publications to promote the sales. Hence, attending the book fairs and book exhibitions will help procurement of new books.

The types and methods of acquisition discussed in Sections 9.4.1 and 9.4.2 are applicable for acquiring the books.

9.5.2 Journals/Serials/Periodicals

The journals are the important source, which report current observations, new ideas and research findings. They are the speedy and effective communicative agents of latest information published at regular intervals. The periodicity may vary from journal to journal ranging from week to year. The information published will meet the requirements of various types of users ranging from a general reader to highly specialised scholars. They are categorised as house journals, trade journals, technical journals and research journals and secondary journals. They are published in different languages by different agencies like Learned societies, government bodies, professional associations, commercial publishers, etc.

Therefore, the serials form an important portion of the library collection and constitute the largest segment of the library budget more particularly in special and academic libraries. The acquisition of journals happens to be one of the most complex operations involving series of decisions in respect of ordering in the context of fixed budget positions, escalating prices, inflationary exchange rates, varying terms and conditions such as discount, payment procedures, etc.

Hence it is necessary to evaluate the journals properly before acquisition in consultation with the users and subject experts. There are several sources for identification of periodicals such as directories, union catalogues of serials, lists of serials covered by various indexing journals.

They are:

Ulrich's International Periodicals Directory
Union List of Scientific Serials in South East Asia
Union lists of Social Science Serials

Serial sources for BIOSIS data bases which lists the serials abstracted in *Biological Abstracts*

Methods of Acquiring Journals

The journals can be acquired in the following ways:

— by subscription

— by becoming members of societies and professionalbodies. learned institutions, etc.

— by gift

— by exchange

i) By Subscription

Most of the journals are acquired by subscription. They can be directly subscribed with the publisher or through agents who are conversant in procuring and handling the foreign exchange. There are advantages and dis-advantages in both the procedures, some are visible and some are inherent.

The processing cost of journals is more than the books. The correspondence costs the library in terms of manpower, material and postage which are not visible costs. Hence some people argue that the direct subscriptions with publishers are not economical.

The major problem of subscribing through an agent is the risk of huge advance payments even after taking precautions like obtaining bank guarantees, and insisting on proof of payments to the publishers before making payment by the library. Some agents limit their service only to the extent of order placement and subscription payment and do not solve the problems relating to missing issues or other irregularities. However, the advantages in this system are a single order, one invoice, and single check for multiple subscriptions. The agent helps in renewal, provides assistance in making claims, and provides information about discontinuation, mergers, changes in frequency and price, free subject-wise lists, etc. Hence, the agents should not be chosen on lowest bid but their service; quick and prompt action; and handling the claims etc.

Life subscriptions can also be made for certain journals which are published by learned societies. It saves the money, labour and time and overcomes the difficulty of escalating prices and diminishing budgets, and fluctuating conversion rates. But there is a danger if the journals cease to be published.

ii) By Becoming Members of Societies and Professional Bodies

The learned societies, professional organisations and institutions publish journals. These publications are sent to the members either at the reduced rates or free. If the institution becomes the member it receives the journals. The reduction may vary. This method reduces the work and saves money and time of the library.

iii) By Gift

The publishers send their publications at free of cost for the sake of publicity. Gifts may create storage maintenance and regular supply problem, therefore, before accepting gift journals there is a need for careful assessment of its utility.

iv) By Exchange

Some institutions exchange their publications or duplicate copies/extra copies of journals to get useful documents. This exchange is generally based on item value. This will help in getting the new journals or missing journals on exchange. The publications which are not be available through normal trade channels can also be acquired through exchange.

9.5.3 Non-Book Material

The non-book material include pamphlets, government publica-tions, working/discussion papers, conference proceedings, theses/ dissertations, reports, feasibility reports, cases, patents, standards, trade literature, engineering drawings, maps/ charts/ atlases, and all types of microforms.

The pamphlets are generally unbound documents of one or more pieces stapled together. They contain the descriptive account of a topic which is not available in any other format. The series of R R Kale memorial lectures published by Gokhale Institute of Politics and Economics is a best example of pamphlets of sustain-ing value. It is very difficult to acquire the pamphlets. The information about pamphlets may have to be gathered from various sources like annual reports of organisations.

Numerous documents are generated by the government through its various organisations, departments, committees and commissions emanated. They generally describe the policy decisions of the government as well as the executive, judicial and legislative functions and activities. These documents also contain very important information like statistical data, government policy decisions (industrial policy, education policy, foreign trade policy, etc) development plans and regulatory information like (acts and rules, limits of civil rights, and trade union rights). These documents are available in various sizes and shapes. (single broad sheet, pamphlet or a bulky documents) and produced in different methods (types cyclostyling, printing, portraiting etc). They are generally not available through normal trade channels. They need special efforts for locating them and after acquisition they need special physical and technical treatment to maintain it properly for usage.

The selection and acquisition of government documents is a difficult task due to lack of many tools. 'Catalogue of Govern-ment of India Publications and Periodicals' contains the docu-ments available in print. Regular contact with the publications department will also help in procuring the documents required.

Conference papers are the fastest media of information transfer which contain the new and original ideas. These papers are made available to the participants. The acquisition of these papers are very difficult. To acquire them it is necessary to have advance information about the conferences and keeping in touch with the various professional organisations. Sources like *'Index of conference proceedings received'* published by British Library, and *'Index to social sciences and humanities' 'Humanities Proceedings'* published by Institute of Scientific Information are good sources for selection.

Thesis and Dissertations are submitted to acquire higher degrees or to fulfil partial requirements for getting degrees. They are the outcome of research results on various topics. The information about their existence will be known only in the secondary journals like *'Dissertation Abstracts International'* published by University of Microfilms International (UMI), USA; *Indian Dissertation Abstracts* published by ICSSR are the best sources to know about the dissertations.

The Reports provide the information about research results or developments of investigations. They are available in a limited number of copies. *Government Reports Announcements* Published by NTIS, USA.

BLL Announcements Bulletin published by BLLD. and the various abstracting journals are the best sources to get the information about reports.

The new disclosures/discoveries are recorded in the patents. These patents are limited monopolies granted by the government protecting the rights for new inventions made by the individuals, or an organisation. The patent office in each country is the competent authority to grant and operate the patents and its law and maintain the national patent system. A comprehenisive information systems at the national and international level have been developed in view of the importance of patents as sources of legal, commercial, and technological information having international implications, and the fast growth of patent documents.

The World Intellectual Property Organisation (WIPO), a specialised agency of UN and the International Patent Documentation Centre (INPADOC) a joint venture of Austrian government will ensure the promotion of international cooperation among the nations in respect of patent activities. They bring out periodi-cally abridgements of patents. The Derwent publications is also a best source of information for British Patents, and for many other countries. Various indexing and abstracting services also publish the information about patents.

A standard is a specific level requirement to be fulfilled or satisfied by a product, a material or a process. The standards are important for producers and consumers. To stipulate and maintain the standards, the government establishes standards institutes at national and international level. In India BIS, in Britain BSI and at international level ISO (International organisation for standards) are established to stipulate, maintain and regulate the standards. They also publish bulletins/catalogues. *ISI Bulletin, BSI Catalogue* are the best sources of information for standards literature.

The maps, charts and Atlases are another type of unique material required for the libraries. Each nation will have its own Survey department to publish maps. The Survey of India is the National survey and mapping organisation of India. The Map Catalogue published by them is an authentic aid and an important source of information about maps. They also sell world aeronau-tical charts prepared by the International Civil Aviations Organisation.

Microforms contain the information in a very minutely, re-duced form which can only be read with the help of a magnifying device. They are devised to save storage space. They are of several types such as a Microfilms, Microfiche, Aperture cards. There are several journals devoted to microforms such as The Journal of Micrographers, Microform Review, Microdoc provide information about them. University Microfilms International (Ann Arbor, Michigan) has contributed in a big way to the development of microforms publication. *Guide to Microform in Print* and *News papers on Microfilms* are the best sources for selection of micro-forms.

9.6 MAINTENANCE

After an item has been acquired into the library it must be properly maintained to make it more useful and purposeful. The maintenance is as important as that of purchasing an item, and it needs regular and constant attention to keep it in proper condition during its entire lifetime.

The documents in the library are to be kept for a longer period because of their intrinsic and extrinsic values. The textual matter of a subject, its currency and relevance to the present state of knowledge are the intrinsic values which are to be maintained properly to be made available to the users in their study and research. The extrinsic value is physical condition of the document which needs to be maintained to safeguard the documents from mutilation due to frequent usage by the readers.

The maintenance function in the libraries include various aspects such as shelving, guiding, shelf-rectification, dusting and cleaning, binding and vigilance.

Once the documents are received in the library, they will be technically processed (analysed, classified, catalogued and indexed) and sent to the stack room for proper shelving. Shelving is the process of keeping the documents on shelves systematically. Different types of documents are shelved in different sequences depending upon their nature and physical composition to facilitate easy and quick location.

After shelving the documents, they must be properly provided with required guides like shelf-guides, row-guides, tier-guides, bay-guides, gangway guides, etc. to help the readers to locate the documents easily. Guides are direction labels put in various sections. In addition, it is essential to prepare general instruction guides to educate the users to enable to make optimum use and also support proper maintenance of library resources.

The documents are frequently misplaced either intentionally or unintentionally, it is always necessary to rectify and put them in proper sequence, which is known as shelf-rectification. Self rectification will help in easy and quick location.

The document collection in the library is most likely to be damaged due to dust and harmful insects. Hence, it needs proper dusting and cleaning arrangements at regular intervals. This is a routine day-to-day function. It includes sweeping and mopping the floors, dusting books and shelves, removing cobwebs, etc.

In order to protect the documents from damage due to frequent handling by the users and maintain them for long, they need proper binding. Binding protects the documents in several ways from its damage and also increases their life span as well as adds to the durability of document. The binding can be made either by the library itself or assigned to others.

In addition to all these protective measures, the documents need some preventive measures to maintain them properly for longer time. In order to prevent from tearing the pages, damag-ing, stealing and misplacing the documents a close watch on the readers activities is necessary. Sufficient staff is to be engagged to maintain vigilance to stop misuse of library resources.

9.7 CONSERVATION

Conservation denotes the specific policies and practices included in protecting the library material from damage, deterio-ration and decay. It also can be said that the conser-vation deals with the use of chemical and physical procedures in treatment or storage to ensure the preservation of documents. The conservation process consists of control of the environment where the books are stored and actual treatment of them. The preventive treatment such as de-acidification, stabilization of leather and binding materials, curative treatment, rebinding, restoration, etc. are part of conservation activities.

One of the important library functions is to preserve the documents for future use either in its original form or in another form such as Microform. The libraries possess not only books and periodicals but also many other types of material (refer Section 9.5) such as maps, photographs, microforms, slides, sound recordings and video tapes, etc. Each of these materials are subject to a number of hazards. Therefore, they need special care and attention to protect and preserve them. The factors that affect the library materials are:

i) Environmental factors (atmospheric factors)
ii) Chemical factors
iii) Biological factors
iv) Other factors

i) Environmental Factors

The atmospherical / environmental factors such as climate, humidity, ventilation, light, etc. cause the condition of documents. The location of the library also contributes in mutilation of documents.

Therefore, maintenance of good climatic condition is necessary and if possible air-conditioning will be useful. The humidity and moisture is harmful for documents, hence a constant temperature should be maintained. Some libraries do fumigation. The inadequate ventilation results in damage of the documents, hence care is to be taken to provide sufficient ventilation.

The ultra-violet radiation in natural light will cause more photochemical deterio-ration. The direct sun rays causes damage to paper and binding. The paper becomes embrittled and the colour fades away, the binding becomes stiffen. Hence, arrangements should be made by providing special glasses and window-blinds to avoid too much light and sun rays into the library.

ii) Chemical Factors

The chemical agents are also harmful to the documents. Paper gets damaged by the acidity of cellulose with which it is made. The audio-visual documents suffer from basic instability of the materials used. Hence, proper care is to be taken for storage of material to safeguard them from deteriorative agents.

iii) Biological Factors

The biological factors include vegetable agents, animal agents and human agents.

The vegetable agents include mildew, fungi, bacteria, etc. caused by too much of humidity. Documents in the library needs to be protected by preventive or curative measures from these agents. The rooms should be dry and provided with enough venti-lation.

Formaldehyde is an effective fungicide which can be used for the rooms. In case of bound volumes 5% solution of thymol in ethnol can be sprayed in the room. To protect the documents from fungi, they must be put inside fumigation chamber.

The animal agents are paper parasites such as insects like silver-fish, termites, moths, cockroaches, mudwasps, book worms, etc. and rodents like mice, rats, squirrels, etc. which eat and spoil/damage the library material. They can be effectively controlled by chemical means. Insecticidal solution should be applied on the shelves before putting the documents on the shelves. 50gms of pyrethrum and 50gms. of DDT are dissolved in petrol and sprayed on the cupboards. To protect against silver-fish, sodium flouride is used. It is also essential to keep the premises very clean to avoid these parasitic agents.

The human beings are also responsible for damaging the collection while handling, while reading, and with their anti-social habits like stealing and mutilating. Normal wear and tear in handling the documents can be reduced by proper binding of documents. The material damage while reading or using the docu-ments, like staining, folding, scratches on photographs and records, handwritten comments or putting marks, tearing pages is very hard to avoid when the library is open to many users. This can be overcome only by educating the readers to realise the importance of documents. The pilferage can be prevented by carefully laid plan and by imposing strict vigilance.

iv) Other factors

The other factors include disasters. They may be natural disasters or man-made disasters. But they are very much dangerous to the library and its collection since no library is immune to the devastation. Hence the library building should be well protected from destruction by hurricanes, typhoons, earthquakes, tidal waves, heavy rains etc.

Repairs and restoration is a regular conservation process in the libraries. Almost all damages can be repaired, including documents soaked in water, stained micro-films, etc. Before deciding what to do, the damaged document must be carefully examined as to the nature of the material and the extent of damage. Depending upon its condition, one has to proceed to strengthen, clean, wash flatten or reglue it. This is the first stage of restoring a paper document. A more seriously damaged document will have to undergo special treatment restore its condition, using relevant techniques.

Fumigation Chamber : The fumigation chamber is constructed with airtight doors and the holed planks. In the bottom plant a bulb will be arranged and thymol crystals are placed near by it. The books are kept in vertical position by spreading open the leaves. The thymo crystals will be heated with the help of electric bulb and the thymol fumes will come out and travel through the holes and reach the top of the chamber. In this way fumes spread all over the room.

Paradichlorobenze chemical can also be used in the fumiga-tion chamber which will automatically vapourise by itself in atmospheric temperature and do not require any heating with an electric bulb. Since this chemical produces fumes which are denser than air, it is put on the top most plank of the chamber.

Ethylene oxide and carbon dioxide are also used in cylinders for fumigation.

Depending upon the prevailing fungi the books are kept inside the fumigation chamber for one or two weeks. In archives, bulk fumigation is done by putting the books in a wagon put on rails and is pushed into the chamber.

The steel or wooden cabinets can be used in fumigation chambers. The steel cabinets are mostly used in tropical coun-tries.

9.8 WEEDING/WITHDRAWAL OF DOCUMENTS

Weeding is the process of removing the documents from the library collection which are damaged, wornout, unused, extra copies and outdated. It is also known as the process of withdrawing unserviceable reading materials from circulation. This process is as important as any other in the system of collection development. Some people view the weeding as the reverse of selection function. The collection becomes obsolete if proper weeding is not practised.

Weeding includes transferring excess copies, rarely used books, and materials no longer in use to storage. Purging is defined as 'officially withdrawing a volume (all entries made for a book have been removed from library records) from a library collection because it is no longer needed by the users'

9.8.1 Need for Weeding

There is every need to remove the unwanted material from the collection for exten-sive and effective use of the library by the readers. If the weeding programme is undertaken periodically, the collection can be updated with latest volumes by removing unwanted material. Apart from this there are several reasons for weeding out the library material. They are:

- to save the space (floor and shelf)
- to avoid unnecessary maintenance
- to improve access
- to upkeep the collection

9.8.2 Criteria for Weeding

Once the decision for weeding is made, the criteria or policy must be formulated for careful implementation of weeding programme. The weeding process is not an overnight activity and it cannot be done in isolation. Several aspects are to be taken into consideration before weeding out any material in the library. They are:

- library goals and objectives

- the funds available for buying more satisfactory titles

- availability of other documents in the subject

- the degree to which the library is to function as an archive

- the usefulness of a book in future.

9.8.3 The Material to be Weeded out

The weeding policy needs to be prepared by the library wherein guidelines for what items are to be weeded out from the collection. H.F.McGraw suggestion includes a fairly comprehensive list of such items:

- duplicate
- unsolicited and unwanted gifts
- obsolete books
- superseded/old editions
- books that are infected, dirty, shabby wornout, torn out
- books with small print, brittle paper, and missing pages
- unused, unneeded volumes of sets
- periodicals with no indexes.

9.8.4 Barriers to Weeding

There are some barriers to weeding programme which are often mentioned as excuses for not weeding. It is essential to overcome the below mentioned barriers for effective weeding:

- lack of time
- fear of criticism
- fear of making a mistake
- reluctance to throw a book out
- indifference to management.

9.8.5 Disposal of Weeding Material

After having been identified the items to be weeded out, a decision on how to dispose the material is to be taken. The weeded out material can be disposed of in the following ways:

- gifting to local libraries
- sending to depository centres
- maintaining a separate sequence of weeded out books in the library
- selling them
- exchange with other documents.

After taking a final decision, the weeded out material should be disposed of as per the rules of the library.

9.9 LET US SUM UP

Collection development is an important process in the library since the various types of materials are acquired to meet the requirements of the users in accordance with the aims and objectives of the institution. The image and strength of the library depends upon its collection. Therefore, it needs a dynamic and sound policy covering several aspects like the Objectives, Selection, Acquisition of various types of material, their Maintenance, Conservation and Withdrawal.

The policy document should clearly describe various objectives of the institution as well as the objectives of the collection development.

The collection development involves two main activities namely, selection and acquisition/collection. Selection of documents is an intellectual operation for choosing the documents and collection/acquisition refers to the procedures to be followed to acquire them which is a routine clerical operation. Each library needs a definite selection and acquisition policy for acquiring different types of material like Books, Journals and Non-book material required by the institution.

The collection development activity will not end with the procurement of documents but also needs constant maintenance and proper conservation of material keeping in view their intrinsic and extrinsic values. Regular weeding of the unwanted documents is necessary to upkeep and update the collection.

Thus the collection development covers the whole gamut of activities right from selection to acquisition, maintenance, conservation to weeding out the material.

9.10 GLOSSARY

Acquisition : The process of obtaining books and other documents for a library/ documentation centre/information centre

Binding: The strong covering of the book. The process whereby the sheets are sewn or otherwise fastened into a permanent cover of book-binder's board, the sides and back of which arecovered with leather or cloth, or other suitable material

Book: A set of blank sheets of paper bound along one edge and enclosed within protective covers to form a volume, especially a written or printed literary composition presented in this way.

Conservation: The use of chemical and physical procedures intreatment or storage to ensure the preservationof document.

Document: Material of any kind, regardless of its physical form and characteristics, on which information has been recorded.

Exchange: The exchange by barter or trade of duplicate material with other libraries.

Journal: A periodical issued by a society or institution and containing news, proceedings, transactions and reports of work carried out in a particular field.

Microform: Microform is one which carries almost permanently reduced images of printed or written matter in such a way that the reduced images are no longer legible to read with naked eye.

Non-book: Those library materials which do not come within material the definition of a book, or periodical and which require special handling.

Preservation: Measures taken for the repair, restoration, protection and maintenance of the archives/documents

Reference A book, or work, compiled to be referred to book/source: rather than for continuous reading. Any publication which is used to obtain authoritative information

Standing order: An order to supply each succeeding issues of a serial/periodical or subsequent volumes of a work published in a number of volumes issued intermittantly. It is also called 'continuous order'

Subscription Those published at intervals by societies and book: issued to subscribing members.

Subscription price: The price at which books are sometimes offered for sale before they are published. The price is usually lower than the after-publication price.

Text-book: A book written especially for use by those studying for an examination in a particular subject.

Textual documents: Manuscript or typescript documents as distinctfrom cartographic, audiovisual, machine readable articles.

Weeding: Discarding from stack of books which it is considered of no further use in the library.

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9.13 ASSIGNMENT

1) Visit the nearest library and observe the policy adopted by them for selection and acquisition of different types of library material, their maintenance, conservation and weeding and prepare an essay.

9.14 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) What is a collection development policy? Briefly describe the various elements to be covered by it.
2) What are various types and methods of acquisition of books and journals in a library?
3) Describe the various types of documentary sources and their selection and acquisition.
4) Explain the importance of maintenance of documents and how they can be protected from various factors affecting the documents for their durability.
5) What is weeding? Explain the need and criteria for weeding out the material and the material to be weeded out.

II. SHORT NOTES

a) Acquisition methods

b) Different types of library material

c) Fumigation

UNIT - 10 : BUDGETING PROCESS AND METHODS

Structure

10.0 AIMS AND OBJECTIVES

This unit deals with Budgeting process and methods used in the libraries. Budgeting is an important function in the library management.

After studying the unit, you should be able to

- define the term 'Budgeting'
- explain the need for budgeting in libraries
- describe how budget is prepared in libraries
- discuss various techniques of budgeting and their use in libraries and information centres.

10.1 INTRODUCTION

Finance is one of the important resource for managing the activities successfully in any organisation, including LICs. The LICs need to look for various sources for finances and spend them in a planned and careful way. The planning and controlling of the financial resources are known as budget. Libraries being non-profit making service institutions, they have to make optimum use of their financial resources. Further, LICs are also accountable to funding agencies in particular, and the society in gneral. In addition, LICs are facing financial crunch and at the same time the costs are ever increasing. In the light of the above the LICs have to plan their budget with utomost care. Let us see more details about budget in this unit.

Budgeting is deciding or estimating in advance, the course of action to achieve a particular target or objective in a given period of time along with the numerical expression of the inputs required and the outputs expected. Normally, a budget statement is expressed in both the terms currency and quantity (Units). Currency refers to the cost or value and quantity refers to the activity level or volume of function.

Historically, budgets identified with financial documents prepared by government or balancing anticipated revenue receipts and planned expending for defined fiscal periods.

Budgeting in libraries, which is usually on a yearly cycle, is the primary means by which formulated plans can be carried out. More and more, as there is greater financial constraint, librarians find themselves spending greater amounts of time in budgeting review, analysis, and presentation. Many types of budgets are not really applicable to libraries, since libraries are not primarily profit making institutions. However, several different types of approaches to budgeting are being used in libraries, and these are discussed in this chapter.

The Budget is perhaps the best and most important control device in existence to measure programs and their effectiveness within the organisation. A budget is a plan for the coordination or resources and expenditures of an organisation.

Budget is always influenced by the following factors:

1) Money that is available for;
2) Money that is required for;
3) Money that assigned to a particular purpose.

A narrow, at the same time, the principal purpose of a budget is balancing of estimated revenue and expenditure in order to achieve set goals. It is also a control instrument to bring about changes in the desired direction. In a library, budget is a financial statement of the estimated revenues and expenditures of the library concerned for a definite period of time.

10.2 BUDGETING - DEFINITION, PURPOSE AND FORMULATION

10.2.1 Definitions

1) The term 'Budget' may be defined broadly as "a statement of the financial position of a sovereign body for a definite period of time based on estimates of expenditure during the period and proposals for financing them".

2) Herman C. Heiser defined budget " as an overall blueprint of a comprehensive plan of operations and actions, expressed in financial terms, appear to meet the basic requirement of the new lock".

3) Jo Bryson states that the budget is the financial statement which is prepared and approved for a specific period of time and which provides details of the proposed expenditure and revenues. It is prepared prior to expenditure taking place and constitutes both the means of control as to how monies are spent and a check on what monies should have been received.

It can be simplified by stating that the budget is a plan. It represents choices made from alternatives for expenditure, and it is used to coordinate efforts towards a specified end.

10.2.2 Purpose of a Budget

The very purpose of a budget are: to limit expenditure to income and to assure planned spending on economic basis. Other words, the major purposes for having a budget are planned coordinating and controlling enterprise activity to achieve it goals.

It is a plan of action, wherein

a) costs of plans for each unit during a given period
b) estimates combined into a well balanced programme
c) feasibility of plans combined with goals and
d) actual results during a given period.

It may be useful to identify the three important functions of a budget:

i) It is an investment for planning: After identification of present objectives and plans, these plans are expressed in financial terms:

ii) As a control or reporting device: The budget should function as a control device, wherein the management can check/compare the progress of actual peroformance against the plans, objectives and programmes; and

iii) Defines assignments: The assignments are prepared and budget, is allocated, therefore the budget will define the assignments to every level.

On the basis of the above, it can be understood that budgets involve an integrated activity of planning and controlling and acts as feed forwarding control to plans, programmes, procedures, etc.

10.2.3 Budgeting Process

The dominant factors involved in the budgeting process are:

1) Legitimate objective or target to be achieved;

2) Available resources, i.e. factors of productions;

3) Possible quantum of resources to be made available;

4) Time duration required to achieve the defined objectives; and

5) Other factors affecting the size and nature of budget, e.g. competitor's performance and strategies, Government's policies and guidelines, market fluctuations, customers attitude, previous year's performance and experience, etc.

When the budget is for a public sector organisation or a Government department, it becomes essential to consider one more significant aspect, i.e. social responsibilities. Any public sector firm or department is supposed to be a 'service centre' for society. Hence, society's genuine interest becomes the vital factor for libraries in a budgeting exercise.

10.2.4 Formulation of a Budget

Formulation of a budget is a preliminary step to prepare a final budget. It is necessary to identify what are the revenues and expenditure for a particular period of time of a particular library to prepare a budget.

The following are the steps involved in formulation of a budget:

i) Budgetary Cycle: Being an annual recurring activity, budgeting follows a cycle of operations - initiating the process preparing estimates of revenue, working out expenditure for each unit or services, consolidation of unit budgets in the overall budget, justifying the budget proposal, final approval, and continuous review.

ii) Period of Budget: The budget generally operates for one year. The period covered by the budget may correspond to the calender year or the financial year of the parent body. In practice it is a financial year.

iii) Initial phase: This starts with the review of the working of the previous year's budget, collection of data, assessment of changes, if any, formulation of Budget principles, and policies to be followed for the coming year.

iv) Formulation of Unit Budget: Proper formulation of a budget should start at the unit or section or department level. In preparing the budget it is preferable to involve persons concerned with its execution. Great care is needed to balance the requirements of different units so that plan objectives are achieved and inter-unit conflict is avoided.

v) Consolidation: Unit budget are integrated to form the overall budget for a library. At this level, control is to be exercised to ensure that the budget is balanced is capable of being approved, resolves internal conflicts and above all, the estimates reflect the objectives to be achieved. Resources being limited, all the available alternatives to reduce cost without compromising on quality and output need attention.

vi) Justification and finalisation: Since the library budget forms a part of the overall budget of the parent body or an organisation, justification of proposed budget is necessary. Here justifying the budget generally consists in explaining and defending the proposed allocations under each head supported by statistical data. This is in relation to the plan and overall policies and programmes of the organisation. Sometimes comparison with similar other libraries may easily convince one about the need for what has been proposed.

vii) Budget format and contents: The budget format depends on the financial norms followed by the parent body. The normal practice consists in showing revenue on one side and expenditure on the other, followed by explanations and notes,if any at the end for each item.

Some of the major heads included in the library budget format are given below.

REVENUES/INCOME		EXPENDITURE
Block grant	A.	*Recurring:*
UGC Grant		Salaries & Wages
Allocation from the parent body.		Books fund (reading materials)
Cess & Taxes Gifts/donations		Subscription to current periodicals.
Fines/overdue charges		Binding Charges.
Deposits		Stationery
Registration Fee		Postal Charges
Endowments/Donations		Rent & loans
Library fee/service charges		Insurance photocopying and other service maintenance charges (Hidden costs)
Sale proceeds from old news papers		Training/seminars. National Library week
Interest on deposits		Cultural programmes Miscellaneous.
Recoveries towards loss of books etc.	B.	*Non-recurring:* Building/*extension of building* Equipment/Furniture; Machinery/computers, etc.

* Among the above sources of income, one or more items may be applicable /relevant to any type of library.

One formulation of a budget is done, the next stage is to prepare a final budget required for a library for a particular financial year.

10.3 BUDGET PREPARATION

Preparation of budget is not an easy job. It needs lot of financial planning. The financial planning includes forecasting which is possible only with experience, knowledge, exposure to new techniques, procedures and technology. However, the environment plays a very important role in fiscal planning. Budgeting is included as a main function of management which indicates its importance. As the finances are limited and also essential, it needs to be prepared systematically and carefully. The details of budget preparation can be seen in the following sections:

10.3.1 Methods of Budget Preparation

There are three ways in which the libraries can prepare budgetary estimates.

1) By comparison with past expenditure.
2) In accordance with the work programme, and
3) By using arbitrary standards & norms.

1) By comparison

Estimation of future expenditure can be judged on the basis of previous year's expenditure, the appropriation for the current year and the estimated expenditure for the ensuing year.

2) Work Programme

The objectives of the budget is formulated on the basis of needs in terms of services to be offered and work to be accomplished work programme include.

a) Programmes
b) Services (existing and anticipated).
c) Number/types of users (Size and type of users).

3) Standards and norms

The standards and norms are useful as guides to prepare the library budget. The laid down norms and local conditions, influence the preparation of library budget.

The existing standards in budget allocation are as follows:-

a) Per capita method:

In this method, a minimum amount per head of population is fixed which is considered essential for providing standard/minimum library service.

The per capita income would include all living persons irrespective of age and literacy. In other words, the safest methods is to estimate library finance per head of population.

The finances can be allotted by both state and central Governments in certain ratio as matching grants, based on constitutional obligation.

b) Standards and Budget Ratios:

In India, Dr. S.R. Ranganathan suggests 50 paise per capita expenditure for Public Library.

The UGC Library Committee (1957) recommended Rs.15/- per student and Rs.200/- per teacher for acquiring reading materials for a University/College Libraries.

4) Proportional Method

It means to set the ratio of library expenditure to total budget of an institution/government

In India various standards have been suggested for public library finance. Dr.S.R. Ranganathan suggested that either 10% of the total budget or 6% of the education budget of a local/state/federal Government, as the case may be earmarked for public library purpose.

As regards academic libraries in India, the University Education Commission (1942-49) had recommended that 6.5% of a University's budget would be a reasonable expenditure on Libraries.

The UGC suggested that this expenditure could vary from 6.5% per cent to 10 percent depending on the stage of development of each University Library (1959).

10.3.2 Tips for Successful Budget Making

1) A permanent budget file should be maintained and any policy amendments and additional expenditure must be recorded from time to time.

2) Each section in the Library should also maintain a separate budget file and record any financial requirements from time to time which are to be incorporated in the ensuing year.

3) Expected expansion of the building, service units etc., must be prepared from time to time and proper estimates should be incorporated in the budget.

4) The new demands of the users are to be recorded and estimated to incorporate in the ensuing budget.

5) Purchase of new machinery etc., must be estimated and

6) Changes in the cost of publication etc., must be taken to incorporate the same while estimating the budget.

7) Opening of new courses and departments must be taken care of while estimating the budget.

Library budget always must keep pace with the changes in technology and standard of living of the people in the country.

10.3.3 Techniqnes of Budget Preparation

As stated in the earlier sections, we should use the methods and tips in budget preparation. In addition to above there are few more techhiques that can be applied in budget preparation. They are

a) *Stress on non-financial indicators:* The budget should stress on items which are non-financial, such as improving labour efficiency, optimum and capacity utilisation, improvement of production and efficiency, etc.

b) *Competitive approach:* It is essential to take into consideration earlier performance *vs.* expenditure, and prepare the present budget competitive to that of earlier. With this either one need to work for better performance with the same expenditure or same performance with less expenditure.

c) *Multiple level contingency:* In this the upper and lower levels, a budget is necessarily to be estimated. On the basis of experiences and forecasting a balance has to be found out.

d) *Hard line and soft practice approach:* while allocating the budget, the management should be firm and competitive. A reserve fund to be created and on the basis of real and genuine needs, the amount may be allocated from the reserve.

In addition to the above, as already stated in the Tips, departmentailsation of expenses will help in budget preparation.

10.4. BUDGETARY CONTROL

Budgetary Control represents the sets of techniques utilised for administration of budgets as instruments of control for attainment of defined objectives. If provides borrowees of inspiration and media for effective communication. It also creates in the employee "Pride in his work and loyalty to his employer" and also provides a "Large measure of satisfaction" in beating a standard set down as test.

Budgetary control is also used as a means of Managerial control. It is the process of comparing what was planned with what has been achieved accomplished during a specified period of time.

Profit making organisation begin budgetary control with as estimate of sales and income. Whereas in the non-profit organisation the starting point is the income derived from known funding sources.

Budgetary control consists of three basic steps. They are:

1) The costs of plans for each unit during a given period of time are expressed in monetary terms using much the same terms on accountant.

2) All the estimates are combined into a well-balanced programmes. To prepare these programmes, there is a requirement for investigation of each plan to check the financial feasibility. These programmes need to be compared with the objectives. Ultimately, the programmes need to support in realising the objectives.

3) For a given time period the actual results, are compared with the combined estimates of step two. Any significant difference between the estimates and the actual results should entail some corrective action. In short, the budget becomes the standard for appraising the operating results.

Stages of Budgetary Control:

While using a budget as a technique of control and performance evaluation, the following stages need careful consideration:

1) Preparing a budget statement.

2) Recording the actual performance.

3) Periodical comparison between the budget and actual performance and finding out the favorable or unfavorable differences (Variances).

4) Finding out the causes for such variances.

5) Grouping, these variances as "Controllable" and "Uncontrollable" based on the causes found out.

6) individual or the group of individuals for the favorable or unfavorable variances, and

7) If required, revising the standardly or budget specifications in order to suit the cyclic environmental changes.

In the light of the above, it is clear that the budgetary control is a continuous, flexible and unbiased process. However, the budgetary control requires complete knowledge and practical application of the following fundamental concepts and techniques:

a) Cost benefit analysis.

b) Contingency approach.

c) Quantitative technique, viz., CPM (Critical Path Method)PERT (Programme Evaluation and Review Technique).

d) Management Information Systems (MIS).

All these concepts are discussed at different places in this Unit.

The advantages of budgetary control are

i) Improved planning and control of the activities
ii) Optimum use of resources
iii) Ensures coordination and communication
iv) Ensures participation of workers and
v) Ensures continuity of programmes and activities.

10.5. TYPES OF BUDGET

The types of budgets discussed here are presented as unique most often, however, a combination of budgeting systems is used. Although many libraries now have a separate staff concerned primarily with budgets and the accounting process, most libraries involve a number of employees in the budget-planning process. Budget requests for programs or units are frequently estimated by the supervisions most familiar with the aspect of the operation.

These include both are traditional approaches used by many organisations and the more innovative techniques that have only recently found their ways into libraries. As these new techniques are considered, it must be kept in mind that it is always costly to switch from one system to another. Therefore, the advantages of a different or new system must be clearly examined before one decides to switch from the old system.

10.5.1 Line - Item

Probably the most common type of budget is that approach which divides expenditures into broad categories, such as salaries, 'supplies, equipment,operational expenditutre, capital expenditures, and miscellaneous, with further subdivisions within these categories. Its primary disadvantage is that items which in these categories can be designated to such a degree that it becomes difficult, if not impossible, to shift them; thus system can be inflexible to innovation. For example, within the broad category of "materials and supplies" it may become desirable to add subscription money for new periodicals after the budget has been set.

There are several advantages to the line-item approach. For one thing, line-item budgets are easy to prepare. Most are done by projecting current expenditures to next year, taking cost increase into account. This type of budget is also easy, wherein cost increase taken into account. This type of budget is also easy to understand and justify, since it can be shown that the allocated funds were spent in the areas for which they were budgeted. This budget is also known as Formula budget.

10.5.2 Lumpsum

A commonly used and much more primitive variation on the traditional approach is the lumpsum approach. In this form of budgeting, a certain amount is allocated to the Library, and it becomes the responsibility of the library to decide how that sum is broken into categories that can be identified. These categories are usually the same ones mentioned under line-item budgeting: Salaries and wages, material and supplies equipment, capital expenditures, and miscellaneous or overhead. This might seem more flexible than line-item budgeting, Libraries using this technique are forced to develop programmes as per the budget allocation.

10.5.3 Programme Budgeting

A relatively new concept in budgeting for Libraries is the idea of program budgeting, which is concerned with the organisations activities, not with individual items or expenditures, which were the concern of the approaches discussed above. Such a budget is presented so that the Library's activities are emphasized and amount can be assigned to program of service provided. For example, if a public library system provides book mobile services for the community, the cost of the service (Staffing, materials, overhead, etc.,) is calculated. In this way one can see just what the bookmobile service is costing. In brief, the programmes are divided and the budget is allocated as per the programmes.

10.5.4 Performance Budgeting

Performance budgeting similar to program budgeting which bases expenditures on the performance of activities, and services. This approach requires the careful accumulation of quantitative data, over a period of time. Techniques of cost benefit analysis are required to measure the performance and establish norms. Performance budgeting has been criticised because the economy aspect is more prominent and shadows the service aspect. This approach is sometimes called function budgeting, because costs are presented in terms of work to be accomplished.

10.5.5 Planning Programming Budgeting Systems (PPBS)

PPBS is a technique originally developed by Rand Corporation and introduced into the Department of Defence by Nobert Me Namara in 1961. President Johnson directed all Principal Government Agencies to implement it, by 1965.

It combines programme budgeting and performance budgeting and combines the functions of planning, programming and budgeting into one. This is most discussed tool for fiscal control. For this method of budgeting, the library needs to develop analytical ability to examine both the institutional objectives and various programmes to meet the objectives. Plans, especially term plans need to be prepared with MIS. On the basis of plans an improved budgetary mechanism has to be developed in order to take the program decisions, which have to be translated into refined budgetary decisions. In short, the broad goals have to be reduced to specific operational programmes and identifying most economical ways of carrying them.

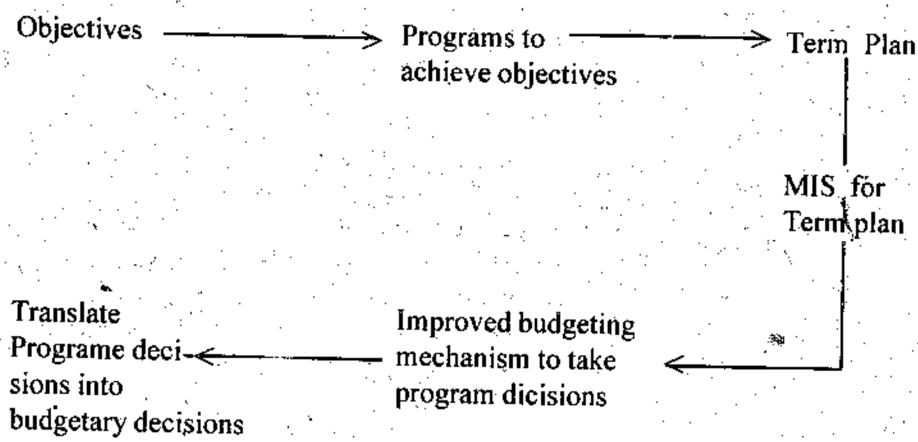
The steps in PPBS are

1) Identifying the goals and objectives of the library
2) Presenting alternative ways to achieve these objectives, i.e., relating the goals with the specific programmes.
3) Relating the programmes with resource requirementts.
4) Relating resource inputs to budgets
5) Accomplishment of programmes, which results in achievement of goals.

The budget reflects the prupose and it is essential to find the relationship between amount and the activity completed.

The most important aspect in this system is feedback or information supply from time to time to the management regarding the progress activity. In simple, the MIS needs to be developed for continuous monitoring and evaluation.

PPBS - FLOW DIAGRAM



In essence, this scientific approach to budgeting improve the decision-making process, which calls for systematic analysis of alternative ways of meeting objectives. The crux of the PPBS system is the selection of appropriate criteria for evaluating each alternative against relevant objectives, it combine the functions of planning (identifying objectives), transforming that to a programme (activity), and finally, stating these requirements in budgetary terms (financing).

Such an approach allows the librarian to enumerate programs and assign costs to those programs. It also allows funding agencies to place programs into perspective and to evaluate the effects of cutting monies from or adding monies to the budget.

10.5.6 Zero-Based Budgeting (ZBB)

Another new technique of budgeting, namely, Zero Based Budgeting, has been used primarily in industry and government but equally useful in all types of libraries, although in a very limited number of cases. The concept was propounded by Peter Pyhrr in the early 1970s to revive the sinking company, namely Texas Instruments in USA.

According to this method, every manger needs to justify the budget request in detail from scratch. It means one need not see what was the justification geven to a particular programme or activity. Every time creating it as a first step in the process, the justification needs to be given for their budgeting demand. To provide such justification the manager needs to examine, analyse and evaluate every procedure, method, inputs and outputs. If necessary modifications, deletions and additions have to be made. In addition the manager needs to take the responsibility or justify why should we spend the money at all. That is questioning, do we really need such an activity/programme. On the basis of which the activities be identified in the form of decision packages. These packages need to be analysed systematically and ranked in order of preference/importance.

In can be understood that ZBB is not concerned with what happened previously but rather with what is required in the future. It requires careful analysis of activities that should take place in the library and further requires justification for each unit of work identified. It forces each unit manager and the unit workers to identify priorities within that unit of the organisation. Doing this and by stating it in terms and cost, forces the unit to answer the questions: "Is it really worth it? "and" Are there any alternatives to achieving this objective?".

ZBB also requires that justification of each programme will start from Point "Zero" in the discussion each year. This is mainly due to the fact that the expenditure incurred may be irrelevant or outlived its uitlity. This method aims at promoting better value for money through cost reduction by cutting down unwanted and wasteful expenditure. This may be done in the context of new developments or new programmes with new inputs. ZBB seeks to improve the quality of funds management by making the best utilisation of funds.

Two important steps can be identified in ZBB.

1) IDENTIFICATION OF "DECISION PACKAGES" : The "Packages" identified should be the lowest unit for which budget can be prepared. It requires description of each activity within that management unit. This process requires the identification of goals and objectives, a statement of alternatives, the reason for the activity, consequences of not introducing the package, detailed measurement of performance, and the costs of the activity.

2) RANKING "DECISION PACKAGE" : This setting of priorities within each unit of the organisation forces decisions to be made as to the most important activities within that unit of the organisation. Priorities of all the units are then amalgamated into one pool and process is repeated in light of the importance to the total organisation. At some point in these priorities there is a cutoff level,those falling below it are not funded. Since this reordering at the organisation level involves every unit within the organisation, clear guidelines for ranking must be established.

General Steps in ZBB:

1) establishment of goal and objectives.
2) accord priorities of these goals and objectives
3) identification of decision units.
4) formulation of decision packages.
5) evaluation & ranking of all these packages in cost benefit analysis.
6) allocation of organisational resources for closed packages.

10.6 LET US SUM UP

The more you know about budgeting, the better you will be able to do your job. New forms of budgeting will undoubtedly occur, each with its own processes . By studying the various forms available and learning their strengths and weaknesses, you can be more effective in pointing out the positive aspects of those forms that could and library service. Of course you will have no choice as to the system used to report the libraries activity to its funding agency; but internally, you should be given fairly free hand. Budgeting is a year-round activity, and, although it is time consuming, it cannot be left for tomorrow.

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10.8 GLOSSARY

Accomplishing	:	done successfully, work completed, achievement
Arbitrary	:	not fixed by rules but left to one's judgement or choice; discrutionary.
Crux	:	the essential or deciding point.
Emphasises	:	to give special force or prominence to stress.
Ensuing	:	to come afterword; follow immediately
Estimate	:	calculate approximately; determine generally but carefully.
Expenditures	:	The act of expending a spending or using up of money, etc.
Fiscal	:	Financial

Formulation : to express in a systematic way.

Package : a number of items, plans, etc. offered or proposed as an inseperable unit.

Profiles : a graph diagram, piece of briting, etc offered or proposed as an inseparable unit.

Program : a plan or procedure for deeling with some matter.

Revenue : a) an item or sources of income

b) (pt) items or execute of income collectively.

Transitional : a) a passing from one condition form, stage, activity, place, etc to another.

b) the period of such passing.

10.9 ASSIGNMENTS

1) Prose a budget for a college library with a strength of 2000 students and 400 faculty members.

2) Write detailed note on the budgeting process in your library.

10.10 MODEL EXAMIATION QUESTIONS

I. ESSAY QUESTIONS:

1) Discuss the aims and Objectives of a Budget?

2) Define library budget and discuss its purpose from the context of a library?

3) What are the steps involved in formulation of a budget?

4) What are the reserve and expenditing of a library budget format?

5) Describe the steps involved in budget preparation?

II. SHORT NOTES:

a) Proportional method of budgeting

b) Percapita method of budgeting

c) Programme Budgeting

d) Performance Budgeting

e) The transitional library Budget

UNIT-11 : COSTING

Structure

11.0 AIMS AND OBJECTIVES

The aim of this unit is to familiarize you with the meaning of costs and costing, techniques of cost analysis and the application of costing in the management of library and Information centres.

After the study of this unit you will be able to

- explain the meaning of costs and costing
- list out the factors that constitute costs
- enumerate the types of costs
- discuss the need for using cost analysis in library and information centres (LICs)
- explain the areas where the costing techniques could be applied in LICs.

11. 0 AIMS AND OBJECTIVES

The libraries and information centres are playing a very important role in the dissemination of information in almost all walks of life, be it scientific, technical, economic, financial or social activities. The ever increasing demand for information from an increasing clientele, coupled with the exponential growth in information is placing enormous pressure on the financial resources of these centres. On the one hand funds available for information activities are not rising in proportion to the increasing requirements. On the other hand costs of providing library and information services over the last two decades has increased rapidly. Thus it has become necessary for the LICs to manage their resources carefully by allocating them amongst the various services efficiently so that they can provide a wide spectrum of services to the users. This requires careful planning of its financial resources and budget preparation.

The scientific management of resources and budget preparation is only possible when detailed cost analysis is done. The proper mix of services within the limits of available finances is possible only when detailed cost analysis of its various operations is done.

Cost analysis is recognised as the management tool to know what each service or product costs, to identify variations in cost levels, to understand the cost structure of a programme or service and to decide priorities in services. The LICs which are increasingly feeling the need for the scientific management of resources have recognised the value of cost analysis and have introduced into the management of LICs.

11.2 COSTING

Broadly speaking cost is equivalent to sacrifices of various types. Some of these are not reflected in the cash flows of the organisation. These are the non financial costs. Here we are dealing only with financial costs. Every produce or service has a cost, whether it is paid by the beneficiary or some other like the state. We shall discuss various types of costs in Section 11.5.

11.2.1 What is Costing ?

Costing or cost accounting is the simple process of breaking down resources to the activity being carried on and then collating the monetary cost to show the cost of the activity. In other words it is a procedure for recording operations, times, and costs for various parts of an organisation together with a procedure for processing, reporting on, and acting upon the resulting data. In other words the system that aims at measuring and monitoring progress towards the achievement of the objectives of the organisation is costing.

The above definition tells us that costing involves collection of costs for every job, process, service or unit. It is necessary to distinguish between two types of costing.

i) *Process Costing:* Here the cost data is related to a specific process. Let us take an example from our field. In the acquisition of a book a series of processes are involved, viz, ordering, receiving, cataloguing and shelving. For calculating the costs of individual processes it is sufficient to have a costing system about each one of the processes. Book selection, ordering receiving, funds allocation, production of catalogues and indexes, circulation control and ready reference fall under 'process costing'.

ii) *Job Costing:* Here the cost data is related to a specific item being processed. In the above example if we wish to relate costs to different types, forms or kinds of material, regarding costs related to the specific item being processed to be obtained. The following come under this category:

1) *Ordering* - Costing of unique orders, standing orders, approval orders.

2) *Cataloguing* - of monographs, serials, microfilm, magnetic tapes, etc.

3) *Bibliographic Work* - catalogue reference, special information services, etc.

11.2.2 Need for Costing

The costing techniques are used mainly:

i) to find out whether the resources have been used for the purpose for which they are intended

ii) to know whether resources are being used effectively

iii) to estimate the cost of a particular activity, process or product.

In order to achieve the first objective it is necessary to control the costs of output, i.e. keeping the costs at the planned level. To improve the effectiveness of services it may be necessary to reduce costs by exploring alternative ways of doing the same job.

Need for Costing in the Management of LICs

Traditionally library and information centres (LICs) have been providing their services free of charge. The LICs have been receiving grants from the government to meet the cost of operations of their services and the situation is getting changed in recent times. Further, in the last quarter of this century has witnessed the emergence of information as industry. They are interested in getting their investment and also sometimes make profits. Hence they have to set a price for the services they offer. In these situations costing of services is necessary. Let us examine this in detail.

i) For Charging the Services:

We are aware that LICs are functioning both for profit and not for profit. In the not for profit organisations also it is increasingly felt to recover the cost of providing certain services either fully or partially. These services include photo copying, online searches, inter library loans. Some LICs are asked to charge back to other user departments of the organisation the cost of services offered to them. Therefore, it is necessary to know the cost of providing services so that cost could be recovered either partially or fully.

On the other hand the emerging entrepreneurs in the information field offer information services and products at a price which earns them a profit. Here the price includes the cost of providing service plus the profit element. In order to arrive at a decision regarding the feasible size of operations, i.e. for the calculation of break-even point, so that he will not incur losses. The information broker or the entrepreneur should know the cost of operations of various services.

ii) Management Decision Making:

The management would like to find out the'right' cost for

a) Internal comparison within an organisation

b) External comparison between organisations

c) Commercial Services ?

The preparation of budget for LICs requires detailed data on cost of providing each product and service. This gives an estimate of the resources required to maintain the existing level of services, expanding the services or curtailing some services. Detailed cost analysis helps the management in deciding the priorities of providing certain services which needs to be included in the budget. Fixing short term and long term priorities in providing various services in the context of resource crunch could be decided by the management, if the detailed cost data on individual activities is available. For example whether to introduce current awareness service now or later.

The comparison of achieving a particular goal through various ways is only possible when detailed cost data is available. This helps in achieving cost-effectiveness. Using manual methods or computers for information retrieval is one such area where costs play an important role, especially in a small LIC.

The monitoring of costs of providing various services overtime helps in finding out the cause for the change in costs. For example: Are the increasing costs are due to increasing personnel costs. One can review the utilisation of staff time. Too many highly paid personnel may be engaged in the routine functions or an employee may be performing a job in too detailed manner than required or the person doing the job does not have the necessary skills. By identifying the cause it can be rectified and thus achieve cost reduction.

The data on cost analysis when tied to performance, measures the employees and rewards them accordingly. Cost analysis gives the comparative cost of performing a job internally and getting it done outside. For example the cost analysis of photo copying activity shows the per copy cost. If this is more than the cost of getting it done outside, the management may decide in favour of the latter unless some other non-monetary reasons are there.

Thus costing is an important tool for improving the effective management of resources in LICs.

iii) Funding Support:

Public libraries and information centres depend on government and or quasi-government for funding of their operations. Even in the case of special LICs funds have to come from the parent organisation since most of these LICs are only service oriented and may not generate funds within the LICs. In order to convince the funding agencies regarding the continuance or otherwise of various services in the LICs, it is necessary to provide them the information about what it costs to provide each service. To vis-a-vis the benefits accrue to the community. When detailed data on costs of various programmes are available to the managers of LICs it becomes easier for them to plead their case with the funding agencies for increasing the budget allocations for providing the existing services as well as for introducing new services.

11.3 TYPES OF COSTS

The costs could be classified in a number of ways depending on the nature of the elements in relation to the function.

11.3.1 Direct *Vs* Indirect Costs

The direct costs are the costs that can be specifically identified with a project or activity. On the other hand indirect costs are the costs that cannot be readily assignable to a specific project or activity. All the three elements of costs could be either direct or indirect costs depending upon the fact that whether the cost of using a particular element in the output is readily identifiable or not. Sizer expressed the distinction between direct and indirect costs by a beautiful expression; 'one allocates direct expenditure which can be directly associated with a cost centre or cost unit, but one apportions indirect expenditure'.

For example direct costs of cataloguing include the cost of cataloguing cabinet, catalogue cards, salary of the cataloguers and the typist and the cost of the space. The indirect costs include the administrative expenses.

The main characteristics of indirect costs:

i) They are not directly related to the quantity of output

ii) Not controlled easily

iii) Generally not managed by the same activity centre

iv) Products/Services are not directly sold.

At times it is difficult to separate direct and indirect cost components since the specific cost may be having both the elements. The method of separating these elements is discussed elsewhere in this unit.

The total cost of any activity thus consists of both direct and indirect costs.

11.3.2 Fixed *Vs* Variable Costs

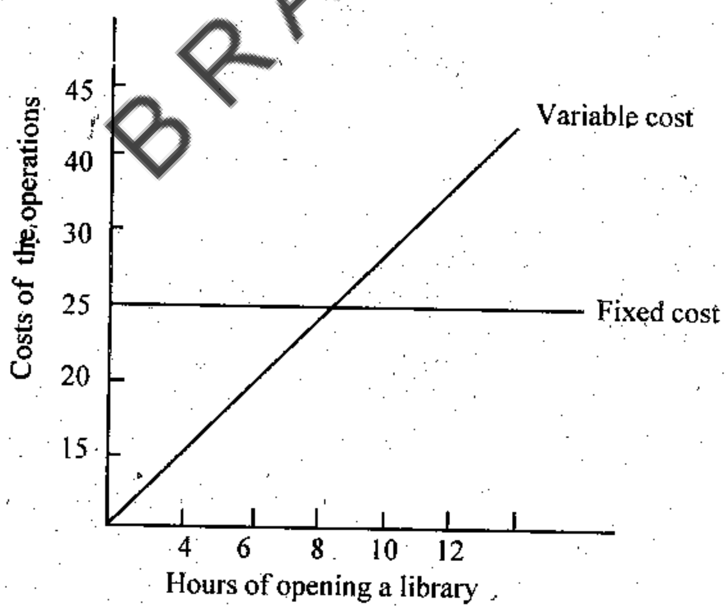
Costs can be again classified as fixed, variable or semi-fixed.

Over a given period fixed costs remain static irrespective of the level of operations. For example, the salary of the head of the library/Information Centre or the rent of the building in which it is located. These are fixed in the sense that even if the operations of LIC are suspended for few months, these costs shall continue to be incurred.

There are certain costs which change with the variation on the level of activity. The costs that vary according to the level of activity are called variable costs. For example when the number of books acquired by the library increases, there will be increase in the cost of engaging personnel, stationery, equipment.

There are certain costs which contain a fixed component in it and at the same time a variable component which increases along with the increase in the activity. We come across this type of costs frequently in the library and information centres. A computer operator has to be paid his salary for working during the regular timing irrespective of the fact whether he works for one hour or the full day on the computer. If he has to work beyond the fixed timings he has to be paid overtime allowance.

It is necessary for the management to carefully analyse the activities of cost centres with a semi-variable cost structure. By deleting a service in some cases the fixed cost component may not disappear. On the other hand by increasing the service level with an increase in the variable cost component it becomes possible to reduce the average cost of the service as fixed costs are amortised over a large number of units. This serves as a useful argument for securing budget increases for specific programmes. The behaviour of these costs is shown in the graph.



11.3.3 Joint Costs

There are certain costs which cannot clearly be allocated between different cost centres or programmes. The cost of acquiring, organising and maintaining a collection may be a joint cost when it is catering to the needs of public as well as to the requirements of reference staff.

By stopping core service the cost of building up the collection will not be reduced. Allocation of these costs between the two functions creates problems at times. So one should carefully assess the proportion of cost that should go into each activity.

11.3.4 Overhead Costs

The overhead costs are those costs that are not directly related to the unit of output but at the same time there are essential for doing the job. For example the salary (cost) of the head of LIC cannot be easily accounted to acquisition, processing or references carried out by the staff. So administration, book keeping, rent, building maintenance are essential for the maintenance of LICs but the cost of these services cannot be specifically assigned to a particular activity. Overhead costs are indirect costs. Marketing and distribution costs, research and development costs are treated as overheads. They are the aggregate of indirect labour, material and expense costs. The method of allocation of these costs to specific activity is discussed later.

11.3.5 Marginal Costs

Marginal cost is the incremental cost of another unit of output. For example answer to a single query is supplied to ten persons at a time. If the same is to be provided to the tenth person addition cost incurred will be only the cost of stationery, duplicating, postage and the labour involved in recording the query and sending it.

11.3.6 Capital Costs and Operating Expense Costs

The costs could be divided into capital costs and expense costs.

i) Capital Costs:

Capital costs are the cost of acquisition of fixed assets. In the LICs cost of acquisition of equipment like storage racks, catalogue cabinets, photo copiers, microfilming equipment, computers as well as buildings constitute capital costs. These costs have to be amortised over the useful life of the capital equipment. If the capital costs are not amortised they distort the picture at a point of time.

For example, storage racks are purchased for the storage of books and if this cost is added to the cost of stocking the books at that time, the cost of stocking the books at that period will be higher whereas in the future it becomes nil. If the cost of a photocopier is added to the cost of copying documents in that particular year the cost per copy during this period would be exorbitantly high. This misleads the management in planning the budget as well as well in deciding on the cost-effectiveness of continuing a particular service. Hence the capital costs are amortised over the useful life of the capital equipment. The process of amortisation or depreciation is discussed in detail in the next Section.

ii) Operating Costs:

These are the costs incurred for the provision of services which include expenses other investment in capital assets. The personnel costs, cost of stationery, rent, electricity and other utilities, fall under this category. In fact these costs vary according to the size of operations. These are the continuous costs and funds have to be provided continuously to continue the operations.

In determining the capital costs for LICs a ticklish problem arises. Should the investment on books be treated as current operating expenses or capital cost? In general books in most of the LICs are treated as operating expenses since there is a continuing budget for the acquisition of books. However in the libraries investment on books is quite huge. If this investment is treated as an operating cost, then the value of the assets of LICs will be drastically be reduced.

The books have a useful life like any other capital equipment and book collection, especially in special libraries and information centres, where they constitute an invaluable asset. Hence in some LICs the investment on books is treated as capital costs and then costs are amortised over a period.

11.4 COSTING TECHNIQUES

For a technique to be practicable it must be simple to operate economical to run and able to produce reliable results that can be repeated at different times and different places. The techniques of costing used in LICs can be broadly grouped into two categories.

i) Macro Costing:

In macro costing first the present costs are determined. From these costs trends are estimated and inferences are drawn regarding the future pattern of costs. This technique is attempted in LICs on a limited scale for budget preparation.

ii) Micro Costing:

The micro costing technique focuses on' unit costs'. This techniques is used to determine the cost of providing a specific service or a single unit of that service. This technique helps in measuring the effectiveness of a specific management decision and bringing about changes in the system.

Micro costing technique provides an approach in determining how library resources are used. It is a tool that the library managers can use to know how the resources are spent and how to enhance the utility of its services in the face of increasing costs and shrinking budgets. The information so derived can be used to make decisions or to formulate the policy. The effect of change in the system could be measured by comparing the two periods, namely before and after the change. For example the effect of imposing a fine on late return of books in the library.

11.4.1 Types of Costing Exercises

i) Routine Costing:

For this exercise costing information is available from the cost accounting system that provides regular data to management.

ii) Special Exercise Costing:

These exercises deal with particular activities or groups of activities and generally are concerned with the costs of current operations and with estimated costs of alternative methods. Here labour costs account for a major share in total costs.

11.4.2 Methods of Costing of Services of LICs

Broadly speaking there are two methods of costing of services of LICs, viz, inductive and deductive methods.

i) Inductive Method:

Here details of costs of each and every operation in LICs are recorded and from this, the cost of providing each unit service is calculated. This involves the collection of detailed cost data on regular basis.

ii) Deductive Method:

Collection and analysis of detailed cost data requires large resources and skills. Here the financial details for technical process from the total budget are taken and from it unit processing costs are derived by dividing it with the volume of transactions. However though this method could give the approximate cost of the services, but it cannot tell why it is so. The inefficiency in the operation of a service cannot be detected by using this method. For example two LICs with the same amount of budget allocation may be differing in providing the services. The reasons for this could be detected only when detailed cost analysis is done.

11.4.3 Steps in Cost Analysis

Let us outline the steps that one has to take in cost analysis.

Step-1:

The first step is to define the unit of measurement, i.e., the unit of product or service for which the cost is to be determined. This could be the cost of circulating a document, providing answers to a reference question, processing a document.

The comparison of costs of different activities in various LICs is possible only when their operations are cast in a uniform manner. Even for arriving at the costs of different services within the organisation standardisation of procedures is essential. Otherwise different persons at the same time or same person over a period of time may include an element of cost in one category or other thus disturbing standardisation. The areas where standardisation is necessary:

i) The list of expense and revenue heads under which data must be recorded.

ii) Agreed methods of apportionment of costs where exact analysis is not possible economically. Eg. Accommodation costs.

iii) List of library operations for comparison of similar activities

iv) Units of measurement of output or services.

Step-2:

The next step is the specification of cost centres for each function in the library or information centre. These cost centres could be programme centres providing direct services to users or the support services, which enable the direct programme services to happen.

The following cost centres could be considered as illustrative cost centres in LICs:

1) Circulation
2) Reference
3) Bibliographic Services
4) Photo copying Services
5) Microfilming Services
6) Book Section
7) Serial Section
8) Manuscripts Section
9) Interlibrary loans Current Awareness Services
10) Research and development
11) Technical processing-viz acquisition, cataloguing, indexing, etc.
12) Acquisition
13) Administration
14) Computer Division

The first ten centres are direct programme centres whereas the last five fall into the category of support services.

Step-3:

After identifying the cost centres cost data for each cost centre by its activities have to be collected and allocated to the appropriate activities. Data collection could be

i) On a continuous, systematic basis collecting the entire data

ii) On Sampling basis.

The recording of cost data continuously is time consuming, besides the exercise itself contributes to the increase in costs.

Hence some advocate sampling technique. However, sampling technique in LICs is considered to be less accurate, especially due to the frequent fluctuations in the level of its operations and output. For example, during a particular period demand on reference section may be unusually high due to the conducting of some training programmes, special projects or consultancy assignments, etc. Pressure on acquisitions also may be high at times due to the need to exhaust the utilisation of allotted funds before the close of the financial year.

Continuous collection of data on the other hand, presents a complete picture of the costs of the LICs. This will help in measuring the effects of procedural changes upon the productivity and effectiveness of the operations of LIC over a period of time. The recording of labour costs pose some problems. Here activity sampling is not suitable due to the nature of activities which are a mixture of clerical, administrative and technical processes. It is difficult to decide which activity is being performed by them during a specific time. The other traditional work study methods, such as 'stop watch' technique or direct observation methods also cannot be applied to many of the operations of library and information centres. Labour costs include leave salary and other benefits which have an effect on the total costs.

Collection of data on labour costs and its measurement will be effective, if data is collected continuously by asking them to record the operations daily in the diary. It is easier to gather data systematically when it is a part of the normal work routine. If the data collection becomes routine and analysed periodically, the employees start showing interest. They will be able to know how they spent their time and what they performed. If they are assured that the cost data will not be used against them for measuring their performance and if all are recording the cost data, their resistance to cost data collection disappears. For systems investigation within a library and for comparison of costs between libraries it is necessary to have a description of procedures used in each task. It is essential to include change over costs. In the change over from manual to computer operated systems in large centres the cost of conversion of large data files into machine readable form constitutes a major cost factor.

Step-4:

The next step is the allocation of indirect or service centre costs to the programme or mission centre costs. The allocation of overhead costs is rather difficult. For allocating indirect operating expenses and support centres to the direct programmes, the 'step down' method is commonly used. Here the costs of service centres are 'trickled down' sequentially to the other service centres and finally to the programme centres.

First the indirect operating expenses are to be identified. For each element of this overhead expense it is necessary to decide the basis of allocation. For example, building depreciation allowance is to be allocated on the basis of the percentage of square feet used for a particular activity. Next the expenses of service centres have to be allocated to the appropriate programme or activity centres. Here service centre costs are allotted to programme centres whereas the reverse is not done. For this reason this method is called 'step down'.

SOURCES OF COST DATA:

In addition to keeping track of staff time the cost accounting system should have access to actual accounting data. This could be the list of expenditure by operating unit for each cost centre and activity. Salary data is also required.

Depreciation data is also essential to determine how much of a capital asset was used for carrying out the operations during that particular year. Thus the cost data on building, furniture, photocopies, computers and its peripherals, storage equipment, etc., along with the estimated length of the useful life of each item is necessary. For assigning fixed costs the cost of the equipment, interest on capital, cost of floor space occupied both by the machine and the person operating it, capacity utilisation, depreciation etc are required.

While allocating overhead costs it is essential to distribute depreciation allowance on capital assets to the cost of the programme centres. Thus the calculation of depreciation is necessary. Once the cost of the asset and its useful life is known it might be arrived at simply by dividing the cost by the number of years of its useful life.

For example, if the useful life a photo copier is 5 years its cost is divided by 5 and the depreciation for that years is arrived at. This is a simpler method of calculating depreciation though there are other methods of providing for depreciation allowance. But due to its simplicity this is commonly followed.

The estimation of useful life of an asset could be done either by the LIC or follow some established standards. In many cases the rate of depreciation allowed by the tax authorities for different types of assets is adopted. Depreciation is calculated for the fixed assets which are tangible. In some LICs depreciation allowance is calculated for book collection as well since they treat the collection as a capital asset.

Other overhead costs that have to be allocated are administration, marketing, research, etc. units. The allocation of change over costs to different cost centres is to be done on the basis of an agreed principle.

The final step in cost analysis is the determination of unit costs by dividing the total costs of the centre by its appropriate unit of measurement.

UNIT COSTS

The unit costs can be broadly divided into four categories:

1) Minimum Unit Costs: These are the costs based on the nominal hourly rate indicated for the salary of personnel assigned to the function. These are typical rates for actually handling a single unit and not peak rates of work.

2) Basic Unit Costs: These are the average cost per unit of work including nonproductive time,inefficiencies and variations in work load.

3) Standard Unit Costs: In addition to basic unit costs these costs include 'salary related benefits' like leave salary, provident Fund, etc.

4) Burdened Unit Costs: These represent the actual costs of providing the services of the library including overhead expenses.

Theoretically, it is possible to calculate unit costs for most of the activities of LICs. However practice varies from one organisation to the other so much that costs could not be accurate enough to be meaningful. For example, the cost of indexing. The amount of staff time involved depends upon factors like depth of indexing, whether the exercise is entirely intellectual or partly intellectual and partly mechanised.

One way of obtaining unit costs is from programmed budget. The total cost of the activity is divided by the number of items in the activity gives average unit cost. But this is not as simple as it looks.

11.5 COSTING OF SERVICES IN LICs

In this section let us analyse the costs of some representative activities of library and Information Centres. The items included are only indicative but not comprehensive. You can work out the details basing on the following broad indications.

11.5.1 Acquisitions

Here both direct and indirect costs are mentioned.

MATERIAL COSTS:

Cost of new additions to LICs during the year:

i) Cost of stationery

ii) Cost of Equipment for storing material

LABOUR COSTS:

The costs of the personnel for spending their time on

i) Ordering books, serials, monographs, microfilms, etc. (These may be priced,by exchange or as gifts)

ii) Recording requisitions from the users and following it up

iii) Scrutinising the order position,sending reminders

iv) Receiving the items ordered, on exchange, gifted or by way of legal deposits.

v) Cancellation of orders

vi) Storing of the received items

vii) Maintenance of records

viii) Time spent for executing payments.

EXPENSES:

Costs of utilities, rent for the space occupied by the collection, depreciation on capital assets, administrative costs,cost of transportation of the material as well as the personnel,postage,telephone calls.

11.5.2 Reference Function

MATERIAL COSTS	:	Stationery
LABOUR	:	Cost of the personnel time spent in recording the query,searching,sending the replies.
EXPENSES	:	Cost of utilities,rent,depreciation of computers, photocopies, typing machines, postage, telephone,telex.

The time spent on unsuccessful searches as well as the expenses incurred in the process of search and sending also should be included in the total costs of the reference section.

11.5.3 Library Circulation System

MATERIAL COSTS :

i) Cost of circulating desk and other related tools like stamping machine,boxes,etc.

ii) Stationery for issue cards,issue labels etc.

iii) Postage

iv) Desk & other furniture.

LABOUR COSTS :

i) Salary including overtime allowances of the personnel working at the circulation desk

ii) Shelving time

iii) Time for sending notices to overdue, reservations.

EXPENSES :

i) Computer time

ii) Depreciation of computer,Desk,furniture and other equipment used in circulation.

iii) Space for circulation counter and for the staff.

11.5.4 Preparation of Bibliographies

MATERIAL COSTS : Stationery,furniture recording requests.

LABOUR : Time spent on recording requests : searching preparing, typing, duplicating, communication like postage telephone, telex, etc.,

EXPENSES : Computer time in the computerised system, space for the staff working in the section. Depreciation of furniture and other equipment used.

11.5.5 Cataloguing

LABOUR : Time spent on preparing catalogue cards, typing or computer print out time.

MATERIAL : Cards,computers in the case of computerised system furniture for the staff, catalogue cards etc. (Charges expenditure for downloading the cataloguing information from a database)

EXPENSES : Space costs both for the equipment and persons, depreciation on capital equipment, administrative expenses.

In a similar way costing can be done for various cost centres and their individual activities in LICs. These include indexing, photocopying, interlibrary loans, etc. In calculating personnel costs for each centre it is essential to know whether persons are exclusively working for a centre or a particular activity. If they are exclusively working it is easier to calculate personnel costs since total salary and associated perks like leave, insurance, etc directly find a place in the total cost structure. On the other hand they may be sharing the performance of various activities in different centres. Here it is not sufficient to include the hourly wage rates in the cost structure. Leisure time of the personnel has also to be accounted in the total cost structure.

It is essential to include the share of depreciation on equipment,furniture,building in almost all the activities wherever they are used. Gift items will not have capital cost. But processing,cataloguing,indexing and storing these gifted document involves costs. This aspect has to be taken into account while calculating the costs of maintaining them.

11.6 ROLE OF COSTING IN EVALUATING AN INFORMATION SYSTEM

The purpose of cost analysis as already mentioned is to control the costs at planned level and to improve the effectiveness of services by reducing cost by selecting the alternative ways of doing the same job. But these objectives have to be achieved in relation to the customer satisfaction. If the quality of service deteriorates due to cost reduction or cost control the very purpose of introducing a particular activity gets defeated. Hence the costs of various services have to be weighed against the benefits to the users. Then only the costs could be justified. However, it is not an easy exercise. Cost-benefit analysis and cost effective analysis are the two methods generally used to measure the benefits.

11.6.1 Cost-Benefit Analysis (CBA)

It is defined as a systematic comparison between the cost of carrying out a service or activity and the value of that service or activity quantified as for as possible,all costs and benefits (direct and indirect,financial and social)being taken into account. The benefits include short and long term, beneficial and adverse, tangible and intangible to all persons and groups likely to be affected by an activity. However, the value of this appraisal depends on how completely all these effects can be identified and the extent they can be evaluated in comparable terms. Due to the problems involved in listing out all these benefits it is presumed that CBA has some utility as supporting evidence for certain kinds of decisions. Any attempt to develop a comprehensive framework for decision making,the costs of cost- benefit analysis becomes prohibitively expensive.

CBA studies are detailed and complex,relying on detailed and reasonably accurate costing. They are also based on broad assumptions whether benefits assessed are properly related to the needs of the clientele. The availability of services and the users' expectations of success have significant impact on demand. CBA is also based on subjective evaluation criteria which are difficult to assess. The data collected may not be truly representative.

CBA is a specific application of economic analysis to non-market activity. It is an analytical examination of costs and benefits of alternatives designed to meet specific objectives under various circumstances. CBA recognises the existence of multiple objectives and suggests that the trade offs, the extent to which meeting of one objective leads to failure in meeting the other objective,must be specified clearly.

11.6.2 Cost-Effective Analysis (CEA)

This analysis is a practical variant of CBA. CEA is a method of finding either the cheapest means of accomplishing a defined objective or the maximum value from a given expenditure.

Lancaster resorted to cost-effectiveness as one of the criteria for the evaluation of information dissemination and retrieval systems. CEA can be calculated only when objectives as well as the criteria that can assess to what extent these objectives have been achieved are clearly defined. The user criteria include coverage,usability,recall,precision,response time,presentation and user effort. The management criteria include the criteria of systems operators, of the immediate administrators of the system and the criteria of top management. In cost-effective analysis it is necessary to know the variable costs besides direct and indirect costs. For example with the increase in the number of reference questions to be assured,unit cost of the retrospective search comes down.

For the relationship between cost and benefit shows whether the existence of system is justified or not. As already mentioned it is difficult to quantify benefits. Lancaster identified four broad benefits:

i) Cost savings is using the system as compared with the costs of finding the required information elsewhere

ii) Avoidance of loss of productivity

iii) Reduction in the level of personnel required to make decisions

iv) Stimulation of invention.

At any time it is difficult to distinguish the relationship between cost and effectiveness and the relationship between cost and benefits. For example, by reducing the average number of index terms assigned, average indexing time per item and thereby average input cost is reduced. This influences the effectiveness of the system. On the other hand it may increase the average precision of the system which itself is a benefit. Thus costs, performance and benefits in relation to time are balanced.

In the context of dwindling resources it has become necessary for the library and information centres to use of cost-benefit and cost -effective analysis. This aids them in justifying their claim for better resource allocation.

11.7 LET US SUM UP

For the preparation of budget and planning various services the knowledge of the costs of each of the services provided by the library and information centres is essential irrespective of the fact that whether information centres are working for profit or not-for-profit. The cost analysis is also necessary for pricing the products and services with an element of cost or only at the cost recovery stage.

The cost analysis helps the management in comparing the costs of providing various services within an organisation or with external organisations. If a service costs less by getting it done from outside than providing the in-house service the management may prefer to have it done from outside. Cost-analysis helps in monitoring the costs of services overtime and in finding out the reason for the same. With the detailed cost analysis the LICs can put up their claim emphatically for funding support. Costs of an activity or service include both direct and indirect costs. The allocation of overhead costs to individual activities presents some problems. Nevertheless in order to arrive at the accurate picture of total cost as well as the unit cost the assignment of overheads to each service is essential.

The costing could be a routine costing exercise or a special exercise in costing. It is necessary to identify cost centres in LICs and then calculate the costs of individual activities to arrive at unit costs. The collection of cost data on a continuous basis is thus essential. There are limitations in the collection of cost data. In order to achieve computability and comparability it is essential to define the measure of activity. Cost analysis helps in evaluating the cost effectiveness of the information system and helps in relating benefits of the system with the cost of its operation.

In a nutshell, cost analysis is an internal tool for monitoring costs and productivity, in detecting extreme variations and a planning tool for budget preparation.

11.8 REFERENCES

COSTING and the Economics of library and Information Services / ed by Stephen A Roberts. London: Aslib, 1984.

FLOWERDEW, A D J and Whitehead, C M E. *Cost-effectiveness and cost-benefit analysis in Information Science*. London: London School of Economics, 1974.

The MARKETING of Library and Information Services 2 / ed by Cronin Blaise. London: Aslib, 1992.

WILSON. R M S. *Cost control Handbook.* 2nd ed. Aldershot, Hants, England: Gower Pubi, 1975.

11.9 ASSIGNMENT

Calculate the total costs incurred on the following activities of your library:

i) Inter-library Loans
ii) Current Awareness Service, and
iii) Selective Dissemination of Information

11.10 RECOMMENDED BOOKS

Costing and the Economics of library and Information Services / Ed by Stephen A Roberts. London: Aslib, 1984.

FLOWERDEW, A D J and Whitehead. C M E. *Cost-effectiveness and cost-benefit analysis in Information Science*. London: London School of Economics, 1974.

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WILSON, R M S. *Cost control Handbook*. 2nd ed. Aldershot, Hants, England: Gower Publ, 1975.

11.11 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Why is costing required in the management of libraries and information centres.

2) What are the elements of costs? Distinguish between direct and indirect costs?

3) Outline the steps in cost analysis.

4) How overhead costs are calculated? How are they assigned to individual activities?

5) What are capital costs of LIC and how are they amortised?

6) How costing is used in the evaluation of information systems?

II. SHORT NOTES

a) Cost Analysis

b) Cost-Benefit Analysis

c) Marginal Costs

UNIT - 12 : MARKETING OF INFORMATION SERVICES

Structure

12.0 AIMS AND OBJECTIVES

This unit introduces you to the concept of marketing and discusses the relevance of marketing approach to the field library and information services and the various steps involved in marketing information products and services.

After the study of this unit you will be able to

- define the term 'marketing'
- explain the need for marketing approach in the dissemination of information products and services
- explain the importance of marketing research and analysis in marketing of information products
- design a marketing programme for library and information products and services
- work out pricing of information products and services.

12.1 INTRODUCTION

In recent years marketing of information products and services has become a popular topic. Though not explicitly stated the practice of marketing is not new for special librarians and information specialists. The marketing of library and information services has its beginning in the last quarter of 19th century with the introduction of reference services by Samuel Green. Dr. Ranganathan also recognized the importance of marketing in library profession. Let us recapituale his five laws of library service.

1) Books are for use
2) Every Reader his/her books
3) Every book its reader
4) Save the time of reader and staff of the library
5) A library is a growing organization.

These laws encompass the marketing strategy for libraries laying stress on the need for matching the user requirements with the libraries resources.

Traditionally librarians and documentalists based then activities on the belief that their clients know not only what the libraries have, but also know how to use information effectively. But the rapid developments in science and technology are inter disciplinary requiring information cutting across many disciplines, put pressure on information centres. The managers of information services in library and information centres are expected to be proactive to information needs and demands of the users rather than reactive. To play this proactive role effectively and efficiently it has become necessary to provide new products and services to its customers. The latest technological developments in the field of computers and telecommunications have greatly influenced the accessibility of information across the globe. Availability of on-line services like DIALOG, EURONET, INTERNET, INDONET, ERNET etc have widened the choice of information seekers thereby laying emphasis on cooperation rather than acting in isolation.

On the other hand costs of information collection and dissemination are increasing whereas on the other financial support has not kept pace with the increasing costs. With the search for finding cost effective and income yielding avenues the need for marketing approach felt in this profession as well.

12.2 MARKETING CONCEPT

Many people equate marketing with selling while some others consider it as advertisement or promotion. In reality marketing is not simply selling or promotion, but includes a number of activities. The concept of marketing has been defined by a number of people in as many ways. Let us have a look at some of these definitions so that you may know how different thinkers perceived marketing activity.

12.2.1 Definitions

According to Philip Kotler 'Marketing is the analysis, planning, implementation and control of carefully formulated programmes designed to bring about voluntary exchange of values with target markets for the purpose of achieving organizational objectives. Marketing involves the organization in studying the target markets' needs and desires, designing appropriate products and services and on using effective pricing, communications and distribution to inform motivate and service the markets." According to him "Marketing takes the focus off the products and puts it on the users needs. Products are developed from the users point of view, not the producers".

Zachert and Williams (1986) held the view that "Marketing is planning that focuses on products, place or mode of delivery, adjustment of cost / price to the market and promotion to specially targeted segments of the special librarians market".

For Goldlas (1979) "Marketing is the process of creating value through the creation of time, place and form utilities"

According to Ohio University (1965) "Marketing is a social activity providing complete satisfaction of human business and public wants, and to the sometime provision for the highest attainable degrees of utilization of our technological and human resources"

According to the Chartered Institute of Marketing "Marketing is the management process, responsible for identifying, anticipating and satisfying customer requirement profitably."

In the context of marketing of information services to US Department of Commerce "Marketing is a planned approach to identifying, attracting, servicing and gaining support of specific user groups in a manner that furthers the goal of information services and the organization"

Marketing, in its general definition, is the directing of the flow of goods and services from producers to consumers or users. It is not confined to any particular type of economy, since goods must be marketed in all economies and societies except perhaps the most primitive. Marketing is not a function of a profit oriented business, even such service institutions as hospitals schools and museums engage in some form of marketing.

12.2.2 Characteristics

All the above definitions show four distinct, but inter-related aspects of marketing. Broadly these are :

i) *Marketing as an attitude of mind.'* Market Orientation' is a state of mind which penetrates the entire organization. The existence, survival and growth of an organization depends on its ability to give customers what they want. In the larger organizations the customer is most likely to be excluded from the decision making process hence there arises the need for developing appropriate systems and organizational structure to keep track of market needs.

ii) *Marketing is a way of organizing business* : The organization should build a structure that enables it to deliver goods to the satisfaction of the customer. Organizational structure and design are critical for successful marketing.

iii) *Marketing is a range of activities* : The marketing activities centre around market mix.

iv) *Marketing as the producer of profits* : According to Peter Drucker only marketing and innovation produced profits for an organization and all other areas are regarded as only costs. Profits are generated by markets i.e the willingness of customers to pay the right price for the right product / service.

Marketing is thus a dynamic on-going management process. It is about satisfying customers. It is necessary to strike a balance between customers needs for value and the organization's need for profit and efficiency. Marketing is the task of finding and stimulating buyers for the organizations output. The old concept of marketing i.e 'pushing products' has given way to customer satisfaction engineering. This lead to organizational marketing.

12.3 MARKETING OF INFORMATION SERVICES AND PRODUCTS

Traditionally to a large extent information has been provided to the users either freely or at a nominal cost because the funds for maintenance of LICs were provided by the government. There were different opinions about treating information as a resource or a commodity.

12.3.1 Information - Is it a Resource or a Commodity?

Information transfer and dissemination have been considered as essential inputs for research and developmental activities in the developed countries. Rapid industrialization of economies and global networks in economic and commercial activities have enhanced the importance of information as an essential input in production process.

However information differs from the other traditional resources in the following ways:

i) Information is intangible. It is not quantifiable and hence is not possible to apply most of the ideas from the economic field and is difficult to determine its value.

ii) Information is a non-exclusive public product which can be passed from supplier to recipient and still be retained by the supplier.

iii) Information does not deteriorate with usage, but with time it may become obsolete.

iv) Information is heterogeneous and includes facts, benefits, judgments, opinions, advice, misinformation, propaganda etc.

Information has value-in-use. It helps in production process without which the final commodity could not be produced. Eg. Without the information being provided by patents it is not possible to improve technical skills and produce a new economic product. Comparative information gives state-of-the-art which prevents duplication of research and the concomitant costs. However unlike in the case of other resources it is very difficult to measure the value of the information resource. The value of this resource at best may be expressed in terms of time saved or the other resources conserved.

Thus, information has become the fifth (resource) factor of production whereas land, labour, capital and entrepreneurship are the four traditional factors. Since information is vital to the economic, cultural and social development of human beings it has started receiving special attention as an essential resource. It is not only an important input in production process, but also an essential part of decision making, management and control.

John Diebold enumerates the following similarities between information as a resource and other resources:

1) Information has value

2) It has identifiable and measurable characteristics like utility, different forms and media by which it is generated, handled and processed and it has a cost of acquisition.

3) It passes through hands

4) Substitutes are available

5) It is an expenditure for which standard costs can be developed

6) Information functions can be integrated vertically by buying and processing raw data

7) A cost benefit approach can be worked out at each point in collection, handling, dissemination.

On the other hand information is used to create more information, thus giving it an industry status. It is difficult to define an information service or product. According to Porat 'the end product of all information service markets' is knowledge, 'putting knowledge into work' is possible only when there is accessibility to information. A commodity is a thing which is bought and sold directly or indirectly and the information fulfils these criteria.

The products and services generated with information content as the input are the information products and services. These products and services are varied in nature and each product and service has its own peculiarity. The different types of information products (commodities) are given in detail in section 12.7.4

Thus information is a resource for the industry and a commodity for the consumer. It is a tradeable commodity which helps in problem solving besides helping the management in planning and controlling business operations effectively.

12.3.2 Need for Marketing of Information Products and Services

In the introduction (Section 12.1) it was mentioned how the information managers are expected to be 'proactive' in meeting the growing demands of the users. In library and information field marketing is user oriented rather than product oriented. The need for information depends on the context in which information is sought. Many a times a routine response is enough to solve the routine problems arising in the organization. There are situations where information is sought for limited problem solving. On the other hand there are situations where information is required for extensive problem solving. Different strategies are required to meet the needs in each of these different situations. Broadly the following may be considered as the main reasons for adopting marketing strategy in library and information profession:

i) The market for information is expanding. The expansion is in terms of number of users as well as increasing demand for a variety of services, placing pressure on the existing resources of library and information centres.

ii) Potential market for the existing products and services has to be exploited so that its resources could be put to optimum use.

iii) There is a need to inform existing and potential users about the information available with the libraries / information centres. Unless awareness exists about the availability of various resources, especially the new additions, utilization becomes limited. For example business information is growing faster. Awareness about its availability in time is essential for reaching those who need this type of information.

iv) So far information was mostly supplied by public sector. But now competition from private sector has emerged with the entry of information brokers. Thus the element of competition has emerged in the profession. In order to face competition and survive in the marketing approach becomes essential.

v) The problems faced in designing information system is two fold. Selection of document and / or data at input stage and creation of information of file that suits the requirements of users pose problems. In order to solve these problems one has to understand not only the specific requirements of clientele but also the forms in which these specific requirements could be satisfied. The market approach helps in understanding these problems.

vi) Resource attraction: On one hand demand for the existing information services is increasing and on the other the need to introduce new services is also increasing. To meet the increasing demand, especially when the cost of information acquisition and processing is increasing more funds are required. On the other hand budgetary allocations in the budgets of the organizations as well as government is not rising proportionately. The requirement economy, efficiency and effectiveness in converting resources and offering the same in public institutions have important implications for marketing of library and information services.

12.4 MARKETING OF SERVICES

Marketing of services presents some specific problems. First, let us ask what is a service ? Rathmell defined a *good,* as a thing and service, as an act or a deed, performance or an effort. Unlike in the goods market, in the services market the customer has little evidence of what he can expect. Many a time a service producer has to produce his services under the watchful eye of the customers. Eg. In the information field the reference service or on line search. There may be differences of opinion between the customer and the supplier on what constitutes 'quality service'. The following characteristics differentiate a service from a product.

i) *Intangibility* : Often the service cannot be touched, seen, tasted, smelt or heard.

ii) *Inseparability* : The service is often inseparable from the sellers.

iii) *Heterogeneity* : Since the service is dependant on the providers of service, it is heterogeneous (variability in performance). It is extremely difficult to achieve standardization and quality control. This in turn poses problems in costing and pricing.

iv) *Perishability* : Services often cannot be stored or stocked eg. Radio news bulletins.

v) *Ownership* : Services often provide access but not ownership.

12.5 MARKETING STRATEGY

According to Philip Kotler marketing strategy is the marketing logic by which the business unit expects to achieve its marketing objectives. Marketing strategy consists of making decisions on the organization's marketing expenditure, marketing mix and marketing allocations in relation to expected environmental and competitive conditions. Marketing strategy is the process by which the organization translates its business objectives and business strategy into market activity. For formulating the marketing strategy it is essential to have a clear perception of the following:

1) When are we trying to reach (the type of customers)

2) What are their interests.

3) What products and services can we create to save their interests?

4) Under what conditions can we offer products and services?

5) How to communicate with the customers ?

12.5.1 Organizational Analysis

Philip Kotler proposed organizational analysis in preparation for the development of a marketing strategy. The organizational analysis comprises.

A) Market Analysis:

Since marketing is the task of finding and encouraging buyers to take up the firm's output it is necessary to analyze the market for the products and services. The market is analyzed based on the information gathered through market research.

Market analysis should be able to answer the following questions:

1) What important trends are affecting the market?
2) What is the primary market?
3) What are the major market segments for the particular product?
4) What are the needs of each segment?
5) How much awareness, knowledge, interest and desire is there in each market segment?
6) How does public see us as well as our competitors?
7) How do potential users learn about us?
8) How satisfied are our current clients?

B) Resource Analysis:

1) What are the resources available with us to meet the demand ?
2) What is the mix of services and products we offer ?
3) Can the existing information resources and the infra structure meet the requirements of the present and potential clients ?
4) What opportunities do we have to expand financial resources ?

The resource analysis should be able to answer the above questions and find out the strengths and weaknesses of the available resources.

C) Mission Analysis:

This is about the analysis of the objectives of the service. This analysis throws light on;

1) Business mission - what business are we in?
2) Who are the customers?
3) Needs targeting which needs are we trying to satisfy?
4) Marketing targeting - which segments do we want to focus on?
5) Who are the major competitors?
6) What competitive benefits do we offer to target market?

12.5.2 Who should use Marketing Strategy ?

According to the modern marketing concept all organizations must develop appropriate products to serve their customers and use modern communication tools to reach consumers. The need for organized marketing is felt even in non- business/not-for-profit organizations. Generally the success of an organization is measured either by profits in business or services satisfaction of customers and serving more customers. Non-Profit organisations give importance to

i) *Resource attraction:* Financial viability of these organizations depends on resource attraction rather than resource allocation.

ii) *Resource allocation between different goods and services:* This helps in correcting the imbalance between supply and demand to ensure financial viability of the organization since self-connecting mechanism is not found in the non-profit sector. This is somewhat analogous to product policy in business.

12.5.3 Aim of Adopting Marketing Strategy for L&I Products

Achieving maximum return for the effort employed is the aim of marketing strategy. The library and information profession is going in for the marketing strategy with the aim of achieving:

1) Promotion of information with wide appeal without reference to a particular group of users

2) Promotion of information with greater use by increasing awareness of its availability eg. Information on Travel and Tourism

3) Highlighting the service type of information introduced for the just time to make more people aware of it. Eg. Market research reports

4) Putting more effort for attracting more of the identifiable groups of customers and encouraging to use the library and information services. eg. small firms who need industrial and technical information.

Information is a cooperative product requiring meticulous attention to market strategy and market sensitivity. The necessity for using marketing techniques and tools to exploit the opportunities for expanding its service network is now recognized.

12.6 MARKET RESEARCH

Market research is the systematic analysis of consumer characteristics, behaviour, lifestyles, needs, wants, demands and preferences. The analysis provides reliable data on how its actual and potential users think and act. This in turn helps the organization.

i) To improve its customer orientation and targeting
ii) To reassess its product range and distribution channels
iii) To refine its pricing strategies

iv) To provide customized products
v) To identify new product development opportunities
vi) To attract its competitors market share

12.6.1 Techniques of Market Research

Traditionally quantitative techniques are used which include market surveys. Main approaches to data collection in library and information field are

a) Observation
b) Questionnaire
c) Interviewing
d) User statistics at the issuing counter

Which method or combination of methods is employed depends on the nature of problem, resources available and character of data/information sought. Quantitative data is collected is analysed and presented of late qualitative methods are combined with the quantitative approaches.

12.6.2 Application of Market Research Techniques to Information Services

The application of market research techniques to library and information science products and services is well established. These are generally referred as user studies. You are familiar with how and why user studies are conducted. So here we need not go into those details. A user study can be global concerned with all aspects of current provision and needs throughout the community, or it can focus on the needs of a specific sub-group, eg: business community, industries.

Market research is thus is a means of estimating demands, needs and levels of satisfaction among specific market segments. It furnishes data upon which a marketing plan can be built that could effectively meet the market requirements.

12.7 KEY ELEMENTS IN MARKETING STRATEGY AND THEIR APPLICATION TO LIS

Some of the key elements in marketing strategy can be identified as

1) Market Segmentation
2) Market Positioning
3) Consumer Analysis
4) Marketing Programme
5) Evaluation of planning and
6) Implementation of the marketing programme.

Now let us discuss each of these elements in details and their application for marketing of information products and services.

12.7.1 Marketing Segmentation

Marketing segmentation has specific significance for information professional. Market segmentation states that a market place consists of individuals, some of them having a need for the products / services of the organization in varying degrees. The process of determining the proportion of individuals already demanding services and the proportion that will never be interested is called 'market segmentation'. Thus market segmentation is nothing but identifying categories of customers who are meaningful in relation to the organization's structure, nature of work performed by each group and the priorities of the organization.

The purpose of market segmentation is

1) To identify and choose important customers

2) To identify opportunities for developing new products and services

3) To recognize the change in the market place

4) To focus services to a clearly defined market

5) To design and direct promotional activities for specific segments. For example, the all inclusive Current Awareness Service in a research organization may not be useful. On the other hand selective dissemination, user-oriented, dissemination may be highly beneficial.

6) To formulate policies regarding primary user groups and their requirements in relation to costs, pricing and revenue.

7) To make accurate comparisons with the competitors.

The major market for information products and services comes from organizations and the individuals who work for them. These are engaged in a variety of activities including collection and organisation of information, manufacturing or preparation of products, finance, services and distribution. There are many individuals who use libraries for personal rather than work related reasons. There are people desiring to have consumer information, small investors, those preparing for job interviews, those who need maps, timetables, etc. The other users are government departments, journalists, consultants, marketing managers, information advice agencies, students, teachers, professionals like doctors, trade unionists. It becomes impossible for individual libraries / information centres to cater to the information needs of all these types of customers. Hence categorization of different classes of customers is necessary that each individual library can plan to serve a particular category / categories of clients effectively.

For categorizing the users one has to obtain the information needs of the people. Our user studies provide us this information. The following types of segments in general are identified :

a) *Geographic Segmentation:* The most common basis for the segmentation of the customers is the geographic variable. When planning the market it is necessary to decide whether the aim is to serve particular town, city, district, state or region or the entire country. This is particularly applicable in the case of public libraries and information centres. This segmentation improves the scheduling of book mobile services. It also shows high usage rate for a particular service / product in a certain area as well as high concentration of abuse of service.

b) *Segmentation on the basis of Demographic Variables:* Market is segmented according to the variables like age, sex, income, occupation. The influence of these variables on information helps in identifying the users and non-users of certain information services and products.

c) *Volume:* This is based on finding out how much percentage share of population in each group account for how much share in the market for a particular service. This indicates the direction for budgeting future services, both for expansion or for curtailing a particular service.

The above three types of segmentation focus on the descriptive factors rather than causal factors. Thus the above approaches are not of much help in having an insight into the future behaviour of the market.

d) *Benefit Segmentation:* This approach to segmentation is based on the belief that people use a service or product because they wish to derive some form of benefit. Thus consumers are first analysed according to the benefits they are seeking. Having identified these 'benefit clusters' they are further classified on the basis of demographic characters such as age, attitudes, behaviour patterns, then opinion about library and information services and any other descriptive characteristics that could offer useful insights into better understanding of these groups. Thus a segment is defined by the principal benefit it is seeking. Most people seek multiple benefits. However it is the relative importance of a benefit to one group versus another group that isolates that segment. Benefit segmentation recognizes the limitations of an exclusively product-oriented approach to marketing. So it prefers to promote a product in terms of what it can do for, or ways in which it can benefit, the customers.

The academic libraries categorise clients according to academic factors like disciplines, teachers, students, etc. Special libraries use factors like internal structure of the orgaisation on which it is serving, the organizational positions of the users, mission of the information service, etc.

Benefits always should be defined from the users' point of view. 'Viewing with purpose' of the library users is the simple and inexpensive means for library and information services to generate useful data about their customers and their operations.

12.7.2 Market Positioning

After identifying the markets and their sizes the library and information manager proceeds to prioritize groups of clients and types of services he could offer, keeping in view the total information resources available to him within the organization. This process is known as market positioning. It results in policy decisions about the primary client groups, about the expenditure on library resources in relation to each group, who pays for service, what proportion of cost must come from what source, and policies about what services shall be left to the competition. After formulating policies on these, the information manager will be able to establish both short and long range goals.

12.7.3 Consumer Analysis

Consumer analysis is the detailed study of the characteristics and information seeking behaviour of the users. User surveys generally provide data on these aspects. As you are already familiar with mechanics of user studies, we shall not be going into the details of these techniques.

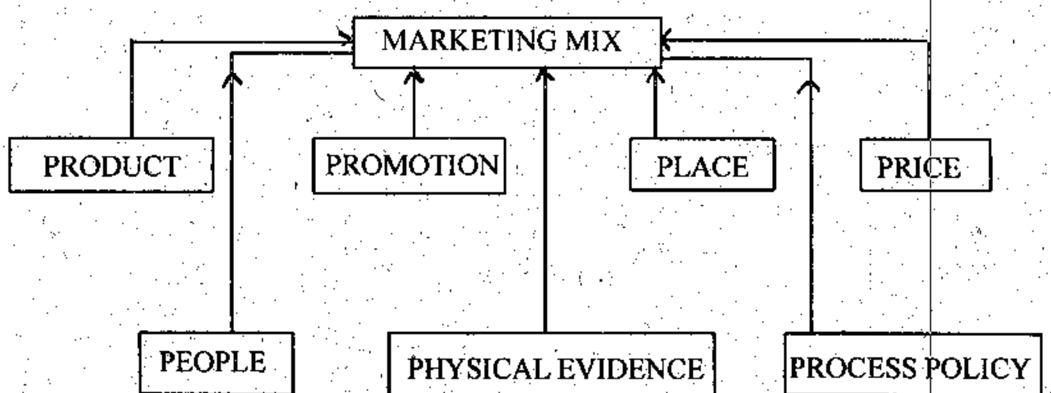
Consumer analysis helps in finding out the homogeneous subgroups, the significance of the needs of these subgroups in relation to the organizational objectives, their preferences for the delivery of information products and services. Consumer analysis surveys will provide information for choosing between optional designs of the same service, especially when the options represent different cost levels. Consumer analysis surveys also provide information about how to customize the delivery and promotion of the services.

Thus consumer analysis is the sine qua non of marketing. The data obtained through consumer analysis provides the basis for planning a marketing programme.

12.7.4 Marketing Programme

The purpose of marketing programme is to formulate a customised plan for the optimum mix of products / services, price and cost, place or mode of delivery, and promotion of products / services within the organisation as well as outside. Without this plan library and information managers cannot claim themselves to be engaged in marketing. The marketing programme traditionally is assumed to have 4 Ps, i.e. Product, Price, Place and Promotion. Of late 3 more Ps are added. These are People, Physical environment and Process Policy. Now let us discuss these Ps in detail.

MARKETING PROGRAMME



I. Product

Product is a package of benefits. The products could be physical products or services or ideas. Any product or service broadly can be said to have three components :

i) *Core Component :* This refers to the physical product and its functional features.

ii) *Packaging Components :* These features distinguish a product from others having the same core component. Trademark, brand names, design features, style etc come under this category. Customer contact, staff attitudes and staff appearances are additional elements. The latter play an important role in marketing information products / services.

iii) *Support Services Component :* In the marketing of goods, availability of suitable support services like repairs, maintenance, installation, delivery terms are important. Coming to the services access to service points and staff discretion are very important. In our own information profession support services like updating of the existing information, using computers for providing information etc form an important component.

Generally, the organisations give more importance to the item-(i), whereas from the customers point of view, (ii) and (iii) are more important.

Product range (or mix) helps the organisation to differentiate itself and its marketing effort from its prime competitors. According to Peter Drucker product portfolio should be an ideal mixture of 'today's bread winners' and 'tomorrow's bread winners'. If the portfolio is overloaded with 'yesterdays bread winners' its utility in future becomes doubtful.

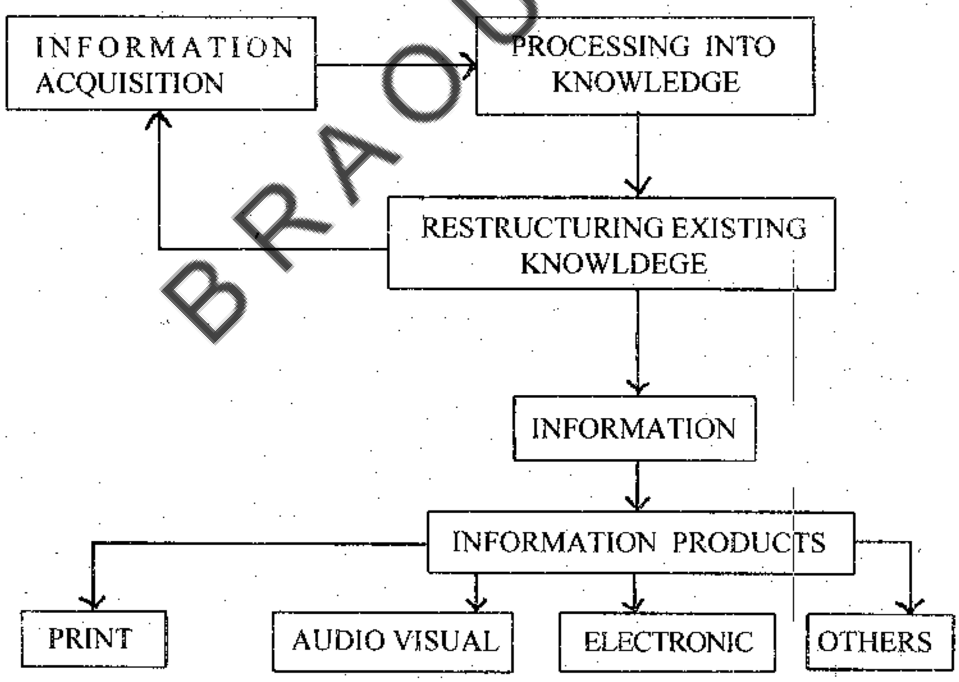
Information Products: A wide variety of information products services are offered by the information manager to his clients. Besides the traditional products and services, the technological advancements in computers and telecommunications has widened the range of products and services available to the information users. Let us make a brief mention of these products / services :

1) Reference Services
2) Current Awareness Services, including SDI
3) Translation services
4) Reprographic Services
5) Information Bulletins
6) Abstracts and Digests
7) Data Sheets
8) State of- the art reports and trend reports
9) Techno-economic survey reports
10) Analysis reports
11) Bibliographies
12) Online searches and data bases
13) Magnetic tapes and discs
14) Audio cassettes
15) Microforms - microfiche, microfilm and ultrafiche
16) Visual images - video cassettes, films etc.

Value-added information products: One could notice information explosion in almost all fields of activity making it difficult for individual to sift through this massive information. He needs precise information in a short period since he does not have neither time nor the skills to derive the answer to his problems from this extensive information / data. Presently the demand pattern is shifting from data to information. This trend is noticeable in almost all the organisations. In order to cope with this type of demand information, managers have resorted to the analysis of data and presenting it in the form of reports, tailored to the needs of the users. This effort is churning out various statistical tables and reports, graphs, clients, state of the art reports, feasibility reports, etc. After collecting the information the information centres / libraries process this into knowledge.

The processed information either becomes an information base for further processing or it could transform this into a variety of information products. Thus the value of raw information is enhanced by processing. The information manager is thus adding value to the existing information and generating value added products. This job is facilitated with the use o f computers. A number of private agencies are entering the market who add value to the information by undertaking processing the raw data.

Conversion of Information into Products



II. Promotion

The purpose of promotion is to communicate, to convince and to compete. In order to achieve this purpose naturally the library and information centres have to develop mechanism to inform their target groups about the resources available with them and the products and service they are offering.

In a small organisation personal contacts, popularly known as 'word of mouth', help in promoting its products and services. But in large organisations this is not possible since there is no personal contact between the user and the provider. In these organisations public relations and advertisement play an important role. Public relations is a pull strategy. It takes a long time to cultivate public opinion. Once it is achieved it helps the organisation in placing it in the market. These tools help in building the image of the information centre. In the age of speciality matching the environment of the library / information with that of the community is important. Especially in a geographically scattered and multinational organisation written and visual communication methods have to used to advertise its services and products.

Advertising is persuading people to act. Advertising the library and information services is necessary for the following reasons:

i) *To create demand for its products and services both for the existing and the new, and for retaining the existing demand:* In order to reap the benefits of economies of scale, especially when the cost of information collection and processing is increasing, it is necessary prevent underutilisation of its services. Here advertising plays an important role.

ii) *To extol the capabilities of the service :* When a new product / services is introduced the customers should be informed fully about the capabilities of these products and services.

iii) *To make new service or technique acceptable :* With the rapid technological developments, especially in the field of computers and telecommunications, it becomes essential to create awareness amongst the users about the potential benefits of using new products, (Eg. On line sources, CD-ROM) so that the customers could accept these products and services with little resistance.

iv) *To beat the competitors :* With the emergence of private information services and the entry of information brokers this has become essential.

v) *To gain user cooperation :* For the successful marketing of any product/service cooperation from the user is essential. Advertising helps in this respect.

It is the general tendency to stop advertising once the market is gained. But it is equally important to continue with advertisement in order to retain the market so gained.

Even in not-for-profit organisations advertisement of services is necessary to build up its own image. With the image building it could attract funding.

Tools for Advertising : A number of tools are available to carry out the advertising. There are :

i) Press Advertising
ii) News letters and House Journals of the Organisation
iii) Direct mailing to the potential users
iv) Brochures, Pamphlets, Posters, Handouts etc.
v) Radio and Television
vi) Audio visual shows
vii) Annual reports and souvenir
viii) Holding of exhibitions

III. Place

The third component in marketing mix is place or distribution. The information manager should know where, when and how the consumers would like to buy. The first group of channels is the enquiry desk on the service counter. Efficient functioning of this channel plays a key role in the distribution. There are a number of external marketing channels available. Saracevic and Wood (1981) have identified following major channels for dissemination :

a) Interpersonal delivery of products personally delivered either on request or in anticipation of a need. It is the most costly and time consuming method.

b) Group personal delivery - Products delivered to a whole group of users at meetings, conferences, seminars, demonstrations etc.

c) Strategic Placement - Products placed at strategic locations.

d) In house dissemination - reference, referral etc.

e) Local depositories - Products with cooperative arrangements with an information system

f) Mass media - dissemination through newspaper, professional journals, magazines, etc. products to be in narrative style.

g) Broadcasting - Radio and Television

h) Mailing of products through postal facilities

i) Telephone

j) Computer Networks

It is necessary to select the appropriate channel keeping in view the cost and efficiency and innovativeness. Each medium has its validity in a given context. Selection of the type of media plays an important part in distributing right information to the right user at the right time. A judicious mix of different channels should be used for distribution of information products to achieve maximum result.

Variety of Media : The information manager has to distribute the information product/ service to the users through some media. These are

1) *Print Media* - This is the conventional media which generates a variety of primary, secondary and tertiary documents. eg., serials, abstracting and indexing journals, bibliographies, etc.

2) *Sound and audio recordings* - Phono records, audio tapes and cassettes.

3) *Visual images* - a) Still - Consisting of slides, film strips, transparencies; and b) Moving - Film rolls and cartridges, transparencies.

4) *Visual images with Sound* - Tape slides, sound films.

5) *Programmed materials* - Magnetic tapes and discs.

6) *Microforms* - Microfiche, ultrafiche, microfilm.

7) *Computer networks* - With the marvelous developments in the field of computers and telecommunications access to data through computers have become possible from anywhere in the world.

8) *Wall charts, Maps, Photographs, Drawing.*

All channels do not have the same capacity to attract the users, or to promote the use of resources. Hence selection of media should be based on the type of service to be offered as well as the users preference for a particular form of media.

IV. Price

Pricing of information products and services is a very difficult task. Traditionally information services were provided to the users free of charge since these products and services were considered to be beneficial to the community at large rather than the individual user. In reality there is no free service since costs have to be borne by someone somewhere. The government provided funds for the public libraries and national research organisations whereas individual organisations allocated funds to the information centres in their respective organisational budgets.

The demand for information products and services is growing both for the existing as well as new products. The rapidly rising costs of information acquisition and processing coupled with the resource crunch faced by the government as well as individual organisations are forcing them to reconsider the policy of free supply. The present political philosophy all over the world is reduction of subsidies and increasing emphasis on privatisation. This naturally would result in the reversal of the policy of providing public services freely.

On the other hand the 'information brokers' or the information industry in the private sector has emerged. Naturally they can provide the products and services only at a profit.

Due to the increasing cost information centres concentrated more on storing information and were less interested in service oriented distribution of information. The users could hope to get more efficient and business like information service / product when these are priced. The customer can exercise his choice in the selection of product/service depending on the price and relevance of the same. There are arguments that pricing of information products may diminish the demand for them, thereby resulting in its underutilisation. However this could not happen since information is considered as an economic resource. As long as it contributes to the production and development process, the demand for it may not fall just because one has to pay a price for it.

i) Criteria for Pricing

It is difficult to have a uniform policy on pricing of different products. It may be cost-based, demand-based and competition-based pricing. When it is cost based, should it recover the cost fully or partially? Again should it cover fixed, variable, or marginal cost? When the purpose is to break even the service, recovery of average cost is enough. When the customers have a range of services to choose from, pricing has to be value-based rather than cost-based. Where full market conditions prevail with a high degree of competitive diversity, pricing has to be based on costs.

Should the price include cost-plus the profit element? If so how to determine the profit element? These issues need to be probed for pricing the information products. Pricing of electronic information services is somewhat difficult. The pricing is mainly based on the expenditure involved in collecting and organising the information. Distribution expenses, number of clients/custers and profit. If more number of customers are there, the price is likely to be less.

ii) Differential Pricing

This envisages different price structures for different types of clientele. In the case of internal client price may be lower than the one charged for the external clients. So also different prices may be charged depending upon the type of customers. The researchers, students may be charged at a concessional rate whereas commercial users may be asked to pay more. This price discrimination could be successfully adopted only when product market is segmentable and the segments show different price elasticities of demand. Also it is necessary to fix the price structure which will not give an opportunity for the low price purchasers to resell the product.

The government sponsored LICs may consider to provide the information products and services at reduced or free of cost to some segments of society as it may provide long term social benefit.

Thus, it is difficult to arrive at a uniform pricing policy. Pricing policies can be developed only from the knowledge of an organisations costs, the market in which it operates.

V. People

Thus customers and the service personnel are the people engaged in the exchange of information products / services. Appearance, attitudes and skills of the people play an important role in marketing. The service personnel should be friendly and they should have clear perception about the information requirements of the consumers and they should be able to obtain feedback from them. They should be able to assess the information requirements in different situations. The service personnel also should possess sufficient knowledge in modern methods of information handling, especially computers and telecommunication equipment. Knowledge on networking and using on-line services has become almost essential in the present situation.

The skills and attitude of service personnel builds up the image of the information centre which in turn has a direct effect on marketing of information products and services.

VI. Physical Environment

Appearance of the building and furniture of the library / information centre, layout of the service setting, appearance of personnel, method of display etc influence the marketing of its services.

VII. Process Policy

Operations management ideas are now an essential input in the service organisations in the control of costs, system improvement and levels of customer service. The process of information products / services delivery functions, quality control standards, marketing plans and marketing control systems have become important. The process policy also includes mechanisation, customer involvement and employees discretion.

12.7.5 Evaluation

The next logical step after the implementation of the marketing plan is its evaluation. Marketing is a process for determining what information services are needed by the users and customising these services in such a way as to get the organisations work done effectively in the market place. Evaluation refers specifically to the goals of customised marketing programme. The objective of evaluation is to arrive at a customised plan for the optimum mix of products and services, costs and prices, place or mode of delivery and promotion of information products and services and how this is achieved during a specific promotion or over a given period of time.

It is difficult to adopt standard performance measures for marketing of library and information services. One can only identify the organisations goals of sales volume, profit level, return on investment, level of market share, company's image, social goals etc and the contribution of library and information services in meeting these gals. The increase in the number of users of library or the increase in demand for the new product / services may be an indication of the success of marketing efforts.

Evaluation of the appropriateness of promotional measures and distribution channels is also necessary in order to find out their efficacy. Cost benefit analysis is useful in finding out the effectiveness of the marketing programme. Measuring benefits is not an easy job since it is not possible to quantify the benefits in most of the cases.

The most common technique used for evaluation of the marketing programme for library and information services is getting the feedback from the users. The standard questionnaire method could be adopted for getting the feedback.

12.8 LET US SUM UP

Marketing is a dynamic, ongoing management process. It is directing the flow of goods and services from producers to consumers in all types of economies. Since goods must be marketed in all economies marketing is not a function only of a profit oriented business. Even not-for-profit organizations adopt marketing approach since it is a way of organizing their activities. Marketing is a range of activities and it has something to offer to the customers. Since information is considered as both a resource and commodity naturally there is a demand for it. Hence library and information services need to develop a marketing approach to disseminate its products and services.

The marketing strategy is the process by which the organization translates its business objectives and business strategy into market activity. Market research and analysis helps in identifying the users and their needs. The aim of marketing strategy for library and information services is promotion of information. The key elements in marketing strategy for library and information services are market segmentation, market positioning, consumer analysis, marketing programme. The marketing programme aims at formulating a customised plan for the optimum mix of products/services made of their delivery, promotion of the information products and services and pricing of the services. Finally evaluation of the marketing programmes sometime after its implementation becomes necessary. Though it is difficult to adopt a standard performance measures for marketing programme for library and information services, the increase in the number of users and introduction of new products may help in preparation of such standards. The cost benefit analysis also to some extent helps in evaluating the marketing programme.

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12.10 ASSIGNMENT

Prepare a marketing programme for the services and products of your library / information centre.

12.11 RECOMMENDED BOOKS

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12.12 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Is there a need for marketing information services and products? If so, give the reasons for it.

2) What are the specific problems in the marketing of services?

3) What is market research? How are the market research techniques applied to marketing of library and information services?

4) What is market segmentation? What is the purpose of market segmentation?

5) What are the criteria adopted for the identification of market segments? Explain in detail.

6) What is the purpose of marketing programme? Explain briefly the components of marketing programme.

II. SHORT NOTES

a) Information as a Resource
b) Resource Analysis
c) Market Segmentation
d) Value-added Information Products
e) Differential Pricing

BLOCK - IV : HUMAN RESOURCES MANAGEMENT

Human resource is the most vital component of any organisation. Human Resource Management (HRM) means the task of handling human problems of the organisation. It is primarily concerned with the relationship of management to the employees. Human resource planning, Communication and Management of Change form the essential components of this block.

Unit-13 deals with Human Resource Management. HRM is primarily concerned with manpower problems in organisation. It promotes individual development, desirable working relationships between employers and employees and also among employees. Management and behavioural scientists have made extensive studies on HRM. As libraries and information centres are becoming complex and the authorities of these organisations have also started showing interest in these aspects.

Unit-14 examines various aspects of Human Resource Planning from the perspectives of LICs. Human resource planning is concerned with the strategies for acquisition, utilisation, improvement and retention of an organisation's human resources. Job analysis, job description, recruitment policies and methods, performance appraisal, etc form the major components of HRP.

Unit-15 discusses the role of Communication in human resource management. As managers of the organisations librarians/ information scientists are concerned with effective communication with their patrons as well as with the staff. The unit deals with nature and mode of communication, barriers to communication and principles of effective communication.

Unit-16 deals with Management of Change. Social, economic and technological changes have been playing a constant impact on the management of libraries and information centres. With these changes the environment of library and information centres is becoming complex. The complex environment forces the LICs to plan for the change and prepare for adaptation to change.

UNIT - 13 : HUMAN RESOURCE MANAGEMENT (H R M)

Structure

13.0 AIMS AND OBJECTIVES

This unit deals with Human Resource Management. It is an important aspect in the management of libraries and information centres as

After stiidying this unit, you should be able to

- define what is Human Resource Management (HRM) ?
- explain the objectives and functions of HRM
- discuss about Motivation, Unionism, work schedules and work schedules their application in the management of libraries and information centres.

13.1 INTRODUCTION

H R M means the task of handling the human resources of any organisation. The human resources are the key and the most valuable resources. They use their skills, knowledge, experience to enable to successfully achieve the objectives. They also make optimum and economic use of all other resources. Human resources contribute in growth and development of the organisation with the help of their work talent, creativity and drive. The organisations have to create a conducive environment and provide facilities, so that their contribution is more effective.

Looking at the importance of the HR, the organisations have a separate section with a manager exclusively looking after the human resources. Earlier it was known as presonnel department and the manager is known as personnel manager Now the term 'personnel' is replaced with 'Human Resource'. The personnel division concentrates on those aspects of operation which are primarily concerned with the relationship of management to the employees, employees to employees and the development of the individual and group. Stated somewhat differently the objective of H R M, Personnel Administration or Industrial Relations in an organisation is to attain maximum individual development, desirable working relationships between employers and employees and employees to employees and effective moulding of human resources as contrasted with physical resources.

H R M is concerned with managing people at work. Such people or personnel do not simply refer to "rank and file employees" or "unionized labour" but also includes "higher personnel" and "non-unionised labour". In other words, it covers all levels of personnel, including blue-collared employees (craftsmen, foremen, operators and labourers), and white-collared employees (professional, technical and kindered workers, managers, officials and proprietors, clerical workers and sales workers). The shape and form that personnel administrative activity takes, however, may differ greatly from company to company; and, to be effective, it must be tailored to fit the individual needs of each organisation.

It is concerned with employees, both as individuals as well as a group, the aim being to get better results with their collaboration and active involvement in the organisation's activities i.e. it is a function or process or activity aiding and directing workmen and women in maximising their personal contribution.

13.2 H R M - DEFINITION, OBJECTIVES AND FUNCTIONS

13.2.1 Definitions

i) Old Definition (1945)

H R M is that part of the management function which is primarily concerned with the human relationships within an organisation. Its objective is the maintenance of those relationships on a basis which, by consideration of the well-being of the individual, enables all those engaged in that undertaking to make their maximum personal contribution to the effective working of the undertaking.

ii) New Definitions (1966)

H R M is that part of the management function which is concerned with people at work and with their relationships within an enterprise. Its aim is to bring together and develop into an effective organisation the men and women who make up an enterprise and having regard to the well-being of an individual and of working groups, to enable them to make their best contribution to its success.

The following are some of the important definitions of Personnel Management (HRM):

1) Personnel Management is that phase of management which deals with the effective control and use of manpower as distinguished from other sources of power. The methods, tools and techniques designed and utilised to secure the enthusiastic participation of labour represent the subject-matter for study in personnel management - Dale Yoder.

2) Personnel Management may be defined as that field of management which has to do with planning, organising and controlling the functions of procuring, developing, maintaining and utilising a labour force, such that the (a) objectives for which the company is established are attained economically and effectively; (b) objectives of all levels of personnel are served to the highest possible degree; and (c) objectives of society are duly considered and served.

- Michael J. Jucius.

3) The Personnel function is concerned with the procurement development, compensation, integration and maintenance of the personnel of that organisation's major goals or objectives. Therefore, personnel management is the planning, organisation, directing and controlling of the performance of those operation functions.

- Edwin B. Flippo.

4) Personnel Administration is concerned basically with manpower of people, organisational resource of output.

- Andrew F. Sikula.

13.2.2 Objectives of H R M

According to Michael J.Jucius, HRM should aim at:

- attaining economically and effectively the organisational goals;
- serving to the highest possible degree the individual goals, and
- preserving and advancing the general welfare of the community.

H R M is concerned with the development and application of policies governing.

i) Manpower planning, Recruitment, Selection, Placement and Termination.

ii) Education and training, career development.

iii) Terms of employment, methods and standards of remu-neration.

iv) Maintaining Inter-personal relationship among emplo-yees and employers.

The objectives of H R M are discussed in detail in following paras :

- to achieve an effective utilisation of human resource in the achievement of organisational goals

- to establish and maintain an adequate organisational structure and a desirable working relationship among all the members of an organisation by dividing organisation tasks into functions. Positions, jobs, and by defining clearly the responsibility, accountability, authority for each job and its relation with other jobs/personnel in the organisation.

- to secure the integration of the individuals and group with organisation, in such a manner that the employees feel a sense of involvement, commitment and loyalty towards it. In the absence of such an integration, friction may develop which may lead to its total failure. Friction produces in efficiency. Friction may result from political aspirations, from difficulties in communication, and from faults inherent in a particular organisational structure. The behaviour of individuals and groups in any organisation also, results in friction - personal jealousies and rivalries, prejudices and idiosyncrasies, personality conflicts cliques and factions, favouritism and nepotism result in friction.

- to generate maximum individual / group development within an organisation by offering opportunities for advancement to employees through training and job education, or by effecting transfers or by offering retraining facilities.

- to recognise and satisfy individual needs and group goals by offering an adequate and equitable remuneration, economic and social security in the form of monetary compensation, and protection against such hazards of life as illness, old age, disability, death, unemployment, etc., so that the employees may work willingly and co-operate to achieve an organisation's goals.

- to maintain a high morale and better human relations inside an organisation by sustaining and improving the conditions which have been established so that employees may stick to their jobs for a longer period.

13.2.3 Functions of H R M

1) According to Dele Yoder the following are the important HRM functions:

   a) Setting general and specific management policy for relationships and establishing and maintaining a suit able organisation for leadership and cooperation.

   b) Collective bargaining, contract negotiations, contract administration and grievances.

   c) Staffing the organisation: finding, getting and holding prescribed types and number of workers.

   d) Aiding the self-development of employees at all levels, providing opportunities for personnel development and growth as well as for requisite skills and experience.

   e) Incentives for developing and maintaining motivation for work.

   f) Reviewing and auditing manpower management in an organi-sation.

g) Industrial relations research. Carrying out studies designed to explain employment behaviour and thereby effecting improvements in manpower management.

2) A. F. Kindall stated the following functions of H R M :

a) To aid in the development of general overall management policies and methods, in the organisation and planning of supervisory control, and in the communication of orders, ideas and inquiries.

b) To develop throughout the organisation an understanding of, and enthusiasm for, consultative methods of manage-ment with the objectives of:

i) Improving leadership and supervision: and

ii) Obtaining the participation of operating groups and opportunity for creative analysis and initiative in carrying out their assigned tasks at all levels in the development and administration of the company's personnel programme.

c) To aid the executive and supervisory organisation in developing:

i) clearly written outlines of functions, authorities, and responsibilities and

ii) simple, workable methods of measurement of their accomplishments.

d) To formulate, in collaboration with the supervisory and executive organisation, policies for personnel admini-stration and to implement those policies approved by the management in accordance with the best plans and practices of personnel administration.

e) To make certain, in collaboration with the supervisory and executive personnel that the company's approved policies and practices or personnel administration are executed properly.

f) To establish and maintain contracts with labour move ment, to keep itself informed and, wherever possible, to participate in all the departments of the company on the development of sound labour relations.

g) To aid in the interpretation of the management's poli-cies to employees and employee's point of view and atti-tudes to the management and, in collaboration with the appropriate line personnel, to merchandize the company and the jobs to employees.

The functions of HRM are mainly to manage the staff and motivate them to support in achieving the objectives efficiently and effectively. It is also essential to prepare a HR policy and look for the relationship, safety, proper remuneration to the staff. It may be that the management has twin functions : a) achieving the organisational objectives and b) welfare of staff. The second one is an important HRM function.

13.3 SUPERVISION

13.3.1 Need and Purpose

Supervision plays a dominant role in the directing function of the executive. The executive's caliber of supervision certificates his fitness and capability to undertake and handle all executive functions.

' Supervision ', means a place over and above normal sight or vision. Supervision, therefore, implies overseeing.

Supervision may be defined, " as the activity of managing at the organisation level where management members and non-manage ment members of an organisation are in direct contract.

The purpose of supervision is not simply fault-finding and punishing defaulters as some people misunderstand it. Supervision aims at improvement of staff efforts individually and collectively. It is designed to remove impediments in the progress of the organisation.

Good and efficient supervision presupposes well-defined objectives and accepted standards for assessing achievements.

Intelligent supervision will enable the executive to look ahead for pitfalls or shortcomings that may thwart the progress of the enterprise, so that timely remedial action may be taken.

13.3.2 Principles of Supervision

i) Right Intensity

Lesser the weight of supervision over a group of workers, higher the output. This has been proved in certain experiments. Supervision to be really purposeful should not be too close not very remote. It should be as general as possible.

ii) Personnel Interest

The class of supervisors who have at their heart the welfare of their work groups and who are genuinely interested in the men as individuals and are ever willing to listen and be of real help to them in the solution of their personal problems, show better achievements than those supervisors who remain all the time pre-occupied with their own affairs and busy attending to routine.

iii) Consultations

An intelligent supervisor, instead of forcing his decisions on his assistants, will make them acceptable through the participative and consultative processes.

iv) Loyalty

A good supervisor will always take care of the legitimate interests of the workers and will never let them down if things happen to go wrong.

v) Informal Assessment

Informal appraisal of the performances of subordinates and bringing home to them their shortcomings with a view to effecting improvement constitute one of the important functions of a supervisory job.

vi) Broader Interests

In modern management practices the supervisor are expected to take a keen interest in management functions like planning, organisation, directing and controlling too. They must be proficient in doing certain specialised skilled jobs, must be adept in training subordinates to excel in their work performances and in course of time to undertake more responsible functions.

vii) Work Climate

The supervisor can give his best only if there is a congenial work climate which ultimately is the creation of the higher management.

13.4 MOTIVATION

Motivation deals with the factors that cause, channel and snstain an individual behaviour. These factors may fluctuate and influence on their actions and goals. It concerns those dynamic processes which produce a goal-oriented behaviour. Since increase in productivity is the ultimate goal of every organisation motivation of employees at all levels is the most critical and most baffling function of management. Almost every human problem the manager faces throughout the firm has motivational elements. Almost every aspect of the personnel function is pervasively endowed with motivational attributes. Accordingly one of the main things the personnel manager can do is to incorporate the principles and concepts of motivation into his own philosophy of management. By understanding and applying them himself, he can influence others in attaining a better degree of positive motivation.

13.4.1 Nature of Motivation

It is now recognised that motivation is the result of interplay among three groups of factors:

Any organisation will succeed with the commitment and effort from its people. Therefore, every manager has to induce behaviour or change the behaviour of employees, so that they show their willingness to make effort to achieve the goals. It has to be understood that all individuals will not have the same motives for doing the work. Motives are based on their needs and these needs may be internal or external. Their is no simple model of motivation that can be applied to every worker to every situation.

Motivation takes place to stisfy the needs. According to Maslow, a) the human needs are unending, and b) sky is high but the human desire is higher. On the basis of these two factors he had suggested Maslow's hierarchy of needs (discussed in detail in section 2.3.4.). These needs are categorised into five types. First, there are basic needs and the last two are higher livel. Every person looks for fulfilling the needs at the lowest leel and then moves to the next level. Unless the lower level needs are fulfilled, the higher level needs may not induce motivation.

Maslow also stated the following about the needs:

a) Man is wanting being and needs are unending. Strong need satisfied will be replaced by another.

b) Satisfied need is not a motivation of behaviour. Unsatisfied need only promotes behaviour and

c) Man's needs are arranged in a series of levels.

Therefore, the human being will have the needs. The management has to create a possibility to fulfil their needs and motivate the employees to achieve high productivity. Satisfaction of needs are associated with the following: a) economic factors, b) personal feelings of success and satisfaction and c) participative management.

Incentives were introduced by Taylor and his concept of scientific management to motivate the employees. The wages acceptable to both employees and management was suggested. Subsequently, Mayo suggested that boredom and repetitiveness of work reduced the motivation and therefore suggested to acknowledge social need, i.e., making employees to feel that they are useful and important. Social contacts help to sustain motivation. Abraham Maslow's hierarchy of needs ---- contemplated that fulfilment of the desires motivate the people. For fulfilment, they need money, desire for satisfaction and making the employees feel useful and important also motivate them.

The theories which are related to motivation include McGregor's Theory-X and Theory-Y, Herzberg's Two factor theory, Argyris' Immaturity and maturity theory (first two discussed in unit-2), Clayton Alderfer's ERC theory, Expectancy theory of V.H. Vroom etc.

Taylor's scientific management assumed that financial incentives motivate the workers. Mayo's ideas emphasized on social needs as factors of motivation.

According to McGregor's Theory X, the work is distasteful, therefore the work is secondary and avoid whenever possible. If this theory is believed, the employees must be motivated by force, money or praise. Assumptions of Theory-Y is that people are inherently motivated to work and do good job. If this theory workers to do good job.

Herzberg's two factor theory stated that satisfaction and dissatisfaction arises from two different sets of factors. They are lower level (dissatisfiers or hygiene factors) such as working conditions, interpersonal relations, salaries, wages, etc. Absence of these create dissatisfaction and results in no motivation. The higher level needs (satisfiers or motivation factors; such as achievement, responsibility, advancement related to job and rewards create satisfaction and motivate).

The manager needs to continuously assess the needs of his staff and motivate them by helping them to satisfy the needs. Richard M Steers and Lyman W Peter had suggested the guidelines for effective motivation. They are

1) Managers must actively and intentionally motivate their subordinates

2) Managers should understand their own strengths and limitations before attempting to modify those of others

3) Managers must recognize that employees have different motives and abilities

4) Records should be related to performance, not to seniority or other non-merit based considerations

5) Jobs should be designed to offer challenge and variety. subordinates should clearly understand what is expected of them

6) Management should foster an organisations culture oriented to performance

7) Management should stay close to employees and suggest remedy to the problems as they arise and

8) The active cooperation of employees should be sought in improving the organisations output, employees are after all, also stake holders in the organisation.

   1) Infulences operating within the individual.
   2) Influences operating within the organisation and
   3) Influences operating in the external environment.

a) The Individual: To understand what motivates employees, we must know something of their aims, needs and values. Human needs are both numerous and complex. Some of these needs are hard to describe and identify because people hide their real needs beneath an overlay of socially acceptable behaviour.

b) Organisational Components: Like leadership, motivation is also highly situational in character. A football player may play poorly for one team but much better for another.

c) Exogenous Variables: A worker's life is not divided into two watertight compartments, one inside the factory and the other outside of it. The two are closely bound together so that the troubles and joys of off-the-job life cannot be put a side when reporting for work in the morning, nor can factory matters be dropped when returning home after work.

Culture, customs and norms, images and attributes conferred by society on particular jobs, professions and occupations, and the worker's home life-all play a strong motivational role.

13.4.2 Characteristics of Motivation

From the above discussion of the factors determining motivation, we can now deduce the following characteristics of motivation.

1) **Individuals differ in their motivation:**

This is well illustrated by an off-quoted story. There were three men cutting a stone near a cathedral about three-fourths completed. A stranger came along and said to the first man, *"My friend, what are you doing?" "Me, What am I doing? I am working for 10 shillings a day"*. He went to the next man and put him the same question. The second man said, *"Me, what am I doing? I am squaring this stone, see. I have to make its edge absolutely straight"*. The stranger walked on to the third man and repeated the same question. This third man and repeated the same question. The third man replied, *"Me, What am I doing? You see that cathedral up there. I am helping build that. Is not it great?"* In this story the major source of satisfaction to the first man was the wages he earned. The job itself contributed very little. But job itself was the outstanding source of satisfaction to the second man. The third man viewed the completion of his group goal - the building of the cathedral- as his primary source of satisfaction.

2) **Sometimes the individual himself is unaware of his motivation:**

An example can be drawn from the famous Hawthorne experiments. One girl-worker complained to her counselor about her foreman. Later on it was found that the reason why she disliked her foreman was that she had a step-father whom she feared and whose physical appearance was very much like her foreman with the result that she had unconsciously transferred to her foreman the unfavorable characteristics of her step-father.

3) **Motivation chance**:

Motivations of each individual change from time to time even though he may continue to behave in the same way. For example, a temporary worker may produce more in the beginning to become permanent. When made permanent he may continue to produce more-this time to gain promotion, and so on.

4) **Motivations are varied:**

The view points that there is only one 'economic drive' which determines behaviour is untenable. The goals to which an individual aspires are many and so are his motivations.

5) **Motivation is complex**:

It is difficult to explain and predict the behaviour of workers. The introduction of apparently several other second-level outcomes such as salary increase, social approval, self-esteem, etc. plays a role.

13.5 UNIONISM

Unions means uniting and being united. It is an association of employees or employers or of independent workers. Unions associated with trade or business is called trade unions. Whereas Unions relating to organisations or institutions ar called associations.

The purpose of a union is to make collective bargaining to negotiate wages, working condition, homes, etc. It is a device which enables a group, a class in industry or trade to bargain with any other class or group on equal footing. Such a union is:

i) economically oriented
ii) an instrument of defence against exploitation
iii) an outcome of industrialization and implies class-destruction.

Library professionals do have their associations at regional level an national level and also at international level.

13.6 JOB SATISFACTION

Job satisfaction has been defined by Vroom as the positive orientation of an individual towards the work role which he is presently occupying.

1) There is the psychological-needs school exemplified by psychologists, such as Maslow, Herzberg and Likert. They see motivation as the central factor in job satisfaction and concentrate their attention on stimuli which are believed to lead to motivation. The needs of individuals for achievement, recognition, responsibility, status and advancement are the stimuli.

2) School devotes its attention to leadership as a factor in job satisfaction. Psychologists like Blake, Mouton and Fiedler see the behaviours of supervisors as an important influence on employees attitude and direct their observations at leadership style and the response of subordinates.

3) This school represented at the Manchester Business School by Lupton, Gowler and Legge approach job satisfaction from quite a different angle and examine the effort-reward bargain as an important variable. This leads to a consideration of how the wages of particular groups are constructed and the influence of factors such as overtime payment and the employee's attitude towards them.

4) A fourth school of thought approaches job satisfaction from entirely different angle and sees management ideology and values as important influence.

5) There are behavioural scientists who say that job satisfaction depends on the content of work and on the job design factors.

6) Sixthly, some writers including the Herzberg school, seem to suggest that it is only necessary to identify the needs of an employee. The organisation for which he works must then ensure that these needs are met if it wishes to secure the advantages of a labour force performing at a high level of job satisfaction. As such job satisfaction is positively related to the degree to which one's personal needs are fulfilled in the job situatio

13.7 LET US SUM UP

Human Resource Management (HRM) is that part ... primarily concerned with the human relation... maintain of the relationship to achie... It enables personnel to ... organisations ...

UNIT - 14 : HUMAN RESOURCE PLANNING

Structure

According to W S Wickstrom, HRP consists of a series of activities, viz.,

a) Forecasting future manpower requirements, either in terms of mathematical projections of trends in the economic environment an development in industry or in terms of judgmental estimates based upon the specific future plans of a company;

b) Making an inventory of present manpower resources and assessing the extent to which these resources are employed optimally;

c) Anticipating manpower problems by projecting present resources into the future and comparing them with the forecast of requirements to determine their adequacy, both quantitatively and qualitatively; and

d) Planning the necessary programmes of recruitment, selection, training, development, utilisation, transfer, promotion, motivation and compensation to ensure that future manpower requirements are properly met.

e) According to E B Geisler, Human ... planning - including forecasting, developing and controlling - is the ... which a firm ensures that it has the right number of people and the right people at the right places at the right time, doing work for which they are economically most useful."

From the above definitions, it is ... projects future manpower requirements and developing manpower plans. Further ... Right Person to the Right Job at the *Right Time*.

14.2.2 Purpose of HRP

... listed ... important purpose ... the use of *infrastructural facilities and* ... comparing these two reso...

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13.7 LET US SUM UP

Human Resource Management (HRM) is that part of the management function which is primarily concerned with the human relationship within and organisation. It objective to maintain of the relationship to achieve produativity and also look after welfare of the people. It enables personnel to make their maximum contribution to the effective working of organisations.

Human Resource Management aims to achieve both efficiency and justice, neither of which can be pursued successfully without the other. It seeks to bring together and develop into an effective organisation the men and women who make up an enterprise enabling each to make his own best contribution to its success both as an individual and as a member of a working group. It seeks to provide fair terms and conditions of employment and satisfying work for those employed.

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13.9 GLOSSARY

Accomplishment	:	done successfully, achievement
Attribute	:	a characteristic or quality of a person or thing.
Autocratic	:	Any one having unlimited power over others
Bureaucracy	:	governmental officialism or inflexible routings Red Tape
Collaboration	:	to work together
Coustituents	:	Component; a necessary part
Exogenous	:	originating externally, relating to external factors
Friction	:	disagreement
Grievance	:	complaint or resentment
Idiosyncrasy	:	any personal peculiarity, mannerism
Impoverish	:	to make poor; to deprive of strength
Moulding	:	shaping
Nepotism	:	favoritism shown to relatives
Pitfall	:	error that one may fall in
Procurement	:	to obtain; to secure
Recruitment	:	engage the services of
Stimulate	:	increased action; to excite to action
Termination	:	finish; the end of something.

13.10 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) Describe briefly the major Leadership styles.
2) Define Motivation and discuss its characteristics.
3) Explain the aims and objectives of HRM.
4) Define HRM and discuss its functions.

II. SHORT NOTES

a) Unionism

b) Nature of Motivation

UNIT - 14 : HUMAN RESOURCE PLANNING

Structure

14.0 AIMS AND OBJECTIVES

In this unit we introduce you briefly to various aspects of Human Resource Planning.

After studying this unit, you should be able to

- define what is human resource planning

- describe the objectives behind human resource planning.

- explain the policy; pre-requisites and sources of recruit ment plan
- discuss about selection, placement, training and perform ance appraisal.

14.1 INTRODUCTION

Manpower planning and human resource planning are synonymous. In the past, the phrase 'manpower planning' was widely used, but now the emphasis is on human resource planning, which is more broadbased. Human resource or manpower planning is the process by which management determines how an organisation should move from its current manpower position to its desired manpower position. Through planning, the management strives to have the right number and the right kinds of people at the right places, at the right time. Planning supports achievement of goals of both the organisation and the individual, - economically as well as optimum utilisation of human resources.

Human resource planning is a double-edged weapon. If used properly, it leads to the maximum utilisation of human resources, excessive labour turnover and high absenteeism; improves productivity and aids in achieving the objectives of an organisation. Faultily used, it leads to disruption in the flow of work lower production, less job satisfaction, high cost of production and constant headaches for the management personnel.

The need for manpower planning requires no emphasis as the efficiency and effectiveness of libraries and information centres would largely depend on the academic and professional competence of the staff and on the facilities and environment provided for their work and development. The two categories of personnel required in library and information centres are - the professional and support staff. The different levels the number of persons in each level, their qualifications, cost of employing them, etc will depend upon the type, quality and quantity of work to be done in each unit. In this context, the use of national standards compatible with international standards (if any) for estimating manpower is recommended.

14.2 HUMAN RESOURCE PLANNING

14.2.1 Definitions

Manpower planning or Human Resource Planning (HRP) at the organisational level has been defined as a "strategy for the acquisition, utilisation, improvement and retention of an enterprise's human resources."

Bruce P Colemn has defined HRP as "the process of determining manpower requirements and the means for meeting those requirements in order to carry out the integrated plan of the organisation".

G Stainer in his book *Manpower Planning* HRP as "Strategy for the acquisition, utilisation, improvement, and preservation of an enterprise's human resources. It relates to establishing job specifications or the quantitative requirements of jobs determining the number of personnel required and developing sources of manpower".

According to W S Wickstrom, HRP consists of a series of activities, viz.,

a) Forecasting future manpower requirements, either in terms of mathematical projections of trends in the economic environment and development in industry or in terms of judgmental estimates based upon the specific future plans of a company;

b) Making an inventory of present manpower resources and assessing the extent to which these resources are employed optimally;

c) Anticipating manpower problems by projecting present resources into the future and comparing them with the forecast of requirements to determine their adequacy, both quantitatively and qualitatively; and

d) Planning the necessary programmes of requirement, selection, training, development, utilisation, transfer, promotion, motivation and compensation to ensure that future manpower requirements are properly met.

e) According to E B Geisler, Human Resource Planning - including forecasting, developing and controlling - is the process by which a firm ensures that it has the right number of people and the right kind people at the right places at the right time, doing work for which they are economically most useful."

From the above definitions, it is clear that HRP projects future manpower requirements and developing manpower plans. Further, it is a tool to get *Right Person to the Right Job at the Right Time.*

14.2.2 Purpose of HRP

The important purposes of HRP are listed below:

i) *Balancing the cost between the utilisation of infrastructural facilities and manpower:* This involves comparing costs of these two resources in different combinations and selecting the optimum. This is especially important to make sound decisions when costing projects.

ii) *Determining recruitment needs:* It is an essential prerequisite to the process of present and future recruitment, i.e., to avoid problems of unexpected shortages, wastage etc of the HR.

iii) *Determining training needs:* It is necessary to plan training programmes, for which there is a need to assess both qualitatively and quantitatively in terms of the skills required for the organisation.

iv) *Management development:* A succession of trained and experienced managers is essential to the effectiveness of the organisation and this depends on accurate information about present and future situations in all management posts.

14.2.3 Objectives of HRP

Human resource planning is deemed necessary for all organisations for one or the other of the following reasons:

i) To carry on its work, each organisation needs personnel with the necessary qualifications, skills, knowledge, work experience, exposure and aptitude for work. These are provided through effective manpower planning.

ii) Since a number of persons have to be replaced from time to time who retire, die or become incapacitated because of physical or mental ailments. There is a constant need for replacement of such personnel. Otherwise, the work would suffer.

iii) Human resources planning is essential because of frequent labour turnover which is unavoidable and even beneficial because it arises from factors which are socially and economically sound such as voluntary relinquishment and promotions. However, the turnover depends upon the labour market.

iv) In order to meet the needs of expansion programmes i.e. to meet increased demands for services by a growing number of users.

v) The nature or the present work force in relation to its changing needs also necessitates the recruitment of staff. To meet the challenge of a new and changing technology and understand new techniques adopted, existing employees need to be trained or new blood injected in an organisation.

vi) Manpower planning is also needed in order to identify surplus or shortage of personnel. If there is a surplus, it can be redeployed; and if there is shortage, it may be made good.

The objectives of Human Resource Planning are

a) to ensure optimum use of the human resource;

b) to assess or forecast future skills requirement to achieve the organisation's overall objectives;

c) to provide control measures and provision of the resources as and when required;

d) to determine recruitment level;

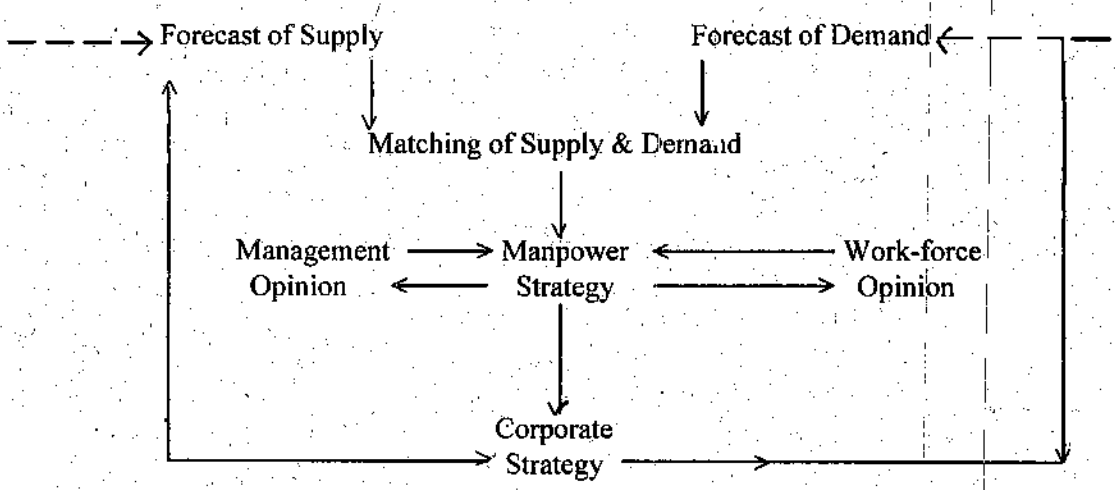
e) to anticipate redundancies and to avoid unnecessary dismissals;

f) to determine training needs and support; and

g) to support management development programmes.

14.2.4 HRP Process

The human resource planning exercise is likely to provide exact forecasts. This process is a continuous exercise and needs to be constantly evaluated and updated. The following flow-chart summarises the human resource planning process:



Main Stream of Process

Consultation and Revision

Figure-1: Flow-chart of Human Resource Process

Thus, one can visualise that human resource planning includes determining the staff required, selection and recruitment, appropriate placement, promotion, provision of opportunities for maximum individual contribution under desirable working relationships and conditions, provision for professional personnel development as well as improvement of working conditions to obtain maximum productivity and efficiency with specific emphasis on individual and human elements. In other words, the objectives should be to estimate, retain, utilise and develop an adequate staff by which to carry on efficiently the operations of the library, and to help fulfill the aspirations and capabilities of the individuals who compose the staff.

14.2.4 Components of HRP

The human resource planning can be broken down into three components:

i) *Forecasting* : Estimating future needs and stock taking of available resources inthe organisation

ii) *Recruitment Plan* : To meet the gap between the internal resource and estimated need external recruitment.

iii) *Training and development plan :* To utilise fully the human resources of the organisation and to develop the potential resources.

14.3 JOB ANALYSIS, DESCRIPTION AND SPECIFICATION

14.3.1 Job Analysis

Job Analysis is to find out what is to be done and to determine the best method of doing it. It usually involves collecting information on characteristics of a job that differentiate it from other jobs. Information that can be helpful in making that distinction includes:

- work activities
- behaviour required
- working conditions
- interaction with others
- performance expected
- machines and equipment used
- personnel requirements
- supervision given and received

Conventional job analysis looks at the job from the standpoint of the demand the job makes on an employee. When completed it provides a description of acceptable performance. It helps to identify the skills, education and knowledge required to complete the job.

In other words it is a procedure by which pertinent information is obtained about a job by observation, interviews and questionnaire i.e., it is a detailed and systematic study of information relating to the operation and responsibilities of a specific job.

Job Analysis is "the process of determining, by observation and study, and reporting pertinent information relating to the nature of a specific job. It is the determination of the tasks which comprise the job and of the skills, knowledge, abilities and responsibilities required of the worker for a successful performance and which differentiated one job from all others.

It is also a procedure for determining the specified tasks, operations and requirements of each job. "It is the process of getting information about each job". In short, it helps to identify the number and variety of jobs to be performed in the library, whether it is small or big and performed by a professional or non-professional. The job analysis supports in preparation of job description.

It the light of the above, it is clear that job analysis supports the preparation of job description and job specifications.

14.3.2 Job Description

Job analysis identifies different jobs to be performed in a library. Every job takes time and needs particular skills. On the basis of the time consumed to perform a job and the relationship between various jobs, the jobs (or works) are grouped together. After careaful study the number of staff required is estimated. At this stage, it is also decided what jobs are to be performed by each identified position or job. Identification and description of the works to be performed by each job is job description. The same is recorded to create a written record of the duties, responsibilities and requirements of a particular job.

Job description is a statement describing the job in such terms as it title, location, duties, working conditions and remuneration. In other words, it tells us what is to be done and states authorised contents of a job.

The items listed below will provide a comprehensive account of job description.

BASIC DETAILS	:	Exact title and grade (if applicable); Location.
PURPOSE	:	Objectives and relationship to the aim of the organisation.
TASKS	:	Main tasks and key areas; Occasional tasks. Secondary duties. Hours of work.
STANDARDS	:	Standards for effective performance of tasks. Criteria indicating that tasks have been effectively performed.
RESPONSIBILITIES	:	Position of job in organisational structure. It states to whom to report and who will be reporting to this position, Relationship with other positions. Managers/ supervisors to whom job holder is responsible. finance; work; people; materials; equipment and classified information.
PHYSICAL AND SOCIAL ENVIRONMENT	:	Particular features of work environment including contacts and relationship with others, such as external contacts.
TRAINING/ EDUCATION	:	Training planned to bring new job holders to orient them to new environment and to enable them to reach required levels of performance e.g. induction programme, job rotation, visits, external courses, etc.
ADVANCEMENT OPPORTUNITIES	:	Opportunities for promotion and career development.
CONDITION OF EMPLOYMENT	:	Salary and other emoluments and benefits. Possible overtime requirements. Sickness and pension schemes. Welfare, social and other facilities. Leave entitlement. Special employment conditions applying to the job.

14.3.3 Job Specification

It is a standard of personnel and it is a written record of the requirements sought in an individual worker for a given job. In other words, it refers to a summary of the personnel characteristics required for a job. It is a statement of the minimum acceptable human qualities necessary for the proper performance of a job.

The job specification describes the knowledge, skills and attitudes required to perform the job effectively. The most systematic format consists of four columns. The first column is a list of the component tasks of the job, based on the job description, followed by the three headings mentioned above.

The knowledge column requires no particular elaboration. It contains all the various kinds of knowledge needed for each task, e..g., technical, professional, administrative, etc.

The skills column presents rather more difficulties because of the problems of identifying and defining skills. Briefly described, skills are forms of behaviour which are essential for the effective performance of tasks. They are developed by regular practice and depend on innate mental and physical attributes. Since these vary from person to person, the levels of skills attainable by individuals will likewise vary. Skills may be intellectual, manual and social (interpersonal).

The attitudes column creates similar problems of identification and definition and especially of measurement, because of the psychological complexity and general lack of knowledge of the subject. Often the items included in this column are virtually social skills. The constant need to attach great importance to safety at work is an example of the kind of items that might be included under heading.

The specification described below shows how the seven-point plan can be adapted for this purpose.

PHYSICAL	:	Health, physique, age, appearance, bearing speed.
ATTAINMENT	:	Academic attainments, training received, experience and skills and knowledge already acquired.
INTELLIGENCE	:	The general intelligence, specific abilities and means for assessing these.
SPECIAL APTITUDES	:	Special aptitudes (e.g., mechanical, manual, verbal, numerical, artistic, etc.)
INTEREST	:	Personal interests as possible indicators of aptitudes, abilities or personal traits (e.g., intellectual, practical / constructional, physically active, social, artistic.)
DISPOSITION	:	Personality characteristics needed (e.g. equability, dependability, self-reliance, assertiveness, drive, energy, perseverance, initiative, motivation.)
CIRCUMSTANCES	:	Personal and domestic circumstances (e.g. mobility commitments, family circumstances and occupations)

14.4 RECRUITMENT PLAN

Recruitment is the generating of applications or applicants for specific positions through three common sources. i.e. advertisement; state employment exchange agencies or private employment agencies; and present employees. In addition, educational institutions, labour unions, casual applications and leasing (deputation) are also utilised.

a) *Advertisement:* A well-thought out and planned advertisement for an appointment reduces the possibility of getting applications from right people.

b) *Employment Exchange and Agencies :* Employment exchanges with branches in most cities, can also generate applications. Their main functions are registration of job seekers, and their placement in notified vacancies.

(1) Recruitment Policy

A "recruitment policy" in its broadest sense, "involves a commitment by the employer to such general principles as:

- to find and employ the best qualified and suitable persons for each job;
- to retain the best and most promising of those hired;
- to offer promising opportunities for life-time working careers; and
- to provide programmes and facilities for personal growth on the job.

Generally, the following factors are involved in a recruitment policy.

- to carefully observe the letter and spirit of the relevant public policy on hiring and on the whole, employment relationship.
- to provide individual employees with employment security, avoiding frequent lay-off or lost time;
- to encourage each employee in the continuing development of his/her talents and skills;
- to ensure each employee of the organisation interest in his personal goals and employment objectives.
- to ensure employees of firmness in all employment relation ships, including promotions and transfers;

(2) Pre-requisites of a good Recruitment Policy

The recruitment policy of an organisation must satisfy the following conditions:

i) It should be in conformity with its general personnel policies;

ii) It should be flexible enough to meet the changing needs of an organisation;

iii) It should be so designed as to ensure employment opportunities for its employees on a long-term basis so that the goals of the organisation should be achievable; and it should develop the potentialities of employees;

iv) It should match the qualities of employees with the recruitments of the work for which they are employed; and

v) It should highlight the necessity of establishing job analysis.

(3) Sources of Recruitment

The sources of recruitment can be broadly classified into two categories: Internal and External.

i) Internal Sources:

Internal sources are the most obvious sources. These include personnel from the present working force. Whenever any vacancy occurs, somebody from within the organisation is upgraded, transferred, promoted or sometimes demoted.

Recruitment from external sources will help in motivating the existing staff. The management is also aware of strength and weakness of each employee, therefore the suitable persons not merely on seniority should be given an opportunity for promotion and to take more responsibility. However, it has few disadvantages wherein new talent is likely to get an opportunity.

ii) External Sources:

These sources lie outside the organisation. They usually include:

i) New entrants i.e., young, mostly inexperienced potential employees. e.g., the college students

ii) The unemployed — with wide range of skills and abilities

iii) Retired experienced persons

External sources provide the requisite type of personnel for an organisation having skill training and education. It gives an opportunity for recruitment from a large market and possibility for the best selection.

14.5 INTERVIEW, SELECTION AND TRAINING

14.5.1 Interviews

The interview consists of interaction between interviewer and applicant. It is a powerful technique in achieving accurate information about the candidate. The interview needs to be planned to elucidate complete and relevant information from every candidate. It should be conducted in a conducive environment and provide a chance to the candidate to speak.

Four kinds of interviews for selection have been identified. These are

1) *Preliminary interviews:* It is a preliminary screening of applicants to decide whether a more detailed interview will be worthwhile.

2) *Stress interview:* It attempts to observe how an applicant perform under stress.

3) *Depth interview:* It covers the complete life history of the applicant and includes the candidate's work experience, academic qualifications, health, interests and hobbies.

4) *Patterned interview:* These interviews are a combination of direct and indirect questioning of the applicant and is structured one.

14.5.2 Selection

Having identified the potential applicants, the next step is to evaluate their experience and qualifications and make a selection. Selection refers to the process of offering jobs to one or more applicants among the applicants. Great attention has to be paid to selection by establishing the "best match" between job requirements and suitability of candidate's qualifications.

The selection procedure is concerned with securing relevant information of an applicant. This information is secured in a number of steps or stages. The objective of selection process is to determine whether an applicant is suitable for a specific job and to choose the applicant who is most likely to perform well in that job.

The selection procedure adopted by an organisation is mostly tailor-made to meet its particular needs. The thoroughness of the procedure depends upon three factors.

First, the nature of selection, whether faulty or safe because a faulty selection affects on the training period needed; results in heavy expenditure on the new employee; failure on his job.

Second, the policy and the attitude of the management.

Third, the length of the probationary period. The longer the period, the greater the uncertainty in the minds of the selected candidate.

A) STEPS IN SELECTION PROCEDURE:

There is no shortcut to an accurate evaluation of a candidate. The hiring procedures are, therefore, generally long and complicated.

The following procedure is moderately acceptable to every one and it may be modified to suit to the individual situation.

i) Preliminary interview or screening.

ii) Application - It helps in learning about an applicant's background. Application needs to be designed carefully to elucidate the required information from candidates.

iii) A well conducted interview to explore the facts and know the attitude of the applicant to the job. It gives a chance to fill in the gaps of required information of the candidate.

iv) A physical examination — health and stamina are vital factors in success

v) A reference check, and

vi) Final selection approved by manager, and communication of the decision to the candidate.

14.5.3 Placement and Induction

i) Placement

Placement has gained added importance nowadays, and is important both for the supervisor as well as his new subordinates.

Increasing emphasis on human relations, attitudinal aspects and high turnover in the first few months of employment necessitate the best arrangement between the supervisor and the new subordinate to help the employee adjust and accept the other employees as coworkers. To aid this process, some organisations have extensive orientation programmes which help in visualising the entire operation, culture and relationships prevailing in the organisation.

Placement has been defined as "the determination of the job to which an accepted candidate is to be assigned and his assignment to that job. Placement and follow up aims at ensuring whether the individual who has been selected is placed suitably on the job and does the job well.

Just recruiting an employee to an organisation is not enough. Putting the right man at the right job is equally important. A misplaced employee is a disgruntled and frustrated man. A misplaced employee cannot give his best to the organisation. Lack of interest in the job will be reflected in lower productivity. Proper placement will go a long way to reduce employee turnover, accident, absenteeism and improve morale of the employees.

ii) Induction

The introduction of the employee to the job is known as induction. It is the process by which new employees are introduced to the practices, policies and purposes of the organisation. It is basically a welcoming process. Induction follows placement and consists of the task of orienting or introducing the new employee to the company. Instead of leaving him to stumble his way through the organisation, it is better to systematically introduce him to the company, its policy and its position in the economy. Considering the fact a number of workers, newly recruited, either come from surroundings or have secured appointment in an industrial unit for the first time, it is imperative to have a thorough induction programme to ease the strains effected by the change in social environment.

14.5.4 Training and Development

Training is the act of increasing the knowledge and skill of an employee for doing a particular job. It is concerned with imparting specific skills for particular purposes.

Employee training tries to improve skills, or add to the existing level of knowledge so that the employee is better equipped to do his present job, or to prepare him for a higher position with increased responsibilities. In other words, the training of employees goes a long way to raise the level of productivity in an organisation, by improving their skill and know-how. Particularly in a world of rapid changes in technology and operational approaches, the training in new ways of doing things becomes imperative for doing them in a better way to produce more. When the more progressive concerns in an organisation adopt new techniques for raising their level of operational effectiveness, those who would stick to the 'status quo' must lag behind. Training is thus a must for preventing obsolescence.

Basically the training is of two types: (1) For a fresh and new employee and (2) For internal employees. For a new employee, the training is to provide acquaintance to the environment and culture of the library. It enables him/her to know the procedure and support in achieving the goals. For internal employee it is a refresher course to get acquainted with new equipment, update the knowledge in the concerned field etc.

It provides confidence to the employee to handle the jobs confidently and contribute in successful achievement of goals. The training needs to be planned and designed. The time, contents, the place and the method of training are important factors to be considered in designing the training programme. It can be done either within or outside organisation. Even resource persons can be brought from outside.

The training provides orientation to the job and also gives an opportunity for the improvement of the skills and knowledge.

14.6 PERFORMANCE APPRAISAL

i) Need for Performance Appraisal

Performance appraisal or merit-rating is one of the oldest and most universal practices of management. It refers to all the formal procedures used in working organisations to evaluate the personalities and contributions and the potential of group members. Modern management makes somewhat less use of the term 'merit-rating'. The trend nowadays is in the direction of attempting to measure what the man does (performance appraisal) rather than what he is (merit-rating).

Performance appraisal is a systematic evaluation of personnel by supervisors about their performance as employers are interested in knowing about employee performance. Employees also wish to know their position in the organisation. Appraisals are essential for making many administrative decisions; selection, training, promotion, transfer, wage and salary administration, etc. Besides, they aid systematic and objective way of judging an employee in performing the task.

ii) Essentials of a good Appraisal System

Following are the essentials of a good appraisal system:

i) It must be easily understandable: It should not be time-consuming and complicated.

ii) It must have the support of all, who administer it: It should not theoretical, ambitious and unrealistic. Good understanding must exist between the rater and the ratees.

iii) The system should fit the organisation's operations and structure.

iv) The system should be both valid and reliable.

v) The system must have built-in incentives, that is, a reward should follow satisfactory performance.

vi) The system should be periodically evaluated to be sure that it is continuing to meet its goals. Not only is there the danger that subjective criteria may become more salient than the objective standards originally established. There is also the danger that the system may become rigid in a triangle of rules and procedures, many of which are no longer useful.

14.7 WAGE AND SALARY ADMINISTRATION

Services rendered by individuals to organisations have to be adequately paid for. This compensation generally comprises cash payments, which in addition to wages includes pensions, bonus and shared profits. Compensation could also be in the nature of promotions or words of praise. Workers also derive a certain amount of personal satisfaction when compensation is remedial. Besides wage, there are certain aspects of job compensation which an employee looks for, such as job satisfaction, job content, responsibility, creativity, and so on.

A sound compensation package should encompass factors like adequacy of wages, social balance, supply and demand, equal pay for equal work, and work measurement. The concept of adequacy has two components, the internal and external. The internal component has a link with the fair wages concept, i.e. for a given job, is the money compensation for an employee to maintain and cover basic needs such as housing, food, transport, medical care, children's education, etc. The external adequacy would be in relation to comparable jobs at other places with similar background requirements. The wage compensation for a particular job should not be less than what it can command elsewhere.

14.8 GRIEVANCE AND DISCIPLINE

14.8.1 Grievance

According to Michael J. Jucius, the term "grievance" means "any discontent or dissatisfaction, whether expressed or not and whether valid or not, arising out of anything connected with the company that an employee thinks, believes or even feels, is unfair unjust or inequitable".

A grievance procedure should incorporate the following features:

1) *Conformity with existing legislation*: The procedure should be designed to supplement the existing statutory provisions. Where practicable, the procedure can make use of such machinery as the law might have already provided for.

2) *Acceptqbility*: The grievance procedure must be acceptable to everyone. In order to be generally acceptable it must ensure justice to the worker.

3) *Simplicity*: The procedure should be simple enough to be understood by every employee. The steps should be few and channels for handling grievances should be carefully developed.

4) *Promptness*: Speedy settlement of a grievance is an important and sound personnel policy. Justice delayed is justice denied. The procedure should aim at a rapid disposal of any and every grievance.

14.8.2 Discipline

Discipline means orderliness - the opposite of confusion. Good discipline refers to orderly behaviour in accordance with the rules and procedures of the organisation. Poor discipline refers to the failure of individuals to observe the rules established by the organisation. Disciplinary action means taking action against an individual when he departs from the norms and rules. The disciplinary action helps to inhibit some undesirable behaviour of employees.

Discipline may be of two types, positive and negative. Positive discipline or 'self-discipline' is the best discipline. This refers to an organisational atmosphere in which subordinates willingly abide the rules. The discipline is achieved by positive motivational activities. Negative or punitive discipline is one in which management exerts pressure or hold out threat by imposing penalties on wrongdoers. It is also called "Progressive" or "Corrective" discipline.

14.9 LET US SUM UP

Manpower planning or human resource planning is the major task of personal management because it is basically concerned with utilising manpower resource. Manpower management or human resource management starts with manpower planning. Manpower planning involves the process by which management determines how an organisation should move from its current manpower position to its desired manpower position. Through planning, management secures an equilibrium between demand for and supply of right number and kinds of people at the right time. Manpower planning is a supply and demand calculation.

Manpower planning is gaining increasing acceptance among the managers. Basically, manpower planning involves locating 'a job for a man' as well as preparing 'a man for a job'. The term 'manpower' could be equated with 'labour' in the sense of factor of production. In this sense manpower can be understood to mean 'personnel' or 'employees'. Sometimes the term manpower is used to mean the total quantitative and qualitative human assets of a country. In this sense the term manpower means the power of the man, both in terms of the size of the population and the talent and educational levels in that population. Population can be said to determine the quantity and education of the manpower.

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14.11 GLOSSARY

Appraisal	:	Estimate, to judge the quality or worth of.
Aptitude	:	quickness to learn or understand.
Assertiveness	:	to declare or to state positively.

Attainment	:	accomplishment; anything attained.
Bias	:	partiality, inclination.
Conformity	:	agreement; action in accordance with rules.
Disgruntled	:	displease.
Disrupt	:	split up; to break apart.
Forecast	:	to estimate or calculate in advance; predict.
Frustrate	:	to prevent from achieving an objective; baffle; defeat.
Graphology	:	the study of handwriting.
Grievance	:	complaint or resentment.
Optimum	:	the best or most favourable degree.
Perseverance	:	the act of perserving; continued, patent effort.
Pertinent	:	relevant; to the point.
Physiognomy	:	outward features or appearance.
Probation	:	the period of testing or trial.
Redeploy	:	to move from one area to another.
Redundancies	:	the state of quality of being redundant (excess).
Task	:	any piece of work.

14.12 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) What are the objectives, purpose and process of H R P ?

2) Describe job analysis and explain job description and job specification.

3) Explain in detail the different sources of recruitment and discuss their merits and demerits.

4) Describe the steps involved in Selection process.

II. SHORT NOTES

a) Grievance and discipline

b) Selection

c) Interview

d) Job specification

UNIT - 15 : ROLE OF COMMUNICATION IN HUMAN RESOURCE MANAGEMENT

Structure

15.0 AIMS AND OBJECTIVES

The aim of this unit is to introduce the role of communication in human resource management.

After going through this unit, you should be able to

- define the term communication
- explain the purpose and functions of communication
- describe various channels of communications and the barriers affecting the communication process
- list out various principles of effective communication.

15.1 INTRODUCTION

The term 'Communication' is derived from the Latin *Communis* meaning 'Common', and thus when we communicate we are trying to establish a 'communities' of ideas with some one. Dictionary meaning of communication is news, or the act of, making oneself understand means of sending information between one place and another.

Communication, in general, is a process of passing messages, information or ideas from one person to another, which results in receiving identical meaning and emotion meant and felt by the communication. It is the process by which people attempt to share meaning via the transmission of symbolic message. The management accomplishes the tasks through the people. Therefore, it is necessary that clear, understandable and meaningful communication takes place among human resources at various levels. With effective communication, the meassge or meaning is shared and understood. Communication of information also means expression of motives and attitudes.

It had been estimated that 70% of the average person's time is spent for listening, speaking, reading and writing. The information may be communicated either verbal or non-verbal means. Therfore, communication has been characterised as life blood of organisation.

The library managers/librarians/information scientists, like the managers in any other service organisation, must be concerned with communication effectively with patrons as well as with staff. Poor, ineffective or nonexistent communication can be and often is the main complaint of library staff members. But the communication problems can be identified and improved, provided, both sender and receiver should verify what was said and understood, because verification is essential to complete communication. If anyone in the library is careful to use job-related terms in a consistent manner, then true communication can take place.

15.2 COMMUNICATIONS - DEFINITIONS, IMPORTANCE AND FUNCTIONS

Communication from the context of management is defined as the process of exchange of information, ideas and opinions which bring about integration of interests, aims and efforts among the members of a group organised for achievement of predetermined goals.

15.2.1 Definitions

Different management scientists have defined the term communication in the following ways:

1) Keith Davis defines communication as " the process of passing information and understanding from one person to another. It is essentially a bridge of meaning between people. By using the bridge of meaning, a person can safely cross the river of misunderstanding that separates all people. (*Human behaviour at work.* Tata McGraw-Hill, New Delhi).

2) According to C. A. Brown "Communication is the process of transmitting ideas or thoughts from one person to another for the purpose of creating understanding in the thinking of the person receiving the communication". (Communication means understanding in personnel Administration, Jan - Feb 1958, p.12).

3) Louis A. Allen has described communication "as the sum of all things one person does when he wants to create understanding in the mind of in other. It involves a systematic and continuous process of telling, listening and understanding". (*Management and organisation.* McGraw-Hill, New York.)

4) M. W. Cumming describes communication as "the process of conveying messages (facts, ideas, attitudes and opinions) from one person to another so that they are understood" (*Theory and practice of Personnel Management*. Heinemann, London.)

15.2.2 Importance of Communication

Communication is the process of transforming information from an information source to a destination. Communication - the exchange of information and the transmission of meaning - is the very essence of a social system or an organisation.

The art of communication is old but its rise to prominence in personnel administration is comparatively recent. Communication is a mutual exchange of facts, thoughts, information or emotions. Communication is as necessary to an organisation as the blood-stream is to a person.

Communication is the primary life process of organisation. It is the indispensable administrative tool. No administration exist without communication. It is communication that solves operational problems and helps the administration to get over crisis situation.

Decision Making (DM) is the core management process. Communication and dicision making are inseparable as DM is based on factual and timely information. Therefore, the manager spends sufficient time in communication and at the same time the managerial effciency and performance improves with good communication. It also supports understanding needed for group effort.

The overall objective of the communication system or process is to create in all participants to an organised activity a general sense of oneness of the organisational unit and secure the individual's personal identification with the organisation as a whole.

The following are the important objectives of communication:

- to facilitate and develop free exchange of information and understanding that is necessary for group effort in converting thoughts into actions;
- to ensure proper and clear transmission of directions to all individuals concerned with the organisation;
- to encourage expression of thoughts and ideas as well as suggestions from subordinates with a view to bring about improvements in the product, work environment/conditions, work methods, or practices including cost reduction or waste administration efforts, etc.
- to prepare employees for any necessary change by providing them necessary information well in advance;
- to help employees in understanding and accepting the reasonableness of the status and authority of everyone in the organisation;
- to foster attitudes necessary for mutual cooperation and goodwill; and
- to motivate employees and raise their morale.

15.2.3 Organisational Communication

Communication in organisation involves transfer of correct message from one person to another. Every LIC should develop and maintain an effective system of organisational communication. Effective communication may be most important management problem. If there is no proper communication it may be difficult to understarand and ultimately leads to chaos. Therefore, it is necess ary to see that the meaning must be transferred, not the words to one another.

Some of the factors that influence the organisational communication are - work relationships, authority structure and status, formal channel of communication, job specialisation, etc. The factors affect the process by influencing people involved in communication.

It may be necessary to develop communication networks within the organisation. They can be defined and developed by any LIC. This networks specified the channels within an organisation or group through which communication travelsThe networks support downward, upward and horizontal communication. Lack of effective communication may result in adverse impact on human relationship and achievement of objectives. Therefore, an effective communication channel/network must be developed in any LICs. As a part of this process, staff at every level should be encouraged to speak without fear. It is not only internal communication, links with communication system outside the organisational hierarchy should be planned. The barriers of communication (discussed later in this unit) should be reduced.

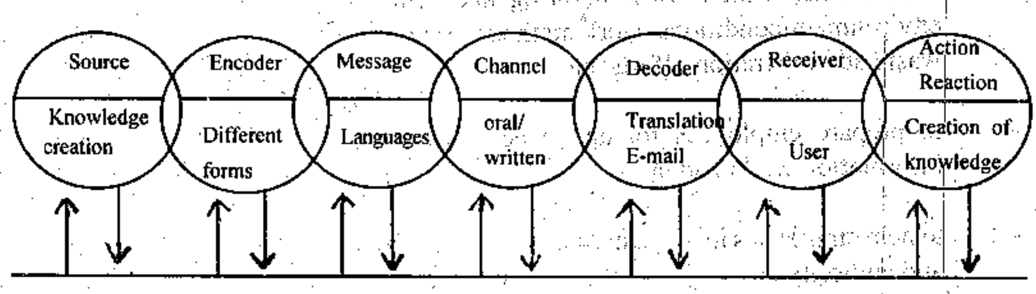
According to Mintzberg, the communication has three important roles, which indicate the importance of communication

a) interpersonal role - 45%
b) informational role - 45%
c) decisional role - 10%

15.3 COMMUNICATION PROCESS

The following diagram depicts the communication process model and it shows how each part is connected and influence each other.

Communication process of a library



Whether formal or informal, the basic communication process involves seven steps. They are (1), communication 'source', (2) The encoder; (3) The message; (4) The channel; (5) The decoder; (6) The communication receiver; and (7) The action or reaction. It may be noted that neither the elements of this model are always separate nor do they occur in a rigid or fixed order; they are just necessary for communication to occur.

1) *Source*: It consists of an entity or an individual with a need or a purpose for communication. The source is also communicator. The communication starts from here to achieve understanding and change in the behaviour of the receiver.

2) *The encoder*: It is a mechanism for putting this need or purpose into the form of a message. Different forms of communication acts as encoder. They may be oral, or written usinga particular language. Even gestures and other nonverbal forms are used to communicate to the receiver(s).

3) *The message*: It is an idea or fact or information from the source. This may be of subject matter or any other information intended to communicate. This is the crux of the communication.

4) *The channel*: An organisation structure itself is a channel of communication. A channel of communication is a pathway or medium by means of which information is passed from a source (The sender) to a receiver..

5) *The Decoder*: It is a sensory organ or a device (such as an ear or an eye) to decode or retranslate the message in a way that it may be of use to the Receiver. Thus the 'decoder' is to the source of communication.

6) *The communication receiver*: The communication process is complete when it is by received at the intended destination by the receiver. The receiver takes the message.

7) *The Action and Reaction*: After the communication process is completed the receiver acts or reacts to the message/information he has received and interpretes. Some time the reader interpret the communication and create message or information, which again may becomes the 'Source' of 'Communication'.

15.4 CHANNELS OF COMMUNICATION

Communication occurs at various levels and may take several within the organisation but two basic kinds or types of media of communication or channels of communications, are

(a) formal and

(b) informal communications.

A channel of communication is the route through which information flow from a 'Source' (the sender) to a 'receiver'. In other words, it refers to specific courses or conducts through which message moves.

In an organisation or institution, the channel of communication acts as an important communication media for inter personal communication. It means, information flow from the authority to its staff: it moves downward, upward and horizontal among the staff of the organisation. In other words, it may flow from a superior to a subordinate, from a subordinate to a superior, intra administrative, or external.

15.4.1 Formal Communication

In every organisation, there develops an institutional pattern of formal communication 'consisting mainly of 'Official Channels' and the execution of 'Formal Communication systems or programmes'. The official channels of communication correspond closely to the specified organisational relationships among positions or people. These are official and form a part of the recognised communication system which is involved in the operation of the organisation. Further these may be oral or written.

Formal communication patterns are of three types, namely,

i) Downward

ii) Upward, and

iii) Horizontal or lateral

i) Downward Communication:

The hierarchical arrangement of levels in the organization and the functional departmentalisation provide the basis for formal communication pattern. In simple, the passing of information to persons lower in the organisational structure is downward communication.

This communication is basically of five types:

a) Specific task directives (i.e. job instructions).

b) Information designed to produce understanding of the task and its relation to other organisational tasks. (i.e. job relation)

c) Information about organisational procedures and practices, for example, about vacations, sick leave, rewards, and sanctions.

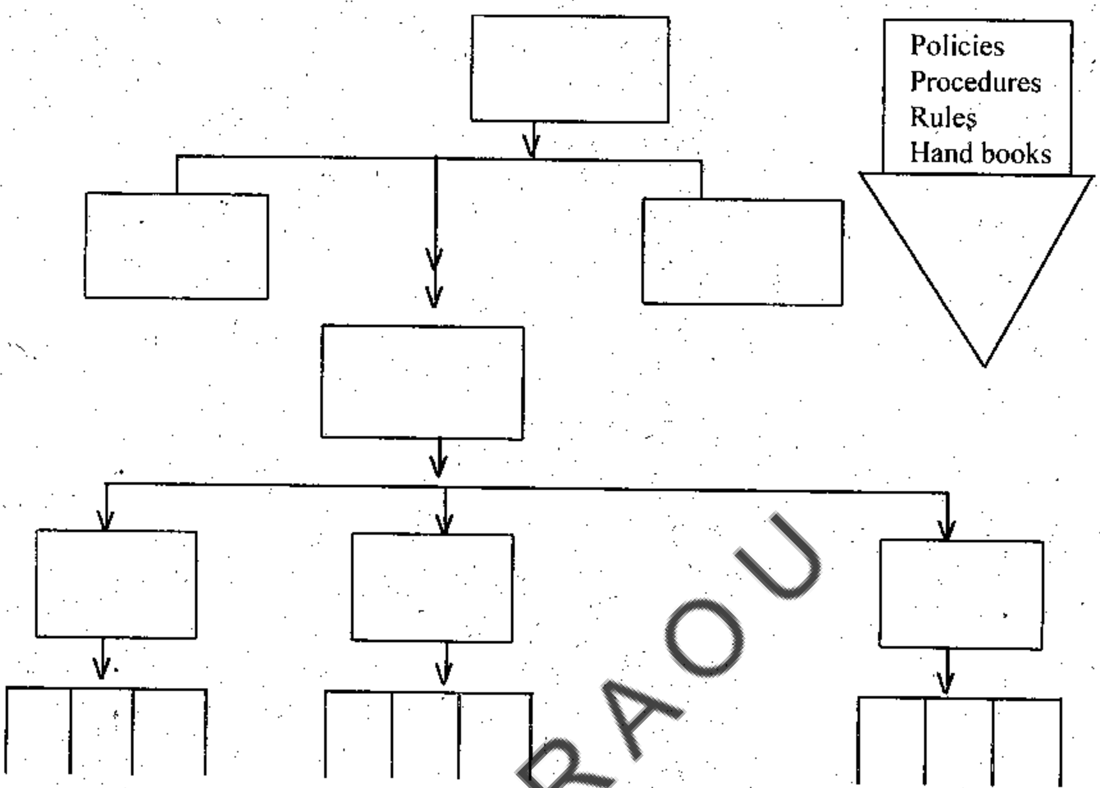
d) Feedback to the subordinate about his performance.

e) Information of an ideological character to inculcate a sense of mission (i.e. indoctrination of goals).

Therefore, a formal communication may be 'Mandatory' (implying a command or an order to be followed — a communication which is mostly 'Vertical' and usually one - way) or it may be 'indicative' or 'explanatory'.

Further, when the top management is conscious of the need for conveying information down the line, this job is fairly well done in the normal relationships: Personal contacts and operations procedures provide the most commonly used and most efficient means of communicating between top management and the divisional heads below the level of top management.

The following diagram represents downward communication.



ii) Upward Communication:

'Upward Communication' refers to the information passed from the base, i.e. the rank-and-file employees to the immediate superior— the superior/foreman and through him successively to higher levels of management. The top management or executives at the top level want to know what has happened; they need information relating to productivity, effectiveness of their orders, instructions or directives etc., to be fed upwards to the management. In other words, when subordinates initiate communications to their superiors, the flow is upward, and the messages may be used in decision making, expressions of dissatisfaction, or opinions, and these may provide evaluation of input on individual and unit performance.

The upward communication may be classified as under:

(a) What the person says about himself, his performance, environment and problems;

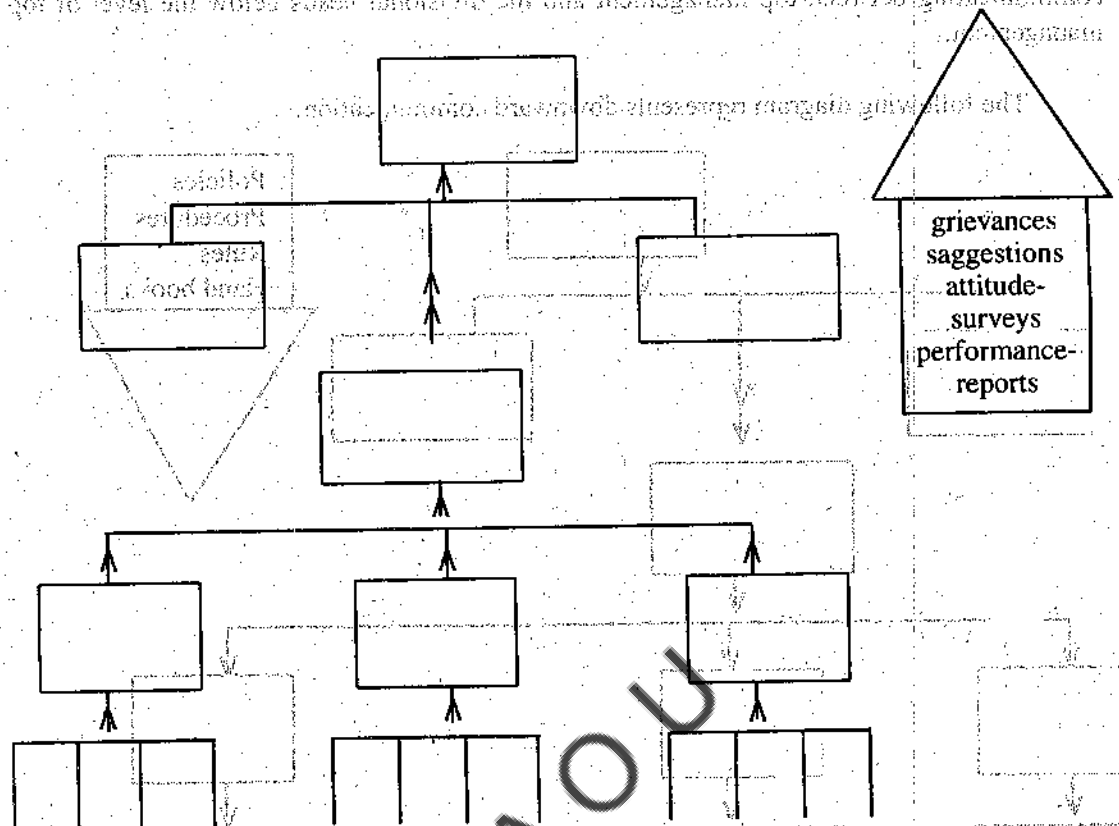
(b) Information about others (colleagues) and their problems;

(c) Information about organisational practices and policies; and

(d) Information concerned to the needs.

It may be concluded that the upward communication is mainly reporting, informing, reqesting, suggesting to the ligh level managers. It may be also a feedback to the dowward message.

The following diagram represents upward communication.



iii) Horizontal or Lateral Communication:

Communication between different departments or sections is known as horizontal or lateral. If a department or section head needs some information from another department then communication flow in between these sections or departments is called horizontal communication. In other words, this is communication between persons of the same level in an organisation. It is particularly frequent between the line and staff units.

The objectives of this horizontal communication are:

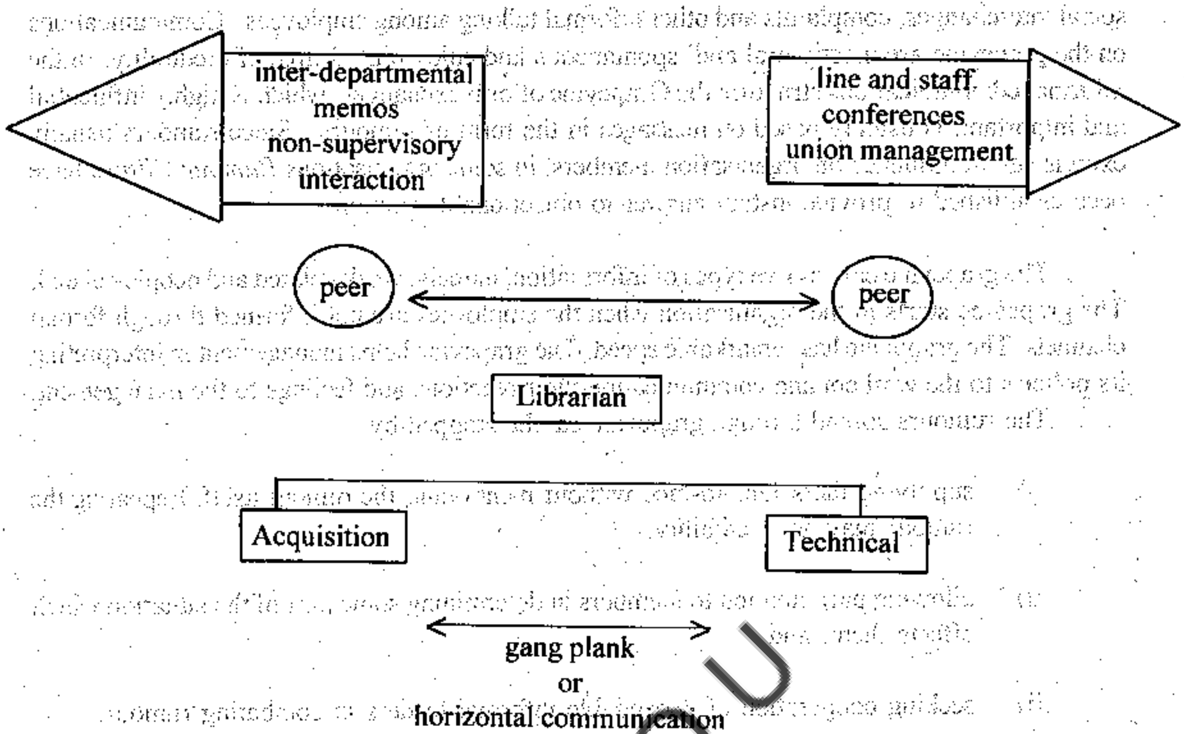
(a) To have better coordination among departments.

(b) To furnish emotional and social support to the individuals

(c) To share the information relevant and useful to both the groups / managers.

The organisations insist on horizontal or lateral communication at all levels to speed up information and improve understanding.

The following diagram represents horizontal or lateral communication.



Forms of Communication :

Oral and written communications are two very important forms of all types of communications — downward, upward and horizontal.

a) *Oral Communication:* In oral or verbal communications, information is given directly, either face to face or through a device such as telephone and intercom systems. Mainly this is an interpersonal communication.

(b) *Written Communication:*

Written communications are always put into writing and are more carefully thought out and formulated. They can be retained as records and references sources and they are particularly essential where their preservation is required as in the case of disputes.

15.4.2 Informal Communication

People who know each other in the organisation talk together informally. One thing they have in common is the organisation they work for, so they talk about the happenings in the organisation and about the organisational members. This type of informal communication is based on the informal relationships that grow up in an organisation. It develops as a result of inadequate formal structures. Informal communications grow out of the social interactions among people who work together. These are not bound by any chart, status, conventions, customs and culture. Such communications provide useful information for events to come, in the form of grapevine.

Informal communications, therefore, refer to the GRAPEVINE through which an individual discovers information which would have otherwise taken a few days to receive through official channels. Iinformal communications may also include rumors, gossip, general social interchanges, complaints and other informal talking among employees. Communications on the grapevine are mostly oral and spontaneous and enjoy high degree of credibility. In the informal communications structure the Grapevine of oral exchanges, which is highly influential and important, is usually based on messages in the form of rumours. Since rumours usually exercise great influence on organisation members, in some organisations *Rumour Clinics* have been established to provide instant answer to objectionable rumours.

The grapevine carries two types of information, namely, work-related and people-related. The grapevine starts in the organisation when the employees are not informed through formal channels. The grapevine has remarkable speed. The grapevine helps management in interpreting its policies to the workers and communicating their reactions and feelings to the management.

The rumours spread through grapevine can be stopped by

i) supplying facts face-to-face without mentioning the rumour itself. Repeating the rumour may get credibility.

ii) allowing participation to members in determining some part of the situation which effects them; and

iii) seeking cooperation of dependable informal leaders in combating rumour.

However, the grapevine communication ought to be a barometer to the management as to what is ailing the employees and what ought to be done about it. Therefore, managers must not ignore the grapevine or the rumour transmission system prevalent in all organisations and should not think that the integrity of their communication system will prevail ultimately so that the employees may be able to discriminate between genuine and spurious communications.

15.5 BARRIERS TO COMMUNICATION

With all the sophistication in the modern techniques of communication, the result may not be there as it sometimes happens. The executive or manager must be aware of certain factors which come in the way of successful communication. There is no such thing as perfect communication. There are continuous forces at work - called barriers — which tend to distort communication and promote disorganisation.

Barriers or impediment blocks to effective communications refer to various interferences in communication lines or channels - downwards, upwards as well as horizontally, which create problems or difficulties in the transmission of intended information or messages to specific recipients or receivers for whom they are meant in a correct or appropriate form that may be necessary for attaining the desired goals. An adequate knowledge of such barriers or blocks and problems there in is of great significance for all managers as well as employees.

These barriers to communication are of various types. Different authors stated it in different ways. But broadly speaking, these are of three types: i) Human/personal, ii) Semantic, and iii) Technical. These are illustrated below:

Communication Barriers

Human/Personal

1. Distrust, threat & fear
2. Psychological
3. Organisational
4. Social
5. Faulty expression
6. Poor retention
7. Inadequate listening

Semantic

1. Language
2. International environment

Technical

1. Physical
2. Mechanical
3. Information
4. Geographical
5. Time lags

15.5.1 Human/Personal Communication Barriers

(a) *Distrust, Threat and Fear*: Distrust, threat, and fear undermine communication. In a climate containing these forces, any message will be viewed with skepticism. Distrust can be the result of inconsistent behaviour by the superior, or it can be due to past experiences in which the subordinate was punished for sincerely reporting unfavorable, but true information to the superiors. Similarly, in the light of threats—whether real or imagined—people tend to tighten up, become defensive, and distort information.

(b) *Psychological barriers*: These are connected with the status symbol of an executive. Further, communication can be thwarted if the potential content of the message threatens the psychological or economic wellbeing of the recipient. People hear only what they want to hear, but if the message has a bad content, the receiver will not be attentive.

(c) *Organisational barriers*: Members of an organisation may be restricted in their communications to formal channels only . The greater length or span of communications in a larger organisation may pose certain problems, particularly those of coordination, distortion and resistance, that may block the effectiveness of communications to a very great extent. The problem of 'co-ordination' arises because emphasis on communications through official channels is likely to reinforce barriers between vertical units and the number of barriers are increased in the same proportion as are layers of intermediaries (hierarchical levels) in the communication process through which retransmission of messages have to take place.

'Distortion' of a message being transmitted is likely to occur as communications pass through various levels of authority with different managerial approaches and interpretation at each level. Distortion effects impeding effective communication and it is likely to be greater as the number of levels increase in the communication process. The problem of 'Resistance' as a barrier to the desired success of a transmission may occur in varying degrees depending on the extent to which various hierarchical levels in the organisation dislike a specific message or regard it as in appropriate.

(d) *Social barriers*: Social values held by people often act as personal barriers to free, frank and effective communications. Social status can be barriers to communication. In the organisational hierarchy, a certain status is attached to a position, which boosts the ego of the incumbent. Subordinates become aware of the existence of such status in their relationships with their superiors. This may distort the upward communication process. This barrier is reflected through lack of spirit of friendliness, genuine co-operation and teamwork.

(e) *Faulty expressions and lack of clarity*: Irrespective of how a communication is delivered, messages may be expressed badly because of such faults as poorly selected words or phrases, inadequate vocabulary, poor organisation of ideas, lack of coherence, careless omissions, unnecessary and irritating repetitions etc. Besides, communication is often vague and badly expressed through the use of inadequate words and poor organisation of ideas, resulting in lack of clarity and precision. Thus it always results in creating noice and some loss in transmission of the message communicated.

(f) *Poor retention*: In a series of transmission from one person to the next, the message becomes less and less accurate. Poor retention of information is another serious problem. Thus, the necessity of repeating the message and using several channels is rather obvious. Consequently, companies often use more than one channel to communicate the same message.

(g) *Inadequate listening as barriers*: Listening is an important element in interpersonal communications and people in organisations spend about two-third of their work-day in verbal communications, half of this involving listening. Yet most people lack the skill of listening because of individual differences in the level of their mental alertness, capacity of intelligent understanding, ability to absorb and organise information or message, etc. The readiness of an individual to talk may also interfere with adequate and correct listening.

Listening requires greater mental effort than speaking. This is often not realised. Whilst one hears with the ears, one listens with the mind. A known barrier to effective listening is the tendency to evaluate in terms of the listener's frame of reference rather than that of the speaker. In addition to above, emotions, unclassified assumptions, resistence to change and closed mind also act as barriers of communication.

15.5.2 Semantic Barriers

a) *Language*: Semantic barriers arise from the limitations of the language itself. Language may take any of the three forms: words, pictures and actions. Words have several meanings and they become meaningless unless they are put into context. Further words and concepts have different meanings for different persons. Even the most careful use of a dictionary cannot eliminate misunderstanding. Words having more than one meaning should be avoided in order to remove misunderstanding.

b) *International Environment*: Communication in the international environment becomes even more difficult because of different languages, cultures, and one has to take a variety of steps, such as, language training, translation courses, etc.

15.5.3 Technical Barriers

(a) *Physical obstructions as barriers*: Physical barriers which are due to environmental factors, such as weather disturbance, physical distance, distracting noises, etc., Physical distance between people is also created because of excessive hierarchy in organisation.

The reliance upon the "unity of command" concept requires that formal communications follow prescribed channels through the organisation.

(b) *Mechanical barriers*: These are connected with the technical impediments in the way of communication within a company. These comprise barriers arising out of organisational structure, where responsibility and authority are not properly assigned. "If channels are not clear, if there are dead ends, blocked passages or bottlenecks, communication is chaotic and non-existent."

(c) *Information overload*: One might think that more and unrestricted information flow would help people overcome communication problems. But unrestricted flow may result in too much information. People respond to information overload in various ways. *First*, they may disregard certain information. A person getting too much mail may ignore letters that should be answered. *Second*, if they are overwhelmed with too much information, people make errors in processing it. *Third*, people may delay processing information either permanently or with the intention of catching up in the future. *Fourth*, people may filter information. Filtering may be helpful when the most pressing and most important information is processed first and the less important messages receive lower priority. *Finally*, people respond to information overload by simply escaping from the task of communication. In other words, they ignore information or do not communicate information because of an overload.

(d) *Geographical*: Communication barriers due to geographical distance is another barrier. Because of distance the communication reaches the destiny after the scheduled time. In some cases, this creates bottleneck for smooth processing of communication. But today there are several telecommunication media with which communication can be transmitted from one place to other at fast speed.

(e) *Time lag*: It has been often found that managers themselves fail to transmit necessary messages to their subordinates because of their laziness or assumption that everybody knows or desire to maintain secrecy. Sometimes managers transmit messages implying change that affect employees (e.g.place type or order of works) without providing sufficient time or period of necessary adjustments to the implications of communication.

15.6 PRINCIPLES OF EFFECTIVE COMMUNICATION

The organisations should strive to have an effective communication to ensure the best results. 'Noise' distracts the communication and all efforts need to be made to avoid the noise. Further, the sender needs to determine and mention the purpose of communication. It will be useful to prepare a plan of presentation on the basis of information to be transmitted. To make it effective unnecessary words may be avoided and the feedback needs to be encouraged.

Koontz and O'Donnel has suggested the following as basic principles of effective communication:

a) A communication should follow the 'principles of clarity' in order to be effective which implies that an information or message to be transmitted must be expressed in a well thought-out language and conveys in a way that can be easily comprehended or properly understood by the receiver;

b) Another principle for the effectiveness of a communication is the (principle of ensuring the need for full attention and concentration to any transmission oral or written.

c) A communication to be effective must follow 'the principle of integrity' a based on the recognition that managerial communications are means rather than ends and its purpose is "to support understanding by individuals as they achieve and maintain the co-operation required to fulfil organisational objectives."

d) The 'principle of strategic uses of informal organisation' implying that managers must use the 'Grapevine' or informal channels of communications, where essential, to supplement the formal lines or channels of organisational communications to ensure maximum effectiveness of intended transmissions.

In general the following may be stated as guidelines for well as the purpose of the specific communication;

i) One must be clear about what one wishes to communicate as well as the purpose of the specific communication;

ii) The transmission of a message ought to be, as far as possible, in the language which may be understood by the receiver;

iii) The content of a communication must be adequate;

iv) Care must be taken to choose right medium or technique of the communication;

v) While issuing a communication, it is necessary as well as desirable to keep in view the total physical and human setting;

vi) While communicating, full attention and concentration of the receiver must be ensured;

vii) Care must be taken to ensure that communication takes place as 'a two-way process'. Reciprocity in communi cations must be realised and feedback of a message transmitted must be ensured;

viii) Since 'action' is louder than 'words', care must be taken to ensure that any action is not contrary to a specific communication; and

ix) Efforts must be directed towards improvements in commu-nications through the provision of adequate training facilities.

The American Mangement Association (AMA) stated *ten commandments* of good communication. They are

1) Seek to clarify your ideas before communicating

2) Examine the true purpose of each communication

3) Consider the total physical and human setting whenever you communicate

4) Consult with others, where appropriate in planning communication

5) Be mindfnl while you communicate the overtones as well as the basic content of your message

6) Take the opportunity, when it arises to convey something of help or value to the researcher

7) Follow up your communications

8) Communicate for tomorrow as well as today

9) Be sure your actions support your communications, and

10) Seek not only to be understood but to understand be a good listemer.

15.7 LET US SUM UP

Communication is the transfer of information from the sender to the receiver, with the information being understood by both the sender and the receiver. From the context of management, communication is vital in the relationship between executive and their subordinates as it is a process through which the work ultimately gets done. Every executive must, therefore, know how to communicate.

Communication may be formal or informal. Formal communication may be either vertical or lateral. Vertical communication is communication that moves up and down the organisation's chain of command. Lateral or horizontal communication is between persons in two different departments, it improves coordination. The three forms of formal communication are: oral, written and non-verbal. Informal communication occurs outside the organisation's formal channels. A particularly quick and pervasive type of informal communication is the 'grapevine'.

Whether formal or informal, the seven steps of the communication process are : source, encoder, the message, the channel, the decoder, the communication receiver and the action.

Communication is often faulty because of certain barriers which exist and not noticed or corrected. Different types of barriers to communication are discussed in this unit. Many of these barriers can be overcome through the use of feedback and simple language. Important principles for effective communication are also discussed in the unit. Finally, it is essential that barriers that are likely to block effective communication in an organisation must be identified and all possible efforts must be made to make communications effective and successfu' ' y transmitting information or messages clearly keeping in view the need and objectives of messages to be communicated.

To conclude communication is part of management and h as to be used at every stage, whether it is in terms of planning, or directive or controlling.

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15.9 GLOSSARY

Bottleneck : any point at which movement or progress is slowed down because it must be funneled through it.

Channel : the proper or official course of transmission of communications.

Chaotic : in a completely confused or disordered condition.

Comprehend : to include; take in ; comprise.

Consistent : holding always to the same principles or practice.

Decoder : to translate (a coded message) into ordinary, understandable language.

Distort : to change the usage or normal shape.

Encoder : to put (a message, information, etc.) into code.

Feedback : a process in which the factors that produce a result are themselves modified, corrected, strengthened, etc. by that result.

Grievance : a circumstance thought to be unjust or injurious and ground for complaint or resentment.

Hierarchy : a group of persons or things arranged in order of rank, grade, class, etc.,

Information : knowledge acquired in any manner; facts; data; learning; lore.

Mandatory : authoritatively commanded or required obligatorily

Message : a communication passed or sent between persons by speech, in writing by signals, etc.

Morale : moral or mental condition with respect to cour age, discipline, confidence, enthusiasm, willing ness to endure hardship, etc., within a group in relation to a group, or within an individual.

Orientation : familiarization with and adaptation to a situa tion or environment.

Overwhelm : to make helpless, as with greater force or deep emotion; overcome; crush; overpower.

Patron : a regular customer.

Peer : a person or thing of the same rank.

Recipient : a person or think that receives.

Resistance : the act of resisting, opposing, withstanding.

Semantic : pertaining to meaning, especially, meaning in language.

Skepticism : doubting attitude or state of mind.

Source : any person, place or thing by which something supplied.

Spontaneous : acting in accordance with or resulting from a natural feeling, impulse or tendency, without any constraint, effort, or premeditation.

Vital : necessary or essential to life; being a source or support of life.

15.10 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS:

1) What is communication ? Discuss its aims and objectives.
2) Define the term Communication and describe its functions.
3) Explain the important steps involved in a communication process.
4) What are the various Channels of Communication ? Distinguish between Formal and Informal Communication.
5) What are the common barriers to communication in an organisation?

II. SHORT NOTES:

a) Communication Process
b) Formal Communication
c) Lateral Communication
d) Grapevine
e) Written Communication

UNIT - 16 : MANAGEMENT OF CHANGE

Structure

16.0 AIMS AND OBJECTIVES

The aim of this unit is to introduce you the concept and trends of Management of Change.

After reading this unit, you will be able to

- argue that the library work forms a part of service enterprise
- explain that socio-technical change is continuous process and it has a high impact on libraries
- discuss the need for libraries and Information centres for adopting to change is inevitable to sustain in the changing environments
- describe various approaches for adaptation to change
- explain the strategy of planning for change.

16.1 INTRODUCTION

"The old order changeth, yielding place to new" is an axiom which needs no explanation. Organisation are like living organisms and they need to keep harmony with their ever-changing environment for their survival, growth and prosperity.

'Change' means a deviation from the existing or usual practice, change may take place in policies, processes, procedures, workload, recruitment, etc. These changes will have impact on the employees either directly or indirectly. When change is consciously imposed from within the organization, it opens new avenues for growth. The change is also an essence of growth and edict of management. (Arunachalam)

Change is inevitable for any institution and libraries and information centres are no exception. Change can be social, political, economic or technological. It can be caused due to internal or external forces. Whatever the causes, the institutions should have an effective management system to adopt and plan for change.

It can also be said that change is essence of growth and it opens new avenues of growth, if it is continuously imposed within. It will have inpact on employees both directly and indirectly.

The following few points briefly elucidate the various factors which have been affecting the change in library and information services.

1) In ancient times libraries are regarded as store houses of knowledge and the service aspect is neglected largely. After the Second World War, dissemination of information has gained significance. The society has become more information conscious. To serve the information needs of diverse population, different types of libraries, viz., public library, academic library and special library have emerged.

2) Political and economic factors play an important role in changing the scope of library and information service. The concept of globalization has opened the library and information service to wider community.

3) The innovation in information technology has brought changes in LIS. Today it has become a common place for computer applications in information processing and retrieval. The technological innovations like networking, internet, e-mail service, etc have made information accessible to the user community world over, promoting the concept of a Global Village (World Wide Web).

4) The limitations of finance, staff and equipment placed greater emphasis on adopting new management techniques by the library and information professionals. The change in management techniques requires specialised skills to be imparted to the information workers.

Change will create an impact on organization and the requirements for the change are reordering of priorities, retraining the staff, reorganization of space, renewal of equipment, restructuring the hierarchy and redirecting the financial resources. These changes are expensive but no alternatives there to implement the organisation's lif

16.2 MANAGEMENT OF CHANGE - DEFINITION

Management of change may be defined as "conscious and concerned initiative by those who are in-charge of the destiny of business undertakings to keep a constant and intelligent watch over the behaviour of uncontrollable forces, to assess their impact and influence on the controllable forces and evolve appropriate strategies and action programme to maintain a dynamic equilibrium between the controllable and uncontrollable forces".

The controllable forms are those forces about which sufficient information is available, as such forces can be managed easily. Uncontrollable forces are those about which much is not known. These uncontrollable forces influence the behaviour of controllable forces and limit the scope of managerial action.

Management of libraries and information centres in modern world has become highly complex. The environment in which they are found itself is highly complex. The complexity and pressure to satisfy the needs in an efficient way have increased the challenge of managing the library and information centres.

Two important objectives of any enterprise are growth and stability. Both these objectives are based on the success of management in winning over resistance to change on the part of staff, users, authorities, suppliers, creditors and the public. Management is the change agent and therefore, management has to keep itself always prepared to recognize the need for accepting the change.

16.3 CHANGE PROCESS

The obvious change in the present society is the "knowledge explosion" , and most people will secure needed information by electronic means in their homes or places of work. Even if this happens, the need will remain for persons to develop collections of material and organize it for use.

Growth is change and it must be recognized with time as it happens. Some people have suggested that the knowledge explosion has increased social instability; that may be true to an extent. Neither of these factors - change and peoples resistance to it - seems likely to disappear consequently, managers have to spend more and more time in planning and implementing change so as to keep anxiety at a minimum. A manager should act like a buffer between staff and technology. Libraries currently are facing the challenge of peoples expectations for more and more services. For example, more service points, bigger collections, longer hours and so on.

Peter Drucker states that major changes that have effected many organisations are those relating to

(1) Introduction of new technologies
(2) Emergence of a world economy
(3) Development of a changing political and social matrix involving much disenchantment without major institutions, and

(4) Creation of a knowledge economy where money is spent on procuring ideas and information and in which knowledge has become the central factor of production.

Stueart and Moran explained that in LICs, some 'change' forces are working. For example, economic constraints coupled with technological developments have produced, cooperative efforts from cooperative acquisitions and cataloguing to computerised interlibrary loan and resource sharing. Both internal and external environment has played an important role in fostering change.

16.3.1 Societal Changes and their Impact on Libraries

The root cause of social tensions is generally found in economic discontent. Very little effort was made in the past to use information technology in an effective way to streamline administration, improve productivity and to create a dynamic society. It would be worth while to use information technology effectively to monitor the performance of the economy and if required, make quick changes.

The socio-technical approach grew out of work started in the Tavistock Institute of Behavioral Research in the 1950s. The approach recognized that successful introduction of new technology required the identification of social needs and goals as well as technical/ economic objectives. The underlying assumption was that a system will only function effectively if human needs such as job satisfaction are acknowledged.

In the 1970s socio-technical approach began to be adopted in various guises for the development of computer systems within organizational environments. The common element in these approaches is the recognition of the interdependence of four factors, namely, technology, tasks, people and organisation.

The introduction of new computerized technology in libraries will have an impact on all the other elements. It, therefore, makes sense to take into account of all aspects of the socio-technical system in computerization so that harmony may be maintained.

Mumford sees the best way of obtaining harmony is involving users participation in the process of analysis and design. From the management point of view, participation in analysis and design enables valuable knowledge and skills of the workforce to be incorporated in the final system.

From management perspective, it is more likely that users will show commitment to and confidence in the final installed system if they have a hand in its development.

16.3.2 Information Technology and its Impact on LICs

Information technology has created a revolution in information storage and retrieval. Especially, in terms of storage, processing and access to the information. All the modern technology is being slowly introduced in LICs to provide effective and efficient services. Further, newer services are introduced with less effort and there is phenomenal increase of user satisfaction. The new technologies used include computers, telecommunications, networks, etc. It is also observed that the information flow is efficient. It had given a momentum for the development of information industry. It is also an accepted fact that technology had given a new image to LICs and created a change in the attitude and approach towards the activities and programmes.

16.3.3 Problems of Change

The changes to library and information services consequent upon the development and use of new technology are complex and involve alterations to working practices, working relationships, attitudes and levels of expertise.

For example, although the computer is now a common place item in libraries and information centres, in the early stages of its application to information processing and retrieval, there was strong opposition against its use. Lack of proper perception regarding its advantages, the frustration caused in using the software, lack of proper infrastructural facility in the institution concerned and lack of proper management control in the implementation of technology, fear of replacement of jobs, lack of interest in senior professionals for computerization,etc. are some of the reasons that worked against the use of computers in the library and information centres.

16.4 RESISTING AND DRIVING FORCES OF CHANGE

Any change process is intervened by some resisting as well as driving forces. If change is favourable the employees will accept willfully otherwise they will resist.

Resistance to change is a type of behaviour which arises to protect human beings from the real or perceived effects of change Man by nature resists change which is unfamiliar to him.

Human resistance to change may take the form of passive acceptance, subtle sabotage, aggressive refusal, complete breakdown of work and so on depending on the situation. Resistance to change is not a good sign of industrial relations in any undertaking. It is the duty of the management to restore and maintain the group equilibrium and personal adjustment which change upsets. Change requires individuals to make new adjustments.

Kurt Lewin observed that in any situation, two sets of forces operate - the driving forces and the resisting forces.

Resistance also implies lack of understanding about change. It is also unwillingness and inability to absorb change. In other words, it is to inability to make the necessary psychological and other adjustments while accepting the change. Change has a tendency to destabilize man's existing alignment with his environment.

Resistance to change is caused by economic, psychological and social factors.

16.4.1 Factors Resisting the Change

There are various factors which resist change in an organisation. Some of the important factors resisting the change are

a) Employees feel that there is likely retrenchment leading to unemployment

b) They need to learn new skills, undergo training to enable them to practice new procedures efficiently

c) The present knowledge and skills are likely to be outdated.

d) After working for long time in a specified environment, they become reluctant to learn new things and take new responsibility

e) There is a possibility of displacement or shifting of division / section leading to new position in a new environment.

These factors are social, psychological and personnel, which are likely to make employees resist the change.

16.4.2 Driving Forces of Change

In spite of resisting forces the change process is often supported by some driving forces too.

Some of the driving forces are

i) Need and demand for change
ii) Competition with other institutions/organisations
iii) Criticism and appreciation from the user community
iv) Willingness of authorities, administration and staff towards change.

16.4.3 Adaptation to Change

Managers can follow the following four steps to overcome the resistance to change:

Preparation: A change should not be introduced abruptly and without any preparation. Before any change is initiated its objectives should be laid down and its implications should be analysed. It is imperative for a manager to identify the people who are likely to be affected by change.

Communication: Communication, if effective, can do a lot in overcoming resistance to change. Employees, especially the people whose interests are likely to be affected must be informed of the change.

Participation: Effective practicing of participative management between representatives of management and workers can pave the way for mutual understanding and a complete appreciation of the issues or problems involved in change. Participation of employees will develop a feeling of importance. They will cooperate in implementing the change.

Group Dynamics: The basic unit of change is group and not an individual. Group dynamics can be used by manager to implement change effectively. More research studies have revealed that it is a fruitful approach to overcome resistance to change. Members of a group interact with each other and obtain psychological satisfaction by belonging to the group. If group dynamics is recognised and mobilised properly for introduction of change, results will be more favourable. Resistance to change could be overcome on an enduring basis by systematically planning and implementing the process of change.

16.5 STRATEGIES FOR CHANGE

Planning for change is an important step in any organisation. Before actually implementing a change, there is a need to develop a model. There are four steps in this.

i) Defining the Change Problem

When change is initiated, it is necessary to clearly demarcate what type of change, where it is to be implemented, the extent of change, why this change and how to implement and reactions of both the management and the staff. It is necessary to clearly define the extension and intension of change to enable everyone to have clear perception of the intended change.

The change process is of two parts : a) Whether the change is needed or desired; and b) What type of change is needed.

The first one considers whether change needed or desired in the organisation. For example, does the need concern is changing the state of morale, the way the work is done, the communication system, the reporting system, the structure, the decision making process, the effectiveness of the top team, the relationships between levels, the way goals are set, or something else ?

The second partis considered, if the first part decides to have the change. Then we need to know.

After considering the change related to both organizational change and change process, one can look at the organization system and sub-systems to determine the related areas to a particular problem.

Th appropriate system may be the hierarchy; or may be systems inside and outside of the formal structure. A conscious identification of the parts of a total system which primarily affect or are affected by a particular change, helps to clarify directions for early interventions.

ii) Identifying the Consultants, Resources and Motivators

In order to make the change process a success, it is necessary to identify an expert, who can design and advocate the change to have new environment, i.e., the environment likely to emerge after the change process is completed. The expert may be appointed as consultant. The consultant takes care of change process at the same time involves in convincing and motivating the employees to accept for change.

iii) Determining the Change Strategy

Once change goals are determined, (and defined), it is important to look at intermediate objectives. An intermediate change goals provide a target and a measuring point en route to a larger change objectives.

One of the diagnostic concerns of the subsystems are,

* Readiness of each system to be influenced by the consultant

* Accessibility of each of the subsystems to the consultant

* Linkages of each of the sub systems to the total system or organization.

Weighing these three variables helps the consultant to make an operational decision based on data, whether one uses this model or some other. The concept of systematic analysis of a change problem helps us to develop realistic, practical, and attainable strategy and goals.

As stated earlier, change is a inevitable for the growth of an organisation (i.e., LIC. The strategies need to be implemented by the top management and the consultant to make the change process a success. In this context it may be worthwhile to study the *ten commandments of change* stated by M. Arunachalam in his article in *The Hindu.* They are

(1) Make the employees aware that a change is to be introduced (This will create an interest in them to know about the change)

(2) Make the employees realise the direct and indirect benefits of change to them and them only. (It will motivate them to accept the change).

(3) Inform them of the proposed change but do not implement immediately. (It will make them analyse the merits and demerits of the change).

(4) Explain the difference between the existing system and the proposed system. (It will give their acceptance of the change).

(5) Inform them that they are going to do the same job which they were doing so far, but on a better and easier way. (It will make them invite the change).

(6) Ask for their comments and suggestions for the betterment of the change. (It will make them think deeply about the change).

(7) Inform them that they will be given sufficient training, if necessary, at company's cost. (This will make them happy).

(8) If there is still resistance for a section of the employees, convince them. Do not thrust the change on them. (It will make them accept the change whole heartedly).

(9) Implement the change with the acceptance and cooperation of the employees. (It will create an involvement in the minds of employees).

(10) Inform them periodically about the achievements made due to change and how it has benefited them. (It will lead to the implementation of the change successfully and also will result in better management - employees relationship).

These ten commandments will help in preparing the strategies and plans for the change in any organisation including the libraries.

16.6 PLANNING FOR CHANGE

Planning for change involves various dimensions to the managers of an organisation. This section discusses the six-step model of Peter Drucker.

16.6.2 Drucker's Six-Step Model

Planning for change involves actions based on a carefully thought out process that anticipates future difficulties, threats and opportunities. Peter F. Drucker proposed a model having six steps which enables planning for the change.

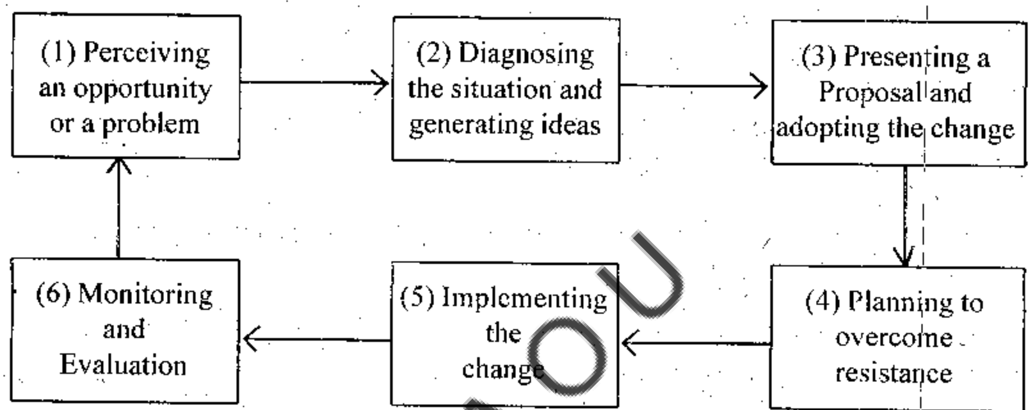

Figure: Drucker's Six-step Model of Planning for Change.

Step-1: Perceiving an opportunity or a problem

Management should obtain a report of performance of different activities of the organisation/sections every month. There can be some operations going beyond expectations and some behind the expectations, which may need change to make it more efficient and economical. The activities/techniques that work well should be adopted into the system. The first step therefore is to locate and perceive the problem.

Step-2: Diagnosing the situation and generating ideas

Once the problem is perceived, next step is to diagnose situation, examine the reasons for the problem and decide upon the alternatives and looking out for new ideas that support problem solution.

Step-3: Presenting a proposal and adopting the change

The ideas thought of should be processed into a formal plan/proposal of action. The plans should be realistic and should convince the management and the people who are getting effected with the change.

Step-4: Planning to overcome resistance

Resistance for change has been dealt in Section 16.4.The management needs to prepare plans to overcome the resistance. The planning should involve the top management and other decision makers. Prior to planning, the forces of resistance should be identified, and the reasons for resistance may be examined.

Step-5: Implementing the change

When we put the change into operation it should not happen in its entirety at once. Instead the change should be thought of in phases of implementation. The change should be implemented in any unit/section on experimental basis till its success is assured. The staff should be convinced of its obvious advantages / merits so that resistance will be minimized.

Step-6: Monitoring and Evaluation

However successful is the plan, the entire plan for change will collapse, if there is no constant monitoring and evaluating system built into it.

Every phase of implementation should be properly monitored. Mechanism should be developed to correct the discrepancies arising at any stage of implementation. Continuous feedback from the actual users and operating staff of the system will help to sustain the planned change.

16.7 LET US SUM UP

Change is essence of growth, it also opens new avenues of growth. In a competitive market situation. every organisation needs to accept the change. Several times the change is inevitable for survival. The change is essential in the control of new technology, changing demands, attitudes and objectives. These factors make the organisations, especially LICs to accept the change especially to provide efficient services. We can observe how the change is taking place in any library due to use of information technology.

We can observe the information packaging and repackaging, and access to the information has improved very well. The availability of information had become easy due to networking. There is a revolutionary change in information storage. All these had brought direct influence on the libraries and their staff. Initially, there was resistance for introduction of IT in libraries and the staff had agreed for change as they were convinced.

In this unit we have also seen the change process and also resisting forces. However, there is a need for strategies and plans for successful implementation.

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16.9 ASSIGNMENT

Identify various driving and resisting factors involved in planning for change with reference to library automation. Prepare a report taking a case study on the computerisation of your library.

16.10 MODEL EXAMINATION QUESTIONS

I. ESSAY QUESTIONS

1) What do you understand by the phrase 'Management by Change' ? Briefly describe its implications to LICs.

2) What is the impact of technological advances on organisations like library/ information centres ?

3) List out various factors driving and resisting forces in managing the change.

4) Briefly describe various strategies in change planning.

5) Critically examine the Peter Drucker's Six-Step Model of planning for change.

II. SHORT NOTES

a) Driving forces of change

b) Adaptation to change

c) Ten commandments of change