G.S.College Of Commerce,Wardha

Department of B.Com Computer Application

BCCA Part-III Sem-V

System Analysis & Design

Presented By

Prof. Amol Raut
Assistant Professor

Dr. Revati Bangre
Co-ordinator
BCCA Department

Dr. Anil Ramteke
Principal(offig)

Syllabus Of System Analysis & Design

UNIT- I

System Concept And The Information Systems Environment- Introduction, The Systems Concept, Characteristics of a System, Elements of a System, Types of a System.

The System Development Life Cycle - Introduction, System Development Life Cycle, Considerations for the Candidate System, Prototyping.

The Role Of System Analyst- Introduction, Definition, Historical Perspective, The Multifaceted Role of The Analyst, The Place of the Analyst in the MIS Organization, Rising Positions in System Development, Conclusions.

UNIT-II

System Analysis- System Planning and The Initial Investigation- Introduction, Bases For Planning In System Analysis, Initial Investigation.

Information Gathering- Introduction, What Kinds of Information Do We Need?, Where Does Information Originate?, Information Gathering Tools.

The Tools Of Structured Analysis- Introduction, What is Structured Analysis?, The Tools of Structured Analysis. **Feasibility Study-** Introduction, System Performance Definition, Feasibility Study.

Syllabus Of System Analysis & Design

UNIT- III

System Design- The Process And Stages Of System Design- Introduction, The Process Of Design, Design Methodologies, Major Development Activities, Audit Consideration.

Input/output And Forms Design- Introduction, Input Design, Output Design, Forms Design.

File Organization And Data Base Design- Introduction, File Structure, File Organization, Data Base Design, The Role Of The Data Base Administrator.

UNIT-IV

System Implementation- System Testing And Quality Assurance- Introduction, Why System Testing?, What Do We Test For?, The Test Plan, Quality Assurance, Trends In Testing, Role Of Data Processing Auditor.

Implementation And Software Maintenance- Introduction, Conversion, Combating Resistance To Change, Post-Implementation Review, Software Maintenance.

Hardware/ Software Selection - Introduction, The Computer Industry, The Software Industry, A Procedure For Hardware/ Software Selection, Financial Considerations In Selection, The Used Computer, The Computer Contract.

Paper Pattern Of System Analysis And Design

Time - 3 Hours.   Total Marks- 80

Q1.

N. B. – 1. Each question carries two marks.

   2. Answers should not more than five lines

A. Unit I

B. Unit I

C. Unit II

D. Unit II

E. Unit III   8 x 2 = 16

F. Unit III

G. Unit IV

H. Unit IV

Paper Pattern Of System Analysis And Design

Q2.   N. B. – 1. Each question carries three marks.

   2. Answers should not more than five lines.

A. Unit I

B. Unit I

C. Unit II

D. Unit II

E. Unit III   8 x 3 =24

F. Unit III

G. Unit IV

H. Unit IV

Paper Pattern Of System Analysis And Design

Each question carries five or ten marks.

Answers should not more than 400 words for 5 marks questions and 600 words for 10 Marks questions respectively.

Q3. **Either**

(A) 5 Unit I

(B) 5 Unit I

OR

(C) 10 Unit I

Q4. **Either**

(A) 5 Unit II

(B) 5 Unit II

OR

(C) 10 Unit II

Paper Pattern Of System Analysis And Design

Each question carries five or ten marks.

Answers should not more than 400 words for 5 marks questions and 600 words for 10 Marks questions respectively.

Q5. **Either**

(A) 5 Unit III

(B) 5 Unit III

OR

(C) 10 Unit III

Q6. **Either**

(A) 5 Unit IV

(B) 5 Unit IV

OR

(C) 10 Unit IV

Unit-I
The Systems Concepts

➤ The term system is derived from the Greek word systems, which means an organized relationship among functioning units or components. A system exists because it is designed to achieve one or more objectives.

➤ System is an orderly grouping of interdependent components linked together according to a plan to achieve a specific objective .The word component may refer to physical parts, managerial steps ,or a subsystem in a multilevel structure. The components may be simple or complex, basic or advanced.

➤ System is defined as a set of elements arranged in an orderly manner to accomplish an objective. System is not a randomly arranged set. It is arranged with some logic governed by rules, regulations, principles and policies.

System Concepts has three Basics Implications

1. A system must be designed to achieve a predetermined objective.

2. Interrelationships and interdependence must exit among the components.

3. The objectives of the organization as a whole have a higher priority than the objectives of its subsystems. For example, computerizing personnel applications must conform to the organization's policy on privacy, confidentiality and security as well as making selected data. available to the accounting division on request.

Characteristics of A System

➤Organization

➤Interaction

➤Interdependence

➤ Integration

➤ Central Objective

Characteristics of A System

Some characteristics that are present in all systems: Organization (order), interaction, interdependence, integration and a central objective.

Organization:
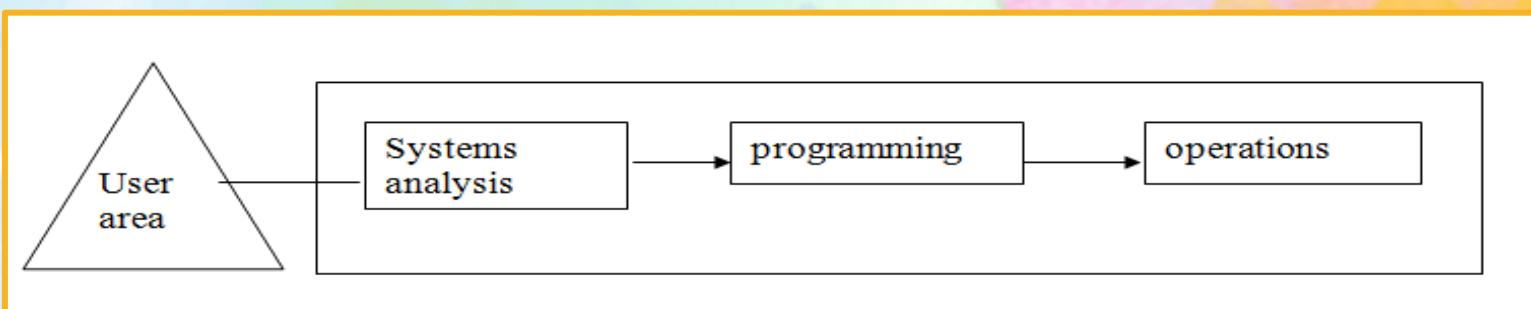
❖Organization implies structure and order. It is the arrangement of components that helps to achieve objectives.

❖In the design of a business system, for example, the hierarchical relationships starting with the president on top and leading downward to the blue – collar workers represents the organization structure.

❖Such an arrangement portrays a system – subsystem relationship, defines the authority structure, specifies the formal flow of communication and formalizes the chain of command.

Interaction

❖ Interaction refers to the manner in which each component functions with other components of the system.

❖ In an organization, for example, purchasing must interact with production, advertising with sales and payroll with personnel.

❖ In a computer system, the central processing unit must interact with the input device to solve a problem.

❖ In turn, the main memory holds programs and data that the arithmetic unit uses for computation. The interrelationship between these components enables the computer to perform.

Interdependence

➢ Interdependence means the parts, or the components of an organization or computer system depend on one another.

➢ Each component or parts should depend on other components of an organization.

➢ One component or subsystem depends on the input of another subsystem for proper functioning, i.e., the output of one subsystem is required input for another subsystem.

➢ For example: - A decision to computerize an application is initiated by the user, analyzed and designed by the analyst, programmed and tested by the computer operator. In the below figure:- none of these persons can perform properly without the required input from others in the computer center subsystem.

Central Objective

❖ The last characteristics of a system is its central objective. Objectives may be real or stated.

❖ Although a stated objective may be the real objective, it is not uncommon for an organization to state one objective and operate to achieve another.

❖ The important point is that users must know the central objective of a computer application early in the analysis for a successful design and conversion.
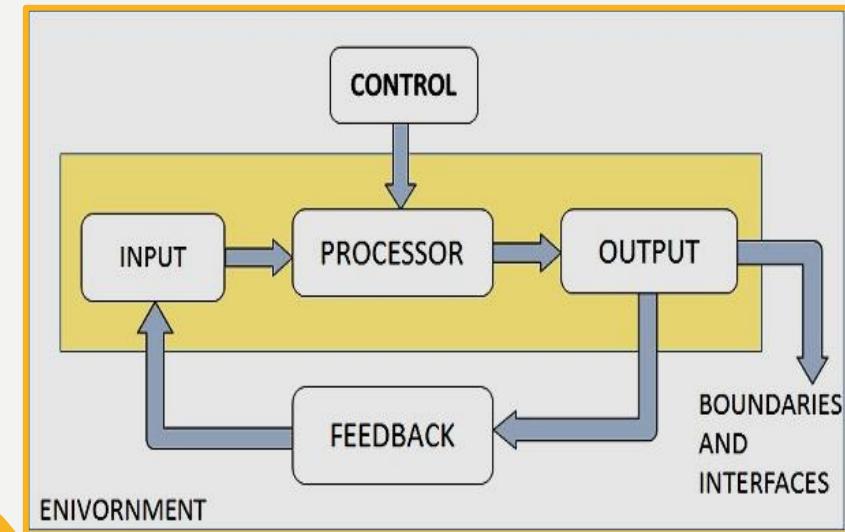
Integration

❖ Integration is concerned with how system components are connected together.

❖ It means that the parts of the system work together within the system even if each part performs a unique function.

❖ Integration is concerned with how a system is tied together. It is more than sharing a physical part or location.

❖ It means that parts of the system work together within the system even though each part performs a unique function.

❖ Successful integration will typically produce a synergistic effect and greater total impact than if each component works separately.

Elements of a system

The following key elements must
be considered

1.Output and inputs

2.Processor(s)

3.Control

4.Feedback

5.Environment

6.Boundaries and interface

Outputs and inputs

❖A major objective of a system is to produce an output that has value to its user.

❖Whatever the nature of the output, it must be in line with expectations of the intended user.

❖Inputs are the elements that enter the system for processing. Output is the outcome of processing .

❖A system feeds on input to produce output in much the same way that a business brings in human, financial and material resources to produce goods and services.

❖It is important to point out here that determining the output is a first step in specifying the nature, amount and regularity of the input needed to operate a system.

Processor

❖ The processor is the element of a system that involves the actual transformation of input into output.

❖ It is the operational component of a system. Processor may modify the input totally or partially, depending on the specifications of the output.

❖ This means that as the output specifications change so does the processing.

❖ In some cases, input is also modified to enable the processor to handle the transformation.

Control element

❖ The control element guides the system. It is the decision making subsystem that controls the pattern of activities governing input, processing ,and output.

❖ In an organizational contex,management as a decision-making body controls the inflow, handling and outflow of activities that affect the welfare of the business. In a computer system, the operating system and accompanying software influence the behavior of the system.

❖ Output specification determine what and how much input is needed to keep the system in balance.

❖ In system analysis, knowing the attitudes of the individual who controls the area for which a computer is being considered can make a difference between the success and failure of the installation.

❖ Management support is required for securing control and supporting the objective of the proposed change.

Feedback

❖ Control in a dynamic system is achieved by feedback. Feedback measures output against a standard in some form of procedures that includes communication and control.

❖ Output information is feedback to the input and/or to management for deliberation. After the output is compared against performance standards, changes can result in the input or processing and consequently, the output.

❖ Feedback may be positive or negative, routine or informational. Positive feedback reinforces the performance of the system. It is routine in nature.

❖ Negative feedback generally provides the controller with information for action. In systems analysis, feedback is important in different ways.

❖ During analysis the user may be told that the problems in a given application verify initial concerns and justify the need for change.

❖ Another form of feedback comes after the system is implemented.

Environment

❖ The environment is the "suprasystem"within which an organization operates.

❖ It is the source of external elements that impinge on the system. In fact, it often determines how a system must function.

❖ The organization's environment, consisting of vendors,competitors,and others, may provide constraints and consequently, influence the actual performance of the business.

Boundaries And Interface

❖ A system should be defined by its boundaries –the limits that identify its components, processes and interrelationships when it interfaces with another system.

❖ Each system has boundaries that determine its sphere of influence and control.

For Eg.

A teller system in a commercial bank is restricted to the deposits, withdrawals & related activities of customers checking and savings accounts.

TYPES OF SYSTEMS

Systems have been classified in different ways. Common classification are

1. Physical or abstract
2. Open or closed
3. Man-made information systems
4. Adaptive and Non Adaptive System
5. Permanent or Temporary System
6. Natural and Manufactured System
7. Deterministic or Probabilistic System
8. Social, Human-Machine, Machine System

Physical or Abstract System

➤ Physical systems are tangible entities. We can touch and feel them.

➤ Physical System may be static or dynamic in nature. For example, the physical parts of the computer centre are the offices, desks and chairs are the physical parts of computer center which are static. A programmed computer is a dynamic system in which programs, data, and applications can change according to the user's needs.

➤ Abstract systems are non-physical entities or conceptual that may be formulas, representation or model of a real system.

➤ The use of models makes it easier for the analyst to visualize relationships in the system under study.

➤ The objective is to point out the significant elements and the key interrelationships of a complex system.

Open Or Closed System

➢ An open system must interact with its environment. It receives inputs from and delivers outputs to the outside of the system. For example, an information system which must adapt to the changing environmental conditions.

➢ A closed system does not interact with its environment. It is isolated from environmental influences. A completely closed system is rare in reality.

➢ It permit interaction across its boundary, it receives inputs from and delivers outputs to the outside. An information system falls into this category. Since it must adapt to the changing demands of the user.

➢ In contrast, a closed system is isolated from environmental influences. In reality, a completely closed systems is rare.

➢ A focus on the characteristics of an open system is particularly timely in the light of present day business concerns with computer fraud, invasion of privacy, security controls and ethics in computing.

Man-made Information Systems

➤ It is an interconnected set of information resources to manage data for particular organization, under Direct Management Control (DMC).

➤ This system includes **hardware, software, communication, data, and application** for producing information according to the need of an organization.

➤ Man-made information systems are divided into three types −

➤ **Formal Information System** − It is based on the flow of information in the form of memos, instructions, etc., from top level to lower levels of management.

➤ **Informal Information System** − This is employee based system which solves the day to day work related problems.

➤ **Computer Based System** − This system is directly dependent on the computer for managing business applications. For example, automatic library system, railway reservation system, banking system, etc.

Adaptive and Non Adaptive System

➤ Adaptive System responds to the change in the environment in a way to improve their performance and to survive. For example, human beings, animals.

➤ Non Adaptive System is the system which does not respond to the environment. For example, machines.

Permanent or Temporary System

➤ Permanent System persists for long time. For example, business policies.

➤ Temporary System is made for specified time and after that they are demolished.

For example, A DJ system is set up for a program and it is dissembled after the program.

Natural and Manufactured System

➤ Natural systems are created by the nature. For example, Solar system, seasonal system.

➤ Manufactured System is the man-made system. For example, Rockets, dams, trains.

Deterministic or Probabilistic System

➤ Deterministic system operates in a predictable manner and the interaction between system components is known with certainty. For example, two molecules of hydrogen and one molecule of oxygen makes water.

➤ Probabilistic System shows uncertain behavior. The exact output is not known. For example, Weather forecasting, mail delivery.
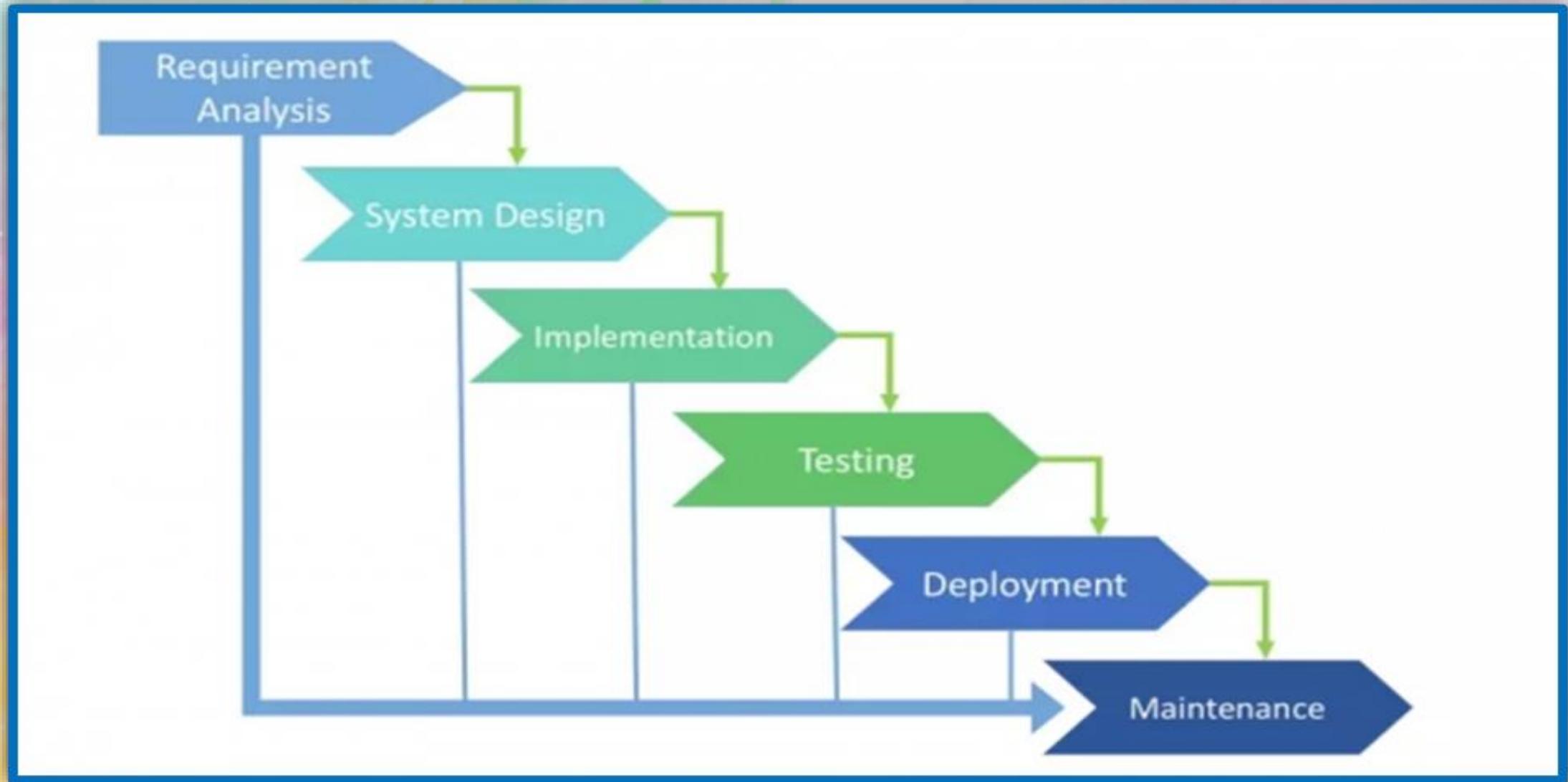
SOCIAL, HUMAN-MACHINE, MACHINE SYSTEM

➢ Social System is made up of people. For example, social clubs, societies.

➢ In Human-Machine System, both human and machines are involved to perform a particular task. For example, Computer programming.

➢ Machine System is where human interference is neglected. All the tasks are performed by the machine. For example, an autonomous robot.

SYSTEM DEVELOPMENT LIFE CYCLE (SDLC)

- System Development Life Cycle (SDLC) is a conceptual model which includes policies and procedures for developing or altering systems throughout their life cycles.

- SDLC is used by analysts to develop an information system. SDLC includes the following activities −

  ➢ Requirements

  ➢ System Design

  ➢ Implementation

  ➢ Testing

  ➢ Deployment

  ➢ Operations

  ➢ Maintenance

SYSTEM DEVELOPMENT LIFE CYCLE (SDLC)

PHASES OF SDLC

Systems Development Life Cycle is a systematic approach which explicitly breaks down the work into phases that are required to implement either new or modified Information System.

1. **Recognition of need**

2. **Feasibility study**

3. **Analysis**

4. **Design**

5. **Implementation**

6. **Post-implementation and maintenance**

PHASES OF SDLC

1.Recognition of need

➢ This recognition of need leads to a preliminary survey or an initial investigation of current system to determine whether an alternative system can solve the problem.

➢ If the problem is serious enough, management may have an analyst look at it. One must know what the problem is before it can be solved.

➢ The basis for a candidate system is recognition of a need for improving an information system or procedure.

➢ For example, a supervisor may want to investigate the system flow in purchasing, or a bank president has been getting complaints about the long lines in the drive-in.

➢ This need leads to a preliminary survey or an initial investigation to determine whether an alternative system can solve the problem.

2. FEASIBILITY STUDY OR PLANNING

Depending on the results of the initial investigation, the survey is expanded to a more detailed feasibility study. A feasibility study is a test of a system proposal according to its workability, impact on the organization, ability to meet user needs, and effective use of resources.

• The objective of a feasibility study is not to solve the problem but to acquire a sense of its scope. During the study, the problem definition is crystallized and aspects of the problem to be included in the system are determined. Consequently, costs and benefits are estimated with greater accuracy at this stage.

• The result of the feasibility study is a formal proposal. This is simply a report -a formal document detailing the nature and scope of the proposed solution. It consists of the following:

1. **Statement of the problem:**

A carefully worded statement of the problem that led to analysis.

2. Summary of findings and recommendations:

A list of the major findings and recommendations of the study. It is ideal for the user who requires quick access to the results of the analysis of the system under study. Conclusions are stated, followed by a list of the recommendations and a justification for them.

2. FEASIBILITY STUDY OR PLANNING

3. Details of findings:

An outline of the methods and procedures under taken by the existing system, followed by coverage of the objectives and procedures of the candidate system. Included are also discussions of output reports, file structures and costs and benefits of the candidate system.

4. Recommendations and conclusions:

Specific recommendations regarding the candidate system, including personnel assignments, costs, project schedules and target dates.

➢ Define the problem and scope of existing system.

➢ Overview the new system and determine its objectives.

➢ Confirm project feasibility and produce the project Schedule.

➢ During this phase, threats, constraints, integration and security of system are also considered.

➢ A feasibility report for the entire project is created at the end of this phase.

ANALYSIS AND SPECIFICATION

➢ Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system.

➢ One aspect of analysis is defining the boundaries of the system and determining whether or not a candidate system should consider other related systems.

➢ During analysis, data are collected on the available files, decision points and transactions handled by the present system.

➢ Data flow diagrams, interviews, on-site observations and questionnaires are examples. The interview is a commonly used tool in analysis.

➢ Gather, analyze, and validate the information.

➢ Define the requirements and prototypes for new system.

➢ Evaluate the alternatives and prioritize the requirements.

➢ Examine the information needs of end-user and enhances the system goal.

➢ A Software Requirement Specification (SRS) document, which specifies the software, hardware, functional, and network requirements of the system is prepared at the end of this phase.

SYSTEM DESIGN

➢ The most creative and challenging phase of the system life cycle is system design. The term design describes a final system and the process by which it is developed.

➢ It refers to the technical specification that will be applied in implementing the candidate system. It also includes the construction of programs and programs testing.

➢ The first step is to determine how the output is to be produced and in what format. Samples of the output are also presented. Second input data and master files have to be designed to meet the requirements of the proposed output.

➢ The operational phases are handled through program construction and testing, including a list of the programs needed to meet the system's objectives and complete documentation.

➢ Finally, details related to justification of the system and an estimate of the impact of the candidate system on the user and the organization are documented and evaluated by management as a step toward implementation.

SYSTEM DESIGN

➢ Includes the design of application, network, databases, user interfaces, and system interfaces.

➢ Transform the SRS document into logical structure, which contains detailed and complete set of specifications that can be implemented in a programming language.

➢ Create a contingency, training, maintenance, and operation plan.

➢ Review the proposed design. Ensure that the final design must meet the requirements stated in SRS document.

➢ Finally, prepare a design document which will be used during next phases.

➢ Implementation

➢ Implement the design into source code through coding.

➢ Combine all the modules together into training environment that detects errors and defects.

➢ A test report which contains errors is prepared through test plan that includes test related tasks such as test case generation, testing criteria, and resource allocation for testing.

➢ Integrate the information system into its environment and install the new system.

IMPLEMENTATION

➤ The implementation phase is less creative than system design. It is primarily concerned with user training, site preparation and file conversion.

➤ When the candidate system is linked to terminals or remote sites, the telecommunication network and tests of the network along with the system are also included under implementation.

➤ During the final testing, user acceptance is tested, followed by user training. followed by user training.

➤ Depending on the nature of the system, extensive user training may be required. Conversion usually takes place at about the same time the user is being trained or later.

MAINTENANCE/SUPPORT

In the maintenance phase, any necessary enhancements, corrections, and changes will be made to make sure the system continues to work, and stay updated to meet the business goals. It is necessary to maintain and upgrade the system from time to time so it can adapt to future needs. The three primary activities involved in the maintenance phase are as follows:

1. Support the system users
2. System maintenance
3. System changes and adjustment

➢ Include all the activities such as phone support or physical on-site support for users that is required once the system is installing.

➢ Implement the changes that software might undergo over a period of time, or implement any new requirements after the software is deployed at the customer location.

➢ It also includes handling the residual errors and resolve any issues that may exist in the system even after the testing phase.

➢ Maintenance and support may be needed for a longer time for large systems and for a short time for smaller systems.

POST-IMPLEMENTATION AND MAINTENANCE

➢ After the installation phase is completed and the user staff is adjusted to the changes created by the candidate system, evaluation and maintenance begin.

➢ Like any system, there is an aging process that requires periodic maintenance of hardware and software.

➢ If the new information is inconsistent with the design specification, then changes have to be made. Hardware also requires periodic maintenance to keep in tune with design specifications. The importance of maintenance is to continue to bring the new system to standards.

CONSIDERATION FOR CANDIDATE SYSTEM:

In today's business there is more demand for computer services than there are resources available to meet the demand. The demand is made up of the following.

1. Operations of existing system.

2. Maintenance that focuses on "patching" programs

3. Enhancements that involve major modifications in program structure or equipment.

4. Requests for candidate system.

All these demands require resources-human, financial, and technological. On the human side the computer department has to provide the following.

1. Computer operators to run equipment.

2. Data entry personnel.

3. System Analyst to define and design specifications.

4. Application programmers to convert System specifications to Computer programs.

5. Maintenance Programmers to debug errors.

6. Supervisors, project leaders and Managers to Co-ordinate the jobs with the users.

POLITICAL CONSIDERATIONS:

❖ In conjunction with the preceding considerations is the political factor, which is partly behavioral.

❖ For eg-managers in a production firm are considering two office automation proposals: Proposal A-a teleconferencing system designed to reduce travel cost, and proposal B- a sales support system.

❖ Proposal –A is justified by hard figures, but it was turned down. Instead proposal-B was sponsored by an influential executive and had the support of the committee. It passed because the right people were convinced it should.

PLANNING AND CONTROL FOR SYSTEM SUCCESS

❖ For the success of a system the analyst role is very important.

❖ First, a plan must be devised, detailing the procedure, some methodology, activities, resources, costs and timetable for completing the system. Second, in larger projects, a project team must be formed of analysts, programmers, a system consultant and user representatives.

❖ Shared knowledge, interaction and the coordination realized through team effort can be extremely effective in contrast with individual analysts doing the same work.

PROTOTYPING

The two major problems with building information systems.

1) The system development life cycle is too long and
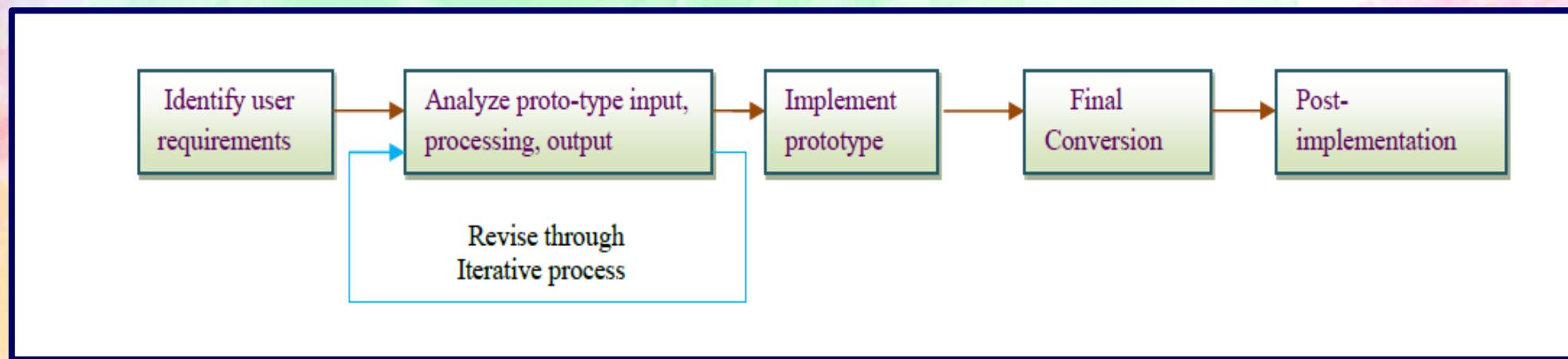
2) The right system rarely development first time.

❖ Lengthy development frustrates the user. Analysts seem to get bogged down with tedious methodologies for developing systems.

❖ An alternative to this "paralysis by analysis" is an advanced technique called prototyping.

❖ Prototyping recognizes problems of cognitive style and uses advanced computer technology.

PROTOTYPING

It advocates building a simple system through trial and error and refining it through an iterative process. The basic steps are:

1. Identify user information and operating requirements.

2. Develop a working prototype that focuses on only the most important function, using a basic database.

3. Allow the user to use the prototype, discuss requested changes and implement the most important changes.

4. Repeat the next version of prototype with further changes incorporated until the system fully meets user requirements.

The Role Of System Analysts

Definition of System Analysts:

The act, process, or profession of studying an activity (such as a procedure, a business, or a physiological function) typically by mathematical means in order to define its goals or purposes and to discover operations and procedures for accomplishing them most efficiently.
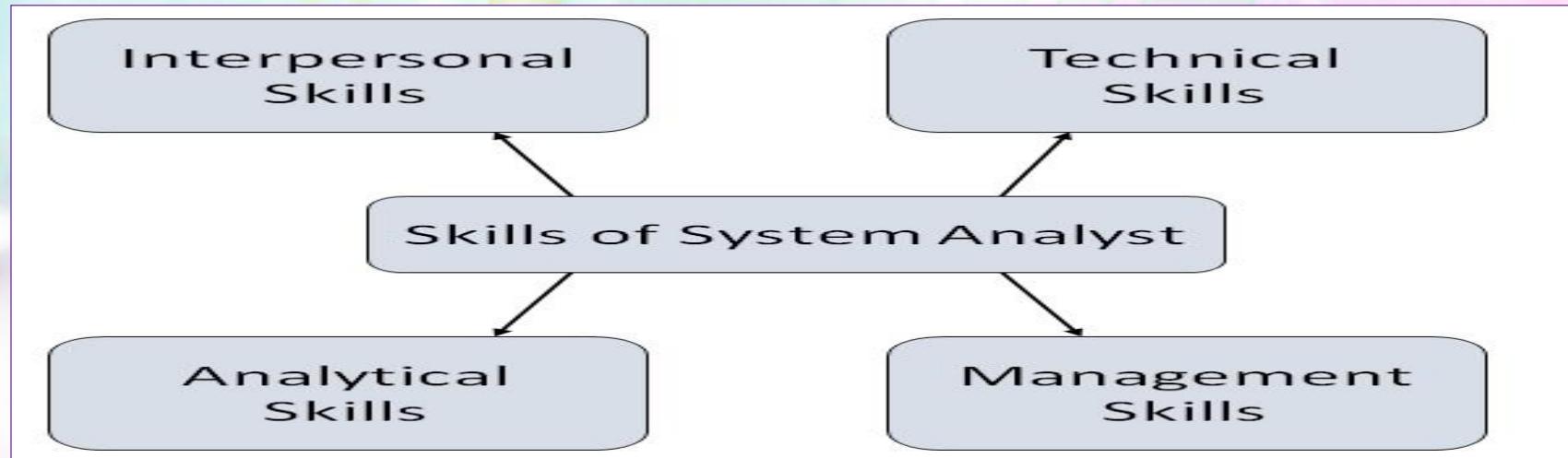
Role of System Analysts

The system analyst is a person who is thoroughly aware of the system and guides the system development project by giving proper directions. He is an expert having technical and interpersonal skills to carry out development tasks required at each phase.

Main Roles

➤ Defining and understanding the requirement of user through various Fact-finding techniques.

➤ Prioritizing the requirements by obtaining user consensus.

➤ Gathering the facts or information and acquires the opinions of users.

➤ Maintains analysis and evaluation to arrive at appropriate system which is more user friendly.

➤ Suggests many flexible alternative solutions, pick the best solution, and quantify cost and benefits.

➤ Draw certain specifications which are easily understood by users and programmer in precise and detailed form.

➤ Implemented the logical design of system which must be modular.

➤ Plan the periodicity for evaluation after it has been used for some time, and modify the system as needed.

ATTRIBUTES OF A SYSTEMS ANALYST/ WHAT DOES IT TAKE TO DO SYSTEM ANALYSIS?

Analytical Skills
- ❑ System study and organizational knowledge
- ❑ Problem identification, problem analysis, and problem solving
- ❑ Sound commonsense
- ❑ Ability to access trade-off
- ❑ Curiosity to learn about new organization

Management Skills
- ➢ Understand users jargon and practices.
- ➢ Resource & project management.
- ➢ Change & risk management.
- ➢ Understand the management functions thoroughly

Skills Of System Analysts

Management Skills:

➢ Authority

➢ Communication skills

➢ Creativity

➢ Responsibility

➢ Varied skills

Technical Skills

➢ Knowledge of computers and software.

➢ Keep abreast of modern development.

➢ Know of system design tools.

➢ Breadth knowledge about new technologies.

❖ Creativity

❖ Problem solving

❖ Project Management

❖ Dynamic interface

Skills of System Analysts

Interpersonal Skills

❖ Interface with users and programmer.

❖ Facilitate groups and lead smaller teams.

❖ Managing expectations.

❖ Good understanding, communication, selling and teaching abilities.

❖ Motivator having the confidence to solve queries.

❖ Communication

❖ Understanding

❖ Teaching

❖ Selling

MULTIFACETED ROLE OF THE ANALYST:

1. Change Agent

❖The analyst may be viewed as an agent of change.

❖A candidate system is designed to introduce change and reorientation in how the user organization handles information or makes decisions.

❖It is important, then that the change be accepted by the user.

❖Analyst can secure user acceptance is through user participation

❖In the role of a change agent, the systems analyst may select various styles to introduce change to the user organization. during design and implementation.

2. Investigator and Monitor

❖In defining a problem, the analyst will collect and put together all the information to determine why the present system does not work well and what changes will correct the problem.

❖Related to the role of investigator is that of monitor. To undertake and successfully complete a project, the analyst must monitor programs in relation to time, cost, and quantity.

Multifaceted Role Of The Analyst

3. Architect :

The architect primary function between the client's abstract design requirements and the contractor's detailed building plan may be compared to the analyst's role between the user's logical design requirements and the detailed physical system design requirements and the detailed physical system design. As architect, the analyst also creates a detailed physical design of candidate system.

4. Psychologist :

In system development systems are built around people. This is perhaps a exaggerated but the analyst plays the role of a psychologist in the way reaches people. Interprets their thoughts, assesses their behaviour and draws conclusions from these interactions.

5. Salesperson :

Selling change can be crucial as initiating change. The oral presentation of the system proposal has one objective selling the user on the system. Selling the user on the system. Selling the system actually takes place at each step in the system life cycle.

6. Motivator :

A candidate system must be well designed and acceptable to the user. System acceptance is achieved through user participation in its development, effective user training and proper motivation to use the system. The analyst's role as a motivator becomes obvious during the first few weeks after implementation and during times when turnover results in new people being trained to work with the candidate system.

7. Politician :

Related to the role of motivator is that of politician. In implementing a candidate system, the analyst tries to appease all parties involved. Diplomacy and finesse in dealing with people can improve acceptance of the system. In as much as politician must have the support of his/her constituency, so is the analyst's goal to have the support of the users staff.

The Analyst And User Interface

❖An important aspects of system development is a viable interface between the analysts and the user.

❖Analysts must devote as much skill and effort to achieve a productive relationship with the user as they devote to the technical requirements of the system.

❖Most research indicates that as the number of users increases, the probability of system failure increases without close analyst/user interface.

Behavioral Issues

❖Must research has been done to study users and their relationships with systems analysts. Increasing reports

 of system failures that were not caused by technical problems made it necessary to seek a better understanding

of the analysts/user interface.

User Motivation

❖The motivational approach in system development states that the candidate system should satisfy the users

needs if they are going to use it. several models of user behavior attempted to look at the motivation behind

system acceptance.

ANALYST/USER DIFFERENCES

❖ On the surface, differences in education, experience and language are quite obvious.

❖ The analyst's impatience with the user's ignorance about terminology like chip and CRT and the user's impatience with the analyst's limited understanding of the business, however, often lead to conflict during system development.

The Political Factor

❖ Since information is a source of organizational power, the process of system development may be viewed as contest for power where analysis have the initial advantage.

❖ System development is often viewed as a bargaining process, where analysis and users attempt to enhance the power positions and self -interests.

Conflict Resolution

❖ The role of the analyst requires coordinating a vast network of people's ideas and integrating them into a" systemeering" process design.

❖ Analysts are expected to adapt their own personal style to user personality factors to improve communication and promote system success.

Place Of Analyst In The MIS Organization:

The MIS Organization:

- ❖ The organized function is the task of grouping and assigning work elements to appropriate areas. An MIS manager organizes by assigning tasks, dividing work into specific jobs, and defining the relationship among them.

- ❖ The MIS organization structure encompasses supervisory levels, authority relationships and the general pattern of activities carried out by employees at each level.

- ❖ The chain of command extends from manager to subordinate.

- ❖ There is a direct line of authority from the director of MIS services to each of the supervisors in change of analysis and design, programming and operations.

- ❖ This line of authority permits a supervisor to exercise direct command over subordinates to carry out their tasks.
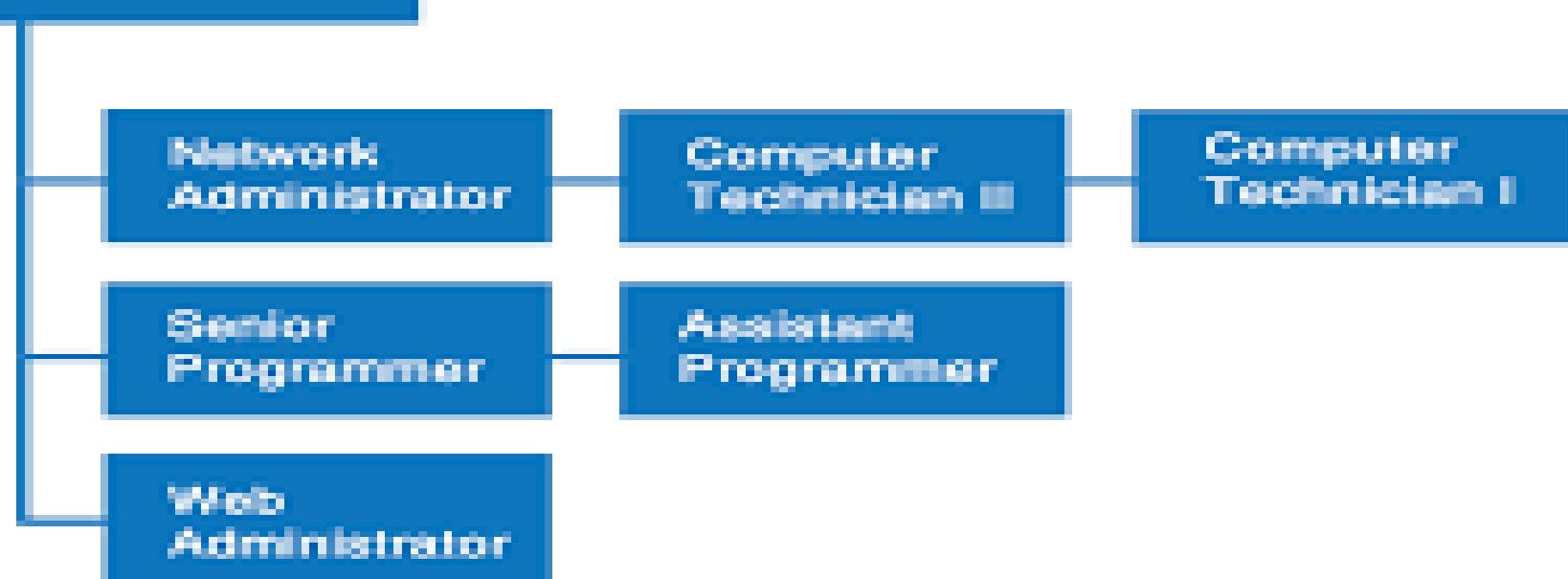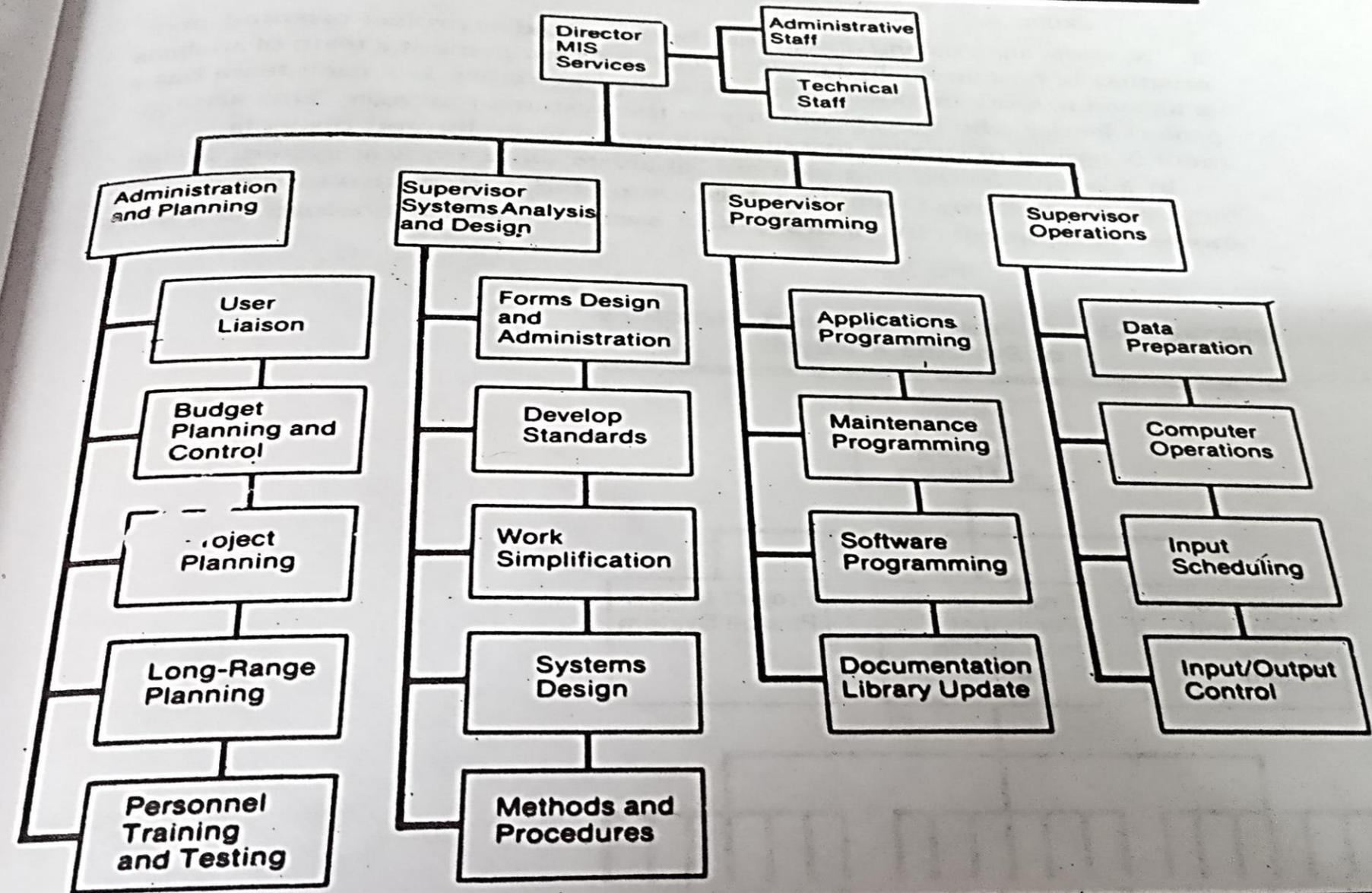
FIGURE 3-2   General Organization Chart of an MIS Division

Primary Functions Of An MIS Facility

- The structure of an MIS facility is organized around the primary functions to be performed. The functional requirements of an MIS facility centre around the following areas: administration, system analysis and design, programing and operations.

1.Administration:
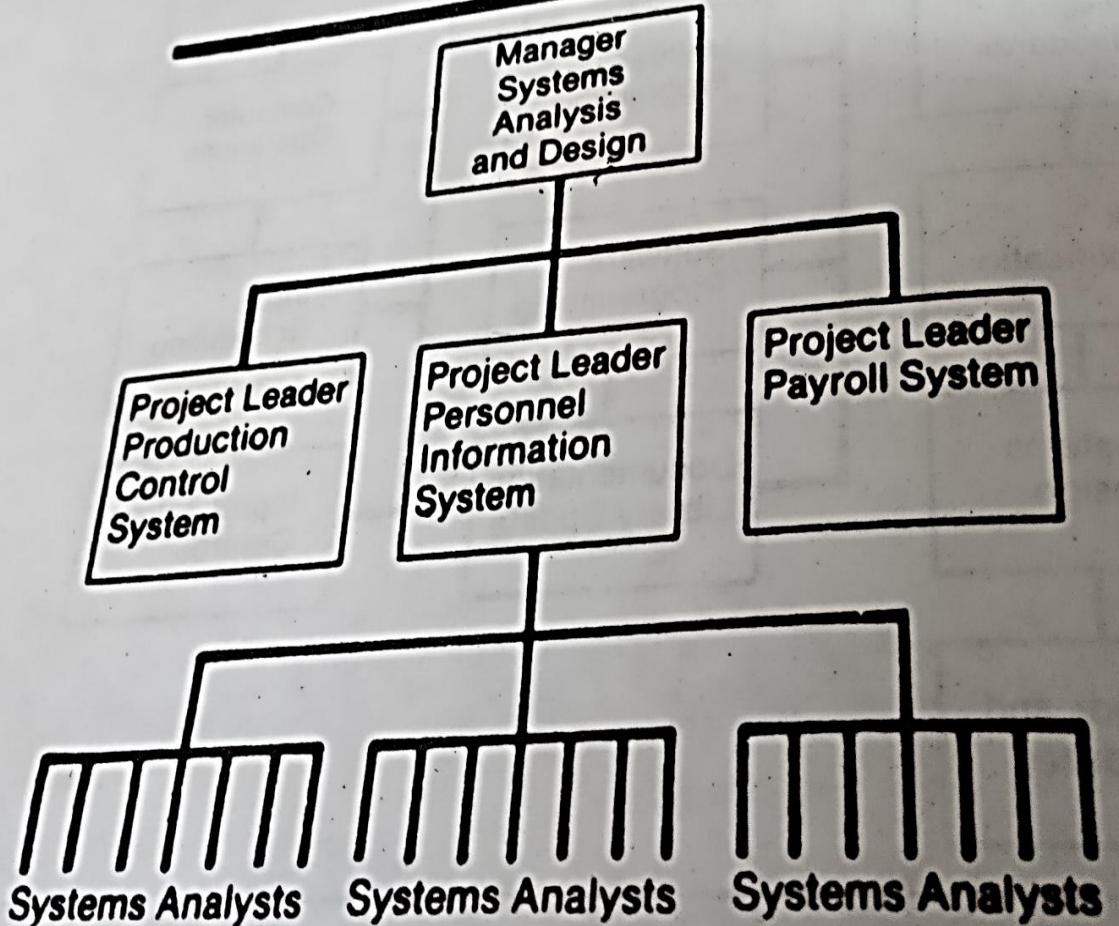
- Which handles the changing needs of the user and user systems relationships.

- Long-range planning, which includes personnel selection, recruitment, application development and planning for anticipated changes in hardware and software.

- Budget planning and control of the entire MIS division.

- Personnel administrative and training for upgrading employee skills.

2. **Systems analysis and design** may be organized as Project-oriented, pool-oriented or functional.

❖In a project-oriented arrangement a team of analysis is formed to work on one project. Each team has a project leader who reports directly to the systems managers. This arrangement is typical of smaller installations that handle limited projects.

❖ In a pool-oriented arrangement, analysts work on any system assignment within the firm. Once the job is completed, they return to the pool for another assignment. A system team is on loan to report directly to the manager of the operating department where the application design is requested. This arrangement gives the department some control over its own application.

another assi...

FIGURE 3-3 A Project-Oriented Structure of Systems Analysis

❖The functional structure of analysis assigns a group of analysis to serve a specific system. For example, there may be a personnel systems team, a production systems team, and a marketing systems team. Each team has a manager who reports directly to the director of system development.

3. **Programming** is structural around three areas: applications, software, and maintenance. In many applications, programmers are placed on the same project team with analysts.

❖Software programmers are responsible for modifying compilers and software packages used by existing applications. Maintenance programmers handle all changes required to keep a system operating.

4.**Operations** handles job scheduling and supportive services such as supplies inventory, programming and data library. These functions are coordinated with systems design and programming under a master plan.

Figure 3-4   A Pool-Oriented Structure of Systems Analysis
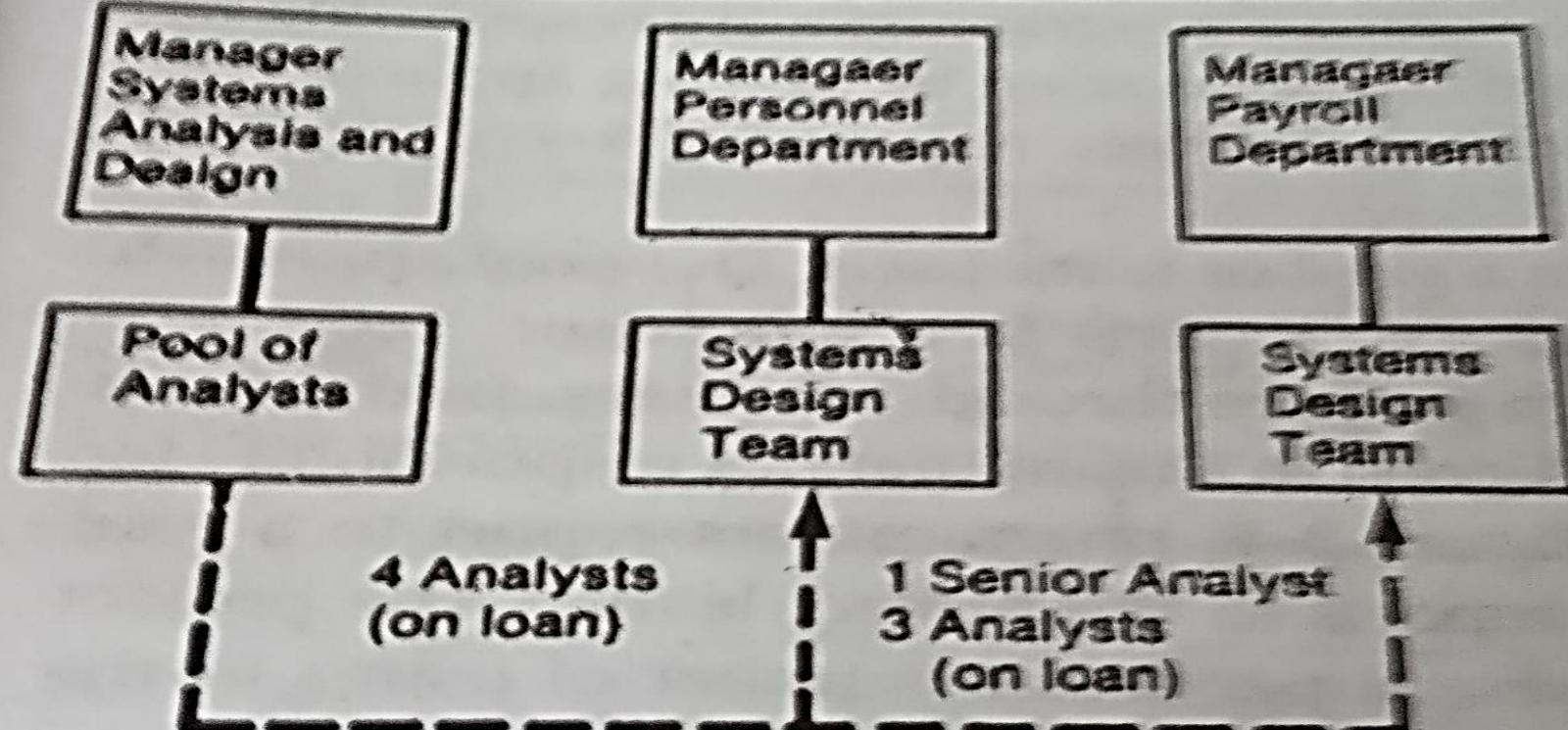
**FIGURE 3-5   A Functional Structure of Systems Analysis**
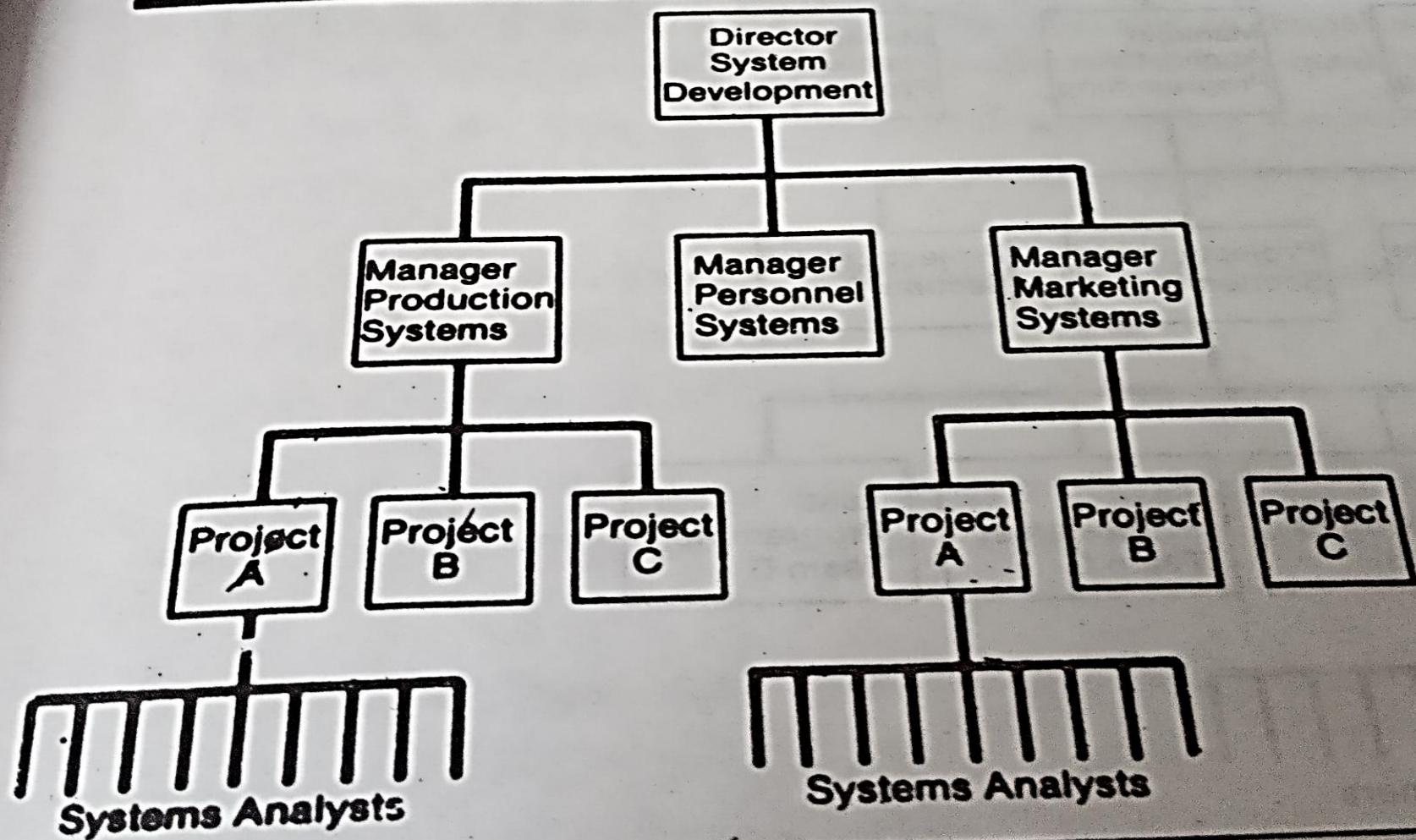
FIGURE 3-6 A Team-Oriented Structure of Programmers
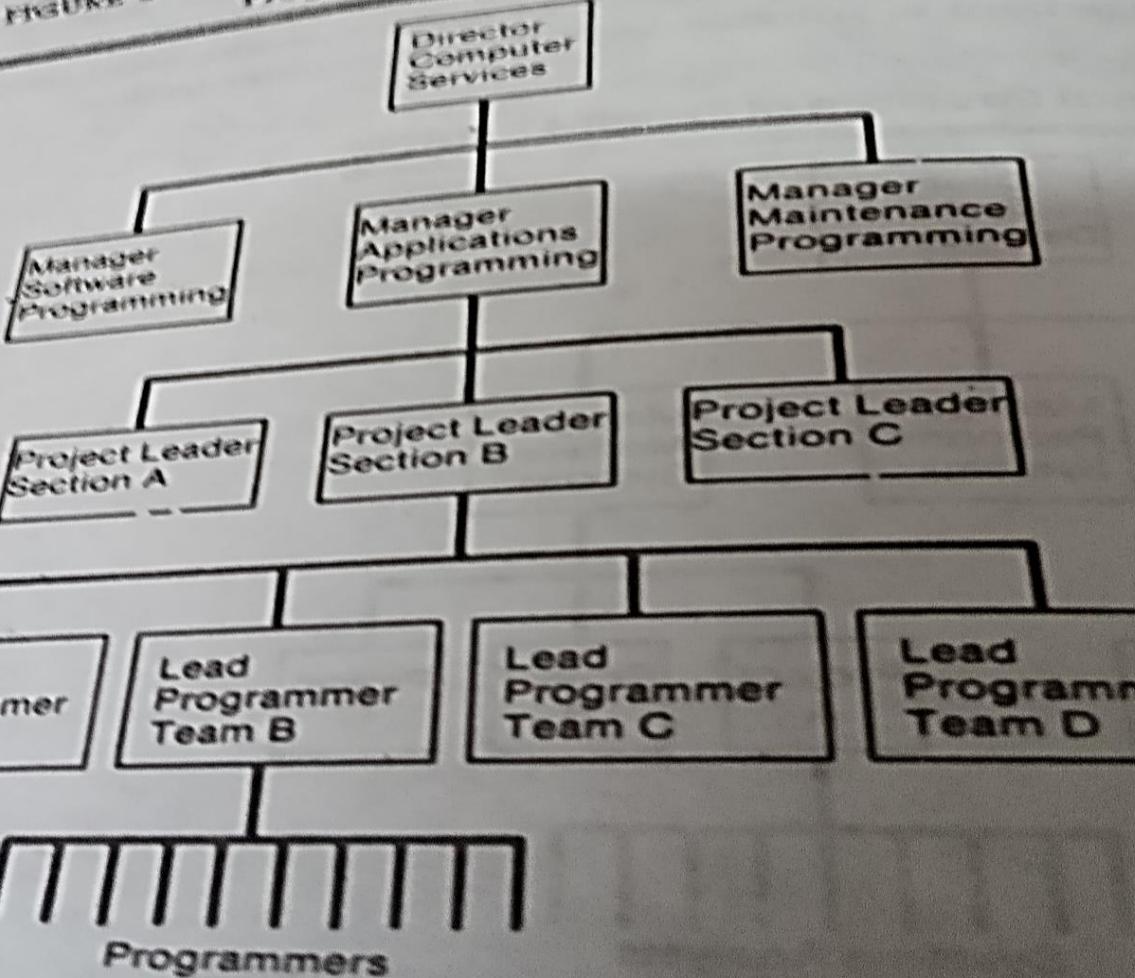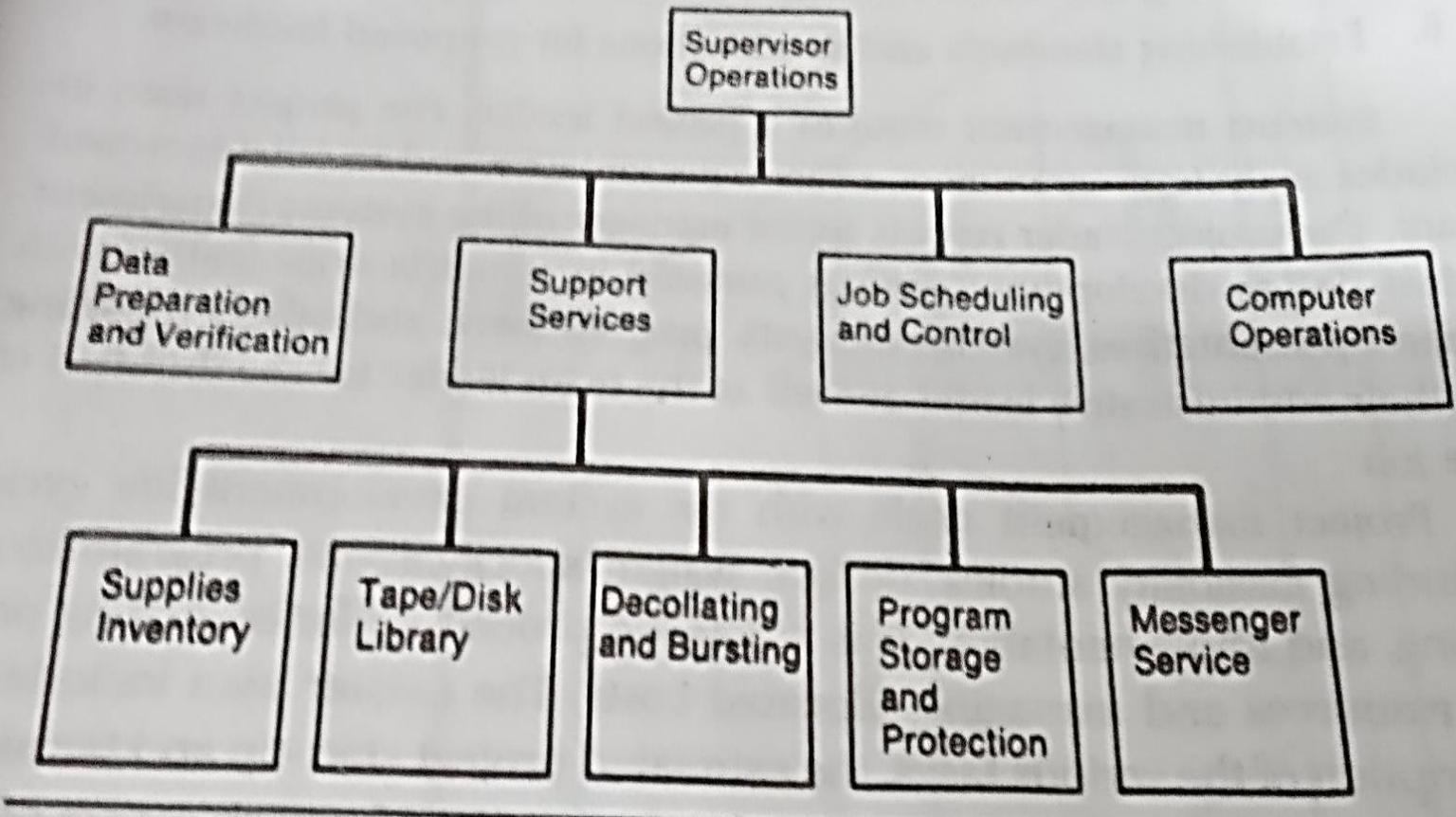
FIGURE 3-7   General Structure of Computer Operations

Functions of key System Personnel

Manager-MIS Services: The MIS manager is responsible for planning, organizing, coordinating and directing the activities for the entire division. Typically, managers have good technical and managerial skills. The job requirements depend on the size of the firm and the sophistication of the MIS facility. Typically, a college degree or even a master's degree is required.

The key qualities are:

1. Skill in planning, organizing and controlling the work of the division.

2. Ability to deal logically with difficult problems and cope with new situations.

3. Technical knowledge of hardware, software packages and networking.

4. Technical knowledge of hardware, software packages and networking.

5. Ability to relate to others.

- **Manager-systems Department:** A second-level managerial position in the MIS division is the systems supervisior. The primary function is:

  1. Preparing long-range plans for system projects.

  2. Authorizing system projects.

  3. Organizing and staffing project teams.

  4. Preparing and maintaining system procedures.

  5. Conducting system surveys and recommending system changes.

  6. Establishing standards and specifications for proposed hardware.

❖ Project management deals with the system development life cycle including feasibility studies, design, system specifications, programming, testing and implementation.

❖ It is detailed procedure for evaluating project resources and managing allocated costs.

❖ The master plan includes a description of the various tasks, the estimated project start-up and termination dates, and the time, cost and work force required for each aspect of the project.

Rising Positions in System Development:

The Paraprofessional (Profession related person)

- The task that make up the system development process are changing. With an increase in the use of structured tools, there are emerging tasks that are less technical or creative than the traditional ones.

- Rather than the analyst ignoring them or tying up valuable time, they are carried out by less experienced paraprofessionals. This tasks are categorized as follows

1. General Support tasks:

a. Maintain current documentation on daily basis.

b. Maintain a Technical literature.

c. Assist in constructing and maintaining the Program.

2. Specific system development task

a. Draft data flow diagrams and structure charts based on specifications from system development personnel.

b. Maintain data dictionaries.

c. Code programs.

d. Prepare and maintain test data files, check test results, and modify programs based on a predetermined procedure.

e. Prepare user manuals and other documentation.

f. Prepare supportive training materials when needed.

- A shortage of qualified analysts and their high salaries the value of separating essential tasks assigning some to trained personnel who have not reached the level of education, skill, experience, skill, experience, and pay of the seasoned analysts.

Paraprofessionals perform tasks of the following types:

1.The task is not significantly complex or does not require "high level" ability, education, skill or experience.

2.The task is repetitious and there is a relatively well-defined process for performing it.

3.The general support tasks require limited time for instruction relative to the time it takes to perform them.

Some characteristics desirable in a paraprofessional are:

1.Communication skills.

2.Ability to think like the system person being supported.

3.Ability to work independently and perform with minimal supervision.

4.Creative problem-solving ability and an attitude conducive to typing things out.

The Technical Writer:

❖ Documentation is one of the best liaisons between the technical and user worlds. As the number of user worlds.

❖ As the number of user-driven systems increases, their use and acceptance will be greatly influenced by the quality of system documentation.

❖ From the rough draft, omissions, and contradictions of the programmer's notes, the technical writer extracts a clean, lucid set of instructions for the candidate system.

❖ The writer seeks to uncover the hidden logic of the programs and convert it into an operational pattern.

Thank You