COURSE TITLE: SYSTEM ANALYSIS AND DESIGN

PAPER CODE: CSE 4205

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TOPIC: SYSTEM PLANNING

CHAPTER: THREE

Objective

By the end of this session, students will be able to:

1. To study the requirement determination during system analysis and design
2. To understand the Major Activities in requirement Determination
3. To understand the Steps Involved in Feasibility Analysis

OUTLINE

1.0   Introduction

2.0   Requirements Determination

3.0   Major Activities in requirement Determination

4.0   Information Gathering Techniques

5.0   Feasibility Study

6.0   Steps Involved in Feasibility Analysis

7.0   Types of Feasibilities

8.0   SUMMARY

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INTRODUCTION

What is the system planning?

System planning is the first phase in the system development life cycle. System planning is **where an organization's total information needs are identified, analyzed, prioritized and arranged**. Organization creates and assesses the original goals and expectation of a new system.

The planning stage (also called the feasibility stage) is exactly what it sounds like: **the phase in which developers will plan for the upcoming project**. It helps to define the problem and scope of any existing systems, as well as determine the objectives for their new systems.

Systems Planning is the first phase of SDLC. During the planning phase, the objective of the project is determined and the requirements of the system are considered. Meeting with managers or stake holders are held to determine the exact requirements of the project. An estimate of resources, such as personnel and costs, is prepared, to either bring changes in the current system or develop a new system. A schedule with tollgates is planned. All of the information is analyzed to see if there is an alternative solution to creating a new product. A feasibility study is conducted of the proposed project in the planning stage.

If there is no other viable alternative, the information is assembled into a project plan and presented to management for approval. A rough budget for the project is prepared. Communication plans, meetings, contracts and potential risks are discussed in this phase. Finally, a Requirement Specification document is created which serves the purpose of guideline for the next phase of the model.

The Planning phase is the most crucial step in creating a successful system, during this phase you decide exactly what you want to do and the problems you're trying to solve, by:

- Defining the problems, the objectives and the resources such as personnel and costs.

- Studying the ability of proposing alternative solutions after meeting with clients, suppliers, consultants and employees.

- Studying how to make your product better than your competitors'.

What is the purpose of system planning phase of SDLC?

The purpose of the Planning Phase is **to plan all project processes and activities required to ensure project success and to create a comprehensive set of plans, known as** the PMP, to manage the project from this phase until project termination.

What is Requirements Determination?

A requirement is a vital feature of a new system which may include processing or capturing of data, controlling the activities of business, producing information and supporting the management.

Requirement's determination involves studying the existing system and gathering details to find out what are the requirements, how it works, and where improvements should be made.

<u>Major Activities in requirement Determination</u>

Requirements Anticipation

- It predicts the characteristics of system based on previous experience which include certain problems or features and requirements for a new system.
- It can lead to analysis of areas that would otherwise go unnoticed by inexperienced analyst. But if shortcuts are taken and bias is introduced in conducting the investigation, then requirement Anticipation can be half-baked.

Requirements Investigation

- It is studying the current system and documenting its features for further analysis.
- It is at the heart of system analysis where analyst documenting and describing system features using fact-finding techniques, prototyping, and computer assisted tools.

Requirements Specifications

❖ It includes the analysis of data which determine the requirement specification, description of features for new system, and specifying what information requirements will be provided.

❖ It includes analysis of factual data, identification of essential requirements, and selection of Requirement-fulfillment strategies.

Information Gathering Techniques

The main aim of fact-finding techniques is to determine the information requirements of an organization used by analysts to prepare a precise SRS understood by user.

- Ideal SRS Document should:
- be complete, Unambiguous, and Jargon-free.
- specify operational, tactical, and strategic information requirements.
- solve possible disputes between users and analyst.
- use graphical aids which simplify understanding and

design. There are various information gathering techniques:

Interviewing

Systems analyst collects information from individuals or groups by interviewing. The analyst can be formal, legalistic, play politics, or be informal; as the success of an interview depends on the skill of analyst as interviewer.

It can be done in two ways:

- **Unstructured interview:** The system analyst conducts question-answer session to acquire basic information of the system.
- **Structured interview:** It has standard questions which user need to respond

in either close (objective) or open (descriptive) format.

Advantages of Interviewing

1. This method is frequently the best source of gathering qualitative information.

2. It is useful for them, who do not communicate effectively in writing or who may not have the time to complete questionnaire.
3. Information can easily be validated and cross checked immediately.
4. It can handle the complex subjects.
5. It is easy to discover key problem by seeking opinions.
6. It bridges the gaps in the areas of misunderstandings and minimizes future problems.

Questionnaires

This method is used by analyst to gather information about various issues of system from large number of persons.

There are two types of questionnaires:

✓ **Open-ended Questionnaires:** It consists of questions that can be easily and correctly interpreted. They can explore a problem and lead to a specific direction of answer.

✓ **Closed-ended Questionnaires:** It consists of questions that are used when the systems analyst effectively lists all possible responses, which are mutually exclusive.

Advantages of questionnaires

1. It is very effective in surveying interests, attitudes, feelings, and beliefs of users which are not co-located.
2. It is useful in situation to know what proportion of a given group approves or disapproves of a particular feature of the proposed system.
3. It is useful to determine the overall opinion before giving any specific direction to the system project.
4. It is more reliable and provides high confidentiality of honest responses.
5. It is appropriate for electing factual information and for statistical data collection which can be emailed and sent by post.

Review of Records, Procedures, and Forms

Review of existing records, procedures, and forms helps to seek insight into a system which describes the current system capabilities, its operations, or activities.

Advantages

1. It helps user to gain some knowledge about the organization or operations by themselves before they impose upon others.
2. It helps in documenting current operations within short span of time as the procedure manuals and forms describe the format and functions of present system.
3. It can provide a clear understanding about the transactions that are handled in the organization, identifying input for processing, and evaluating performance.
4. It can help an analyst to understand the system in terms of the operations that must be supported.
5. It describes the problem, its affected parts, and the proposed solution.

Observation

This is a method of gathering information by noticing and observing the people, events, and objects. The analyst visits the organization to observe the working of current system and understands the requirements of the system.

Advantages

1. It is a direct method for gleaning information.
2. It is useful in situation where authenticity of data collected is in question or when complexity of certain aspects of system prevents clear explanation by end-users.
3. It produces more accurate and reliable data.
4. It produces all the aspect of documentation that are incomplete and outdated

Joint Application Development (JAD)

It is a new technique developed by IBM which brings owners, users, analysts, designers, and builders to define and design the system using organized and intensive workshops. JAD trained analyst act as facilitator for workshop who has some specialized skills.

Advantages of JAD

1. It saves time and cost by replacing months of traditional interviews and follow up meetings.
2. It is useful in organizational culture which supports joint problem solving.
3. Fosters formal relationships among multiple levels of employees.
4. It can lead to development of design creatively.
5. It Allows rapid development and improves ownership of information system.

Secondary Research or Background Reading

This method is widely used for information gathering by accessing the gleaned information. It includes any previously gathered information used by the marketer from any internal or external source.

Advantages

1. It is more openly accessed with the availability of internet.
2. It provides valuable information with low cost and time.
3. It acts as forerunner to primary research and aligns the focus of primary research.
4. It is used by the researcher to conclude if the research is worth it as it is available with procedures used and issues in collecting them.

<u>Feasibility Study</u>

Feasibility Study can be considered as preliminary investigation that helps the management to take decision about whether study of system should be feasible for development or not.

- It identifies the possibility of improving an existing system, developing a new system, and produce refined estimates for further development of system.
- It is used to obtain the outline of the problem and decide whether feasible or appropriate solution exists or not.
- The main objective of a feasibility study is to acquire problem scope instead of solving the problem.
- The output of a feasibility study is a formal system proposal act as decision

document which includes the complete nature and scope of the proposed system.

Steps Involved in Feasibility Analysis

The following steps are to be followed while performing feasibility analysis:

1. Form a project team and appoint a project leader.

2. Develop system flowcharts.

3. Identify the deficiencies of current system and set goals.

4. Enumerate the alternative solution or potential candidate system to meet goals.

5. Determine the feasibility of each alternative such as technical feasibility, operational feasibility, etc.

6. Weight the performance and cost effectiveness of each candidate system.

7. Rank the other alternatives and select the best candidate system.

8. Prepare a system proposal of final project directive to management for approval.
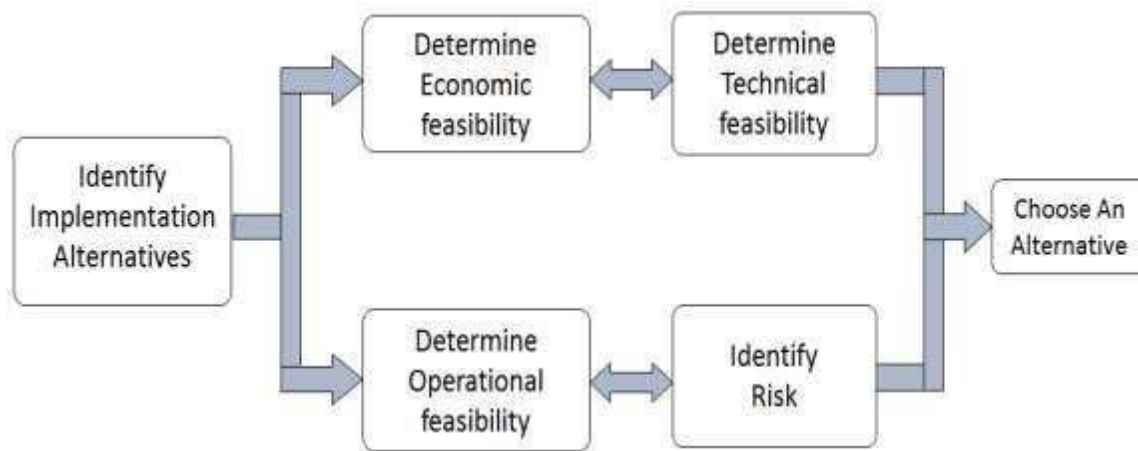
Types of Feasibilities

Economic Feasibility

- It is evaluating the effectiveness of candidate system by using cost/benefit analysis method.

- It demonstrates the net benefit from the candidate system in terms of benefits and costs to the organization.
- The main aim of Economic Feasibility Analysis (EFS) is to estimate the economic requirements of candidate system before investments funds are committed to proposal.
- It prefers the alternative which will maximize the net worth of organization by earliest and highest return of funds along with lowest level of risk involved in developing the candidate system.

Technical Feasibility
- It investigates the technical feasibility of each implementation alternative.
- It analyzes and determines whether the solution can be supported by existing technology or not.
- The analyst determines whether current technical resources be upgraded or added it that fulfill the new requirements.
- It ensures that the candidate system provides appropriate responses to what extent it can support the technical enhancement.

Operational Feasibility
- It determines whether the system is operating effectively once it is developed and implemented.
- It ensures that the management should support the proposed system and its working feasible in the current organizational environment.
- It analyzes whether the users will be affected and they accept the modified or new business methods that affect the possible system benefits.
- It also ensures that the computer resources and network architecture of candidate system are workable.

Behavioral Feasibility
- It evaluates and estimates the user attitude or behavior towards the development of new system.

- It helps in determining if the system requires special effort to educate, retrain, transfer, and changes in employee's job status on new ways of conducting business.

Schedule Feasibility

- It ensures that the project should be completed within given time constraint or schedule.
- It also verifies and validates whether the deadlines of project are reasonable or not.

SUMMARY

Requirements Determination- A requirement is a vital feature of a new system which may include processing or capturing of data, controlling the activities of business, producing information and supporting the management. Requirement's determination involves studying the existing system and gathering details to find out what are the requirements, how it works, and where improvements should be made.

TYPES OF FEASIBILITY STUDY

Economic Feasibility

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- **Technical Feasibility**

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