Systems Analysis

Analysis is a development method that allows the analyst to understand the system and its activities in a logical way.

It is a systematic approach, which uses graphical tools that analyze and refine the objectives of an existing system and develop a new system specification which can be easily understandable by user.

Information Gathering Techniques

The main aim of fact-finding techniques is to determine the information requirements of an organization. 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

- This method is frequently the best source of gathering qualitative information.
- It is useful for them, who do not communicate effectively in writing or who may not have the time to complete questionnaire.
- Information can easily be validated and cross checked immediately.
- It can handle the complex subjects.
- It is easy to discover key problem by seeking opinions.
- 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

- It is very effective in surveying interests, attitudes, feelings, and beliefs of users which are not co-located.
- It is useful in situation to know what proportion of a given group approves or disapproves of a particular feature of the proposed system.
- It is useful to determine the overall opinion before giving any specific direction to the system project.
- It is more reliable and provides high confidentiality of honest responses.
- 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

- It helps user to gain some knowledge about the organization or operations by themselves before they impose upon others.
- 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.
- It can provide a clear understanding about the transactions that are handled in the organization, identifying input for processing, and evaluating performance.
- It can help an analyst to understand the system in terms of the operations that must be supported.
- 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

- It is a direct method for gleaning information.
- 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.
- It produces more accurate and reliable data.
- It produces all the aspect of documentation that are incomplete and outdated.

Feasibility Study

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.

The content of specifications

There are three types of specification used within the systems life cycle. These are;

- Requirements specification
- Systems specification
- Design specification

Requirements specification

A requirements specification is a contract between the developer and the client. It will specify exactly what the client needs the system to do so that the developer can produce a system that meets the client's needs.

The requirements specification should include:

- ✓ The purpose of the system
- ✓ The main objectives of the system
- ✓ Data that must be output from the system (e.g. invoices, sales report)
- ✓ Data that needs to be input to the system to generate the outputs, including any screens or data collection forms
- ✓ Validation and verification that is needed for input data
- ✓ Processes that need to take place to convert inputs into outputs or to store data
- ✓ Data that need to be stored
- ✓ Functional requirements such as performance measures
- ✓ Deadlines for each milestone within the project

Systems specification

The systems specification should include:

- ✓ A system specification lists all the software and hardware that is needed for the new system.
- ✓ The software needs to be identified first as the hardware will depend upon what software is needed.
- ✓ Once the software is known, the minimum hardware required to run the software can be identified.

Design specification

The design specification is produced by the designer and is an illustration of how the system will look, what the data structures will be and how the system will work.

The design specification should include:

- ✓ Flowcharts
- ✓ Data flow diagrams
- ✓ Data collection forms
- ✓ Screen layouts
- ✓ Validation routines
- ✓ Data dictionary