Feasibilitys 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.

Types of Feasibilities

1. **Technical feasibility:** It determines whether the technology needed for the proposed system is available and how it can be integrated within the organization.

2. **Economical feasibility:** The purpose of assessing economical feasibility is to identify the financial benefits and cost associated with the development of the system. Economic feasibility is often known as the cost benefit analysis.

3. **Operational feasibility:** It is concerned with human, organizational and political aspects.

It includes two ways –

i.) Technical performance: It includes issues such as whether the system can provide the right information for organization's personnel at right time and right place.

ii.) Acceptance within the organization: It determines the general attitudes and job skills of existing personnel and whether any changes in job work will be acceptable by the current users.

4. **Behavioral feasibility:** It includes how strong the reaction of staff will be towards the development of new system that involves computer's use in their daily work. So resistant to change is identified.

5. **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.

Steps in Feasibility Analysis

1. **Form a project team and appoint a project leader:** System study requires project team, which consists of "analysis and user staff', where senior system analyst is appointed as project leader.

    Projects are planned to occupy a special time, ranging from several weeks to months.

2. **Prepare system flowcharts:** Information oriented charts and data flow diagrams prepared in the initial investigation are reviewed at this time.

3. **Enumerate potential candidate systems:** Candidate system is identified which is capable or producing output. Transformation of logical to physical system model occurs. Hardware is considered here.
4. **Describe and identify characteristics of candidate system:** In this step, the analysis is mainly based on what each candidate system can and cannot do. For determining this, technical knowledge and expertise in the hardware/software area are critical.
5. **Determine and evaluate performance and cost effectiveness of each candidate system:** Here the analyst has to determine and evaluate the performance and cost of the candidate system. Evaluation for both design and implementation is performed here. It includes user training, updating the physical facilities and documenting etc.
6. **Weight system performance and cost data:** According to the performance and cost of the candidate system, some weight is given to each alternative of the system. Then the candidate system with the highest total score is selected.
7. **Select the best candidate system:** The system with the highest total score is judged as the best system. This assumes the weighting factors are fair and the rating of each evaluation criterion is accurate.
8. **Feasibility report:** After feasibility study, a document called feasibility report is prepared and is directed to the management. The report is a formal document for management use; it should be brief, and sufficiently nontechnical to be understandable.

System Analyst

The system analyst is a person who is thoroughly aware of the system and guides the system development project by giving proper directions.

Role of the Analyst

1. **Change Agent:** In the role of a change agent, the systems analyst may select various styles to introduce change to the user organization.
2. **Investigator and Monitor:** To undertake and successfully complete a project, the analyst must monitor programs in relation to time, cost, and quantity.
3. **Architect:** As architect an analyst must create detailed physical design of candidate system.
4. **Psychologist:** The analyst plays the role of a psychologist in the way he reaches people interprets their thoughts, assesses their behavior, and draws conclusions from these interactions.
5. **Salesperson:** Selling the system actually takes place at each step in the system life cycle.
6. **Motivator:** The analyst role as a motivator becomes obvious during the first few weeks after implementation and during times when turn over results in new people being trained to work with the candidate system.

7. **Politician:** In implementing a candidate system, the analyst tries to appease all parties involves.

System Planning and Initial Investigation

➢ **Initial Investigation**
- This is the first phase of SDLC and is known as identification of need.
- This is a user's request to change, improve or enhance an existing system.
- The objective is to determine whether the request is valid or feasible.
- The user request identifies the need for change and authorizes the initial investigation.

➢ **User's Request Form**
- User assigned title of work requested
- Nature of work requested (problem definition)
- Date request was submitted
- Date job should be completed
- Purpose of job requested
- Expected benefits
- Input/Output description
- Requester's signature, title, department, and phone number
- Signature, title and department of person approving the request

➢ **Need Identification**
- The success of a system depends largely on how accurately a problem is defined, thoroughly investigated and properly carried out through the choice of solution.
- It is concerned with what the user needs rather than what he/she wants.

➢ **Determining the User's Information Requirements**
It is difficult to determine user requirements because of the following reasons:
- System requirements change and user requirements must be modified.
- Articulation of requirements is difficult.
- Heavy user involvement and motivation are difficult.
- The pattern of interaction between users and analysts in designing information requirements is complex.

➢ **Strategies used by the Users**
❖ **Kitchen Sink Strategy-** User throws everything into the requirement definition, overstatement of needs such as an overabundance of reports. This approach usually reflects the user's lack of experience in the area.
❖ **Smoking Strategy-** It sets up a smoke screen by requesting several system features when only one or two are needed. Requests have to be reduced to one that is realistic, manageable and achievable.

❖ **Same Thing Strategy-** This strategy indicates the user's laziness, lack of knowledge or both. "Give me the same thing but in a better format through the computer" is a typical statement. The analyst has little chance of succeeding because only the user can fully discover the real needs and problems.

➢ **Human's limitations**
  ▪ Humans as information processors
  ▪ Human bias in data selection and use
  ▪ Human problem solving behavior

Strategies for Determining Information Requirement

Requirements 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. There are three general approaches for getting information regarding the user's requirements:

1. **ASKING**

This strategy obtains information from users by simply asking them about the requirements. It assumes a stable system where users are well informed and can overcome biases in defining their problem. There are three key asking methods.

1) **Questions:** Questions may be open-ended or closed.

• **Open Question:** An open-ended question allows the respondent to formulate a response. It is used when feelings or opinions are important.

• **Closed Question:** A closed question requests one answer from a specific set of responses. It is used when factual responses are known.

2) **Brainstorming:** Brainstorming is a technique used for generating new ideas and obtaining general information requirements. This method is appropriate for getting non-conventional solutions to problems.

3) **Group Consensus:** This method asks participants for their expectations regarding specific variables. Each participant fills out a questionnaire. This method is advantageous than brainstorming because the participants are not subjected to psychological pressure.

2. **GETTING INFORMATION FROM EXISTING INFORMATION SYSTEM**

There are two methods in extracting information from an already existing system

1) **Data Analysis approach**: Determining information from an existing application is called the data analysis approach. It simply asks the user what information is currently received and what other information is required.

2) **Decision Analysis:** This method breaks down a problem into parts, which allows the user to focus separately on the critical issues. It also determines policy and organizational objectives relevant to complete each major decision.

3. PROTOTYPING

The third strategy for determining user information requirements is used when the user cannot establish information needs accurately before the information system is built. Prototyping strategy is appropriate for determining high uncertainty information requirement.

Problem Definition

A problem can be defined as a basic condition that is causing undesirable results.

A problem statement is a clear concise description of the issue(s) that need(s) to be addressed by a problem solving team. It is used to center and focus the team at the beginning, keeps the team on track during the effort, and is used to validate that the effort delivered an outcome that solves the problem statement.

Project Initiation

The project initiation phase is the first phase within the project management life cycle, as it involves starting up a new project. Project initiation begins when someone in an organization identifies that there is a need to improve an existing system or a new system is needed to improve business operations.

Background Analysis

Once the project is initiated, the analyst begins to learn about the setting, the existing system, and the physical processes related to the revised system.

Fact Analysis

As data are collected, they must be organized and evaluated and conclusions drawn for preparing a report to the user for final review and approval. Some of the tools available for data organization and analysis are input/output analysis, decision tables, and structure charts.

Review of Written Documents

The documentation which is prepare to developed the new system its include forms, records, reports, manuals etc. its organized & evaluated during the development of the system. This document helps in determining to what extends they are met by the present system. The day to day problems may have force to make the changes that are not reflected in the manual.

On–site Observation

The other type of fact finding method which is used by the system analyst is on-site observation. The purpose of on-site observation is to get a close study of the possible requirement for the system. On-site is the most difficult fact finding techniques. It request intrusion in to the user's area & can cause adverse reaction by the user staff if it is no handled properly.

Interview

This method is used to collect the information from groups or individuals. Analyst selects the people who are related with the system for the interview.

Questionnaire

It is the technique used to extract information from number of people. The Questionnaire consists of series of questions framed together in logical manner.

Software Performance Engineering (**SPE**) is a systematic, quantitative approach to constructing software systems to meet performance objectives.

Performance Analysis

• Use object-oriented analysis or design model to derive a performance model

• Solving the model gives you feedback on performance to revise the object-oriented design

• SPE is also language independent

• SPE can be easily integrated into the software development processes, such as waterfall model, spiral model and rational unified process

Efficiency Analysis

Efficiency concerns how to generate as much output with minimum input. Here is an indication that a system can be said to be inefficient:

- Much time is wasted on the activities of human resources, machines, or computers.
- Data is input or copied to excess.
- Data processed in excess.
- Information is generated in excess.
- Effort required for these tasks are too excessive.
- Material required for these tasks are too excessive.

Service Analysis

Service analysis is an important procedure that needs to be followed by any organization in order to understand the standard of service that is being provided by them. The service analysis documents serve as feedback from different consumers as well. This is a necessary process which allows any company to understand and improve the services provided by the company. This type of analysis is generally done in the form of a questionnaire that is provided both to the employees as well as the consumers.