Unit-10 Feasibility Analysis and System Proposal

Feasibility study

Feasibility is the determination of whether or not a system or project is worth doing. The process of followed in making this determination is called a feasibility study. So, feasibility study is to determine whether the whole process of system leading to computerization would be worthwhile for organization or not.

Types

There are six types of feasibility study. Each of them has their own methods of study and purpose which directly has the impact on system development.

They are:

1. Operational feasibility
2. Cultural feasibility
3. Technical feasibility
4. Schedule feasibility
5. Economic feasibility
6. Legal feasibility

1. Operational Feasibility

- **Operational feasibility** is the measure of **HOW WELL A PROPOSED SYSTEM SOLVES THE PROBLEMS**
- And takes advantage of the opportunities identified during scope definition
- How it **SATISFIES THE REQUIREMENTS** identified in the requirements analysis phase of system development.
- Whether there will be **RESISTANCE** from users that will effect the possible application benefits?
- ***Early involvement of user reduces the probability of resistance towards the new system.***
- Does management support the project
- Will it reduce the time (operation) considerably?
- Wii it be **BENEFIT FOR THE ORGANIZATION?** Does the overall response increase?
- ***It is important for those system which are about to enter in market competition But not much for an ordered system***

2. Cultural (political) feasibility

- It is defined as one that investigates **SCIENTIFIC** as well as **ETHICAL, BEHAVIORAL, AND SOCIAL ISSUES** in the design of clinical trials.
- Also known as one that investigates all the **ENVIRONMENTAL FACTORS** involved to successfully carry out a project.
- It is done to **EVALUATE THE IMPACT** of the project on the local **CULTURE**.
- It **FINDS** whether the **SYSTEM WILL WORK** in given **ORGANIZATIONAL CLIMATE**
- It deals with how end user **FEEL** about the proposed system (policies of the system)

3. Technical Feasibility

- This is done to determine whether **THE COMPANY HAS THE TECHNICAL EXPERTISE** to handle completion of the project.
- It is focused on gaining an understanding of the present **TECHNICAL RESOURCES** of the organization and their **APPLICABILITY TO THE EXPECTED NEEDS** of the proposed system.
- It is an **EVALUATION OF THE HARDWARE AND SOFTWARE** and how it meets the need of the proposed system

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5. Legal feasibility

- It determines whether the proposed system **CONFLICTS WITH LEGAL REQUIREMENTS OR NOT**

e.g., a data processing system must comply with the local data protection regulations and if the proposed venture is acceptable in accordance to the laws of the land

6. Time Feasibility

A PROJECT WILL FAIL if it takes TOO LONG TO BE COMPLETED before it is useful.

- Here we find HOW LONG THE SYSTEM WILL TAKE TO DEVELOP, and if it can be completed in a given time period or not
- It is a measure of HOW REASONABLE THE PROJECT TIMETABLE IS. Given our technical expertise, are the project deadlines reasonable?
- Some projects are initiated with specific deadlines. It is necessary to DETERMINE WHETHER THE DEADLINES ARE MANDATORY or desirable.

7. Economic feasibility

- This method is also known as COST ANALYSIS.
- The proposed BUDGET for developing system WILL BE ENOUGH OR NOT
- It helps in identifying PROFIT against INVESTMENT expected from a project.
- COST AND TIME are the most essential factors involved in this field of study.

Cost benefit analysis and how to determine the cost of System

Cost Benefit Analysis

- Economic feasibility has been defined as a cost-benefit analysis
- It define how can costs and benefits be estimated? How can those costs and benefits be compared to determine economic feasibility?

How to determine the cost of system

- Costs determine into two categories. There are costs associated with developing the system, and there are costs associated with operating a system

In actually cost of system should be determine by following:-

- **Personnel costs:-** The salaries of systems analysts, programmers, consultants, data entry personnel, computer operators, secretaries, and the like, who work on the project make up the personnel costs.
- **Computer usage:-** Computer time will be used for one or more of the following activities: programming, testing, conversion, word processing, maintaining a project dictionary, prototyping, loading new data files, and the like. If a computing centre charges for usage of computer resources such as disk storage or report printing, the cost should be estimated
- **Training:-** If computer personnel or end users have to be trained, the training courses may incur expenses. Packaged training courses may be charged out on a flat fee per site, a student fee (such as $ 395 per student), or an hourly fee (such as $75 per class hour).
- Supply, duplication, and equipment costs.
- Cost of any new computer equipment and software. Etc.

If we decrease the cost of the system then automatically profit will be increase.

System Proposal

It is usually offered as both written report as well as oral presentation.

Written report; It is the most abused method used by analyst to communicate with users. Limiting size determines the effectiveness of report.some guidelines are listed below;

To executive level managers: one or two pages

To middle level managers: three to five pages

To supervisory level managers: less than 10 pages

To clerk level personnel: less than 50 pages

Steps to write formal report

- Initial preparation
- Outline
- Draft text
- Edit
- Final type
- Proofread
- Bind

Formal Presentation

- A special meeting used to sell new ideas and gain approval for new system.
- A system analyst is frequently required to make formal presentation.
- Required significant preparation.
- Sell new ideas, sell change, head of criticism, address concerns.

Advantages:-

- Impact through immediate feedback & spontaneous responses.
- The audience can respond to the presenter.

Disadvantages:-

- Easily forgotten(because words are spoken and the visual aids are transient).

Preparing Formal Presentation

- Presenters must know their audience, especially crucial when your presentation trying to sell new ideas and new system.
- System analyst frequently thought of as the dreaded agent of change in an organization.
- Difficult & dangerous to handle and initiate new order of things.
- Analyst job is to bring change in methods, procedures and technology.
- Presenter must be confident to sell ideas and system.
- Preparation is the key.
- Presenter must define the expectation of presentation.
- To avoid excessive detail, a presentation should be carefully organized allotted time (usually 30/60 minutes).
- This particular outline is for a system analysis presentation.
  (other presentation might be slightly different).
- Presenter can use visual aids, predrawn flipcharts, overhead slides, Microsoft PowerPoint slides etc.
- Practice the presentation in front of the most critical audience you can assemble. Play your own devil's advocate, or, better yet, get somebody else to raise criticisms and objections. Practice your responses to these issues.

Typical Outline and Time Allocation for an Oral Presentation

- Introduction (one-sixth of total time available).
- Part of the presentation (two-third of total time available)
- Questions and concerns from the audience(Time here is not to be included in the time allotted for presentation and conclusion; it is determined by those asking the questions and voicing their concerns.)
- Conclusion (one-sixth of total time available).

Conducting the Formal Presentation

A few guidelines may improve the actual presentation.

- Dress professionally.
- Avoid word ‘ I ’ & use “You” and “We”.
- Maintain eye contact.
- Be confident.
- Be aware of your own mannerisms.

Sometimes while you are making presentation following incident may occur.

- Some may be busy in glancing at their watches.
- Some may show puzzled expression.
- Some may show no expression.

The following suggestion may prove useful for keeping people listening.

- Stop talking.
- Ask a question, let some in the audience answer it.
- Try a little bumor. (You don't have to be a talented comedian. But everybody likes to laugh. Tell a joke on yourself.)
- Use props. (Use some type of visual aid to make your point clearer)
- Change your voice level.
- Do something unexpected. (drop a book, toss your notes, jingle your keys).

A formal presentation usually includes time for the question from the audience. It’s very important because it allows you to clarify any points that were unclear. Sometimes answering question after a presentation may be difficult and frustrating. So, guidelines when answering question are given below:-

- Always answer a question
- Answer both (who asked and audience).
- Summarize your answer.
- Limit the amount of time you answering.
- Be honest.

Project and Causes of Failure of Project

What is Project and Project Management?

A project is a [temporary] sequence of unique, complex, and connected activities that have one goal or purpose and that must be completed by a specific time, within budget, and according to requirement.

project management is necessary to ensure that the project meets the deadline, is developed within an acceptable budget, and fulfills customer expectations and specifications.

The Causes of Failed Projects

- **Premature commitment to a fixed budget and schedule:-** You can rarely make accurate estimates of project costs and schedule before completing a detailed problem analysis or requirements analysis.
- **Poor estimating or selection of techniques:-** Selection of technologies prevents technical failure of the project. No project manager can save your project, if the chosen tools and technologies for the project are wrong.
- **Taking shortcuts through or around the system development methodology:-** Some team leads for the project are under wrong impression that development task are major for the success of projects. Your project can utterly fail if you skip the any phase during development.
- **Over optimism:-** Project managers develop overly optimistic schedules to meet random deadlines. An overly optimistic schedule is followed by large pressure on the team. The team skip the step to complete the project in time . That's why over optimism badly effect on project.
- **The mythical man-month:-**As the project gets behind schedule, project leaders frequently try to solve the problem by assigning more people to the team. Addition person create communication problem, increase the project cost and add trouble to integrate the different section of code.
- **Insufficient resources:-**This could be due to poor estimating or to other priorities, or it could be that the staff resources assigned to a project do not possess the necessary skills or experience .
- **Failure to "manage to the plan :-**Various factors may cause the project manager to become sidetracked from the original project plan.
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Some Others Causes Of Project Failure

- Failure to establish upper-management commitment to the project
- Lack of organization's commitment to the system development methodology
- Failure to adapt to business change
- Inadequate people management skills

Project management life cycle from activity

❑ What is project management life cycle?

The project management life cycle is series of activities that necessary to fulfill project goals or objectives. These activities may go by different name,depending on the methodology but tend to be similar in nature.

Activities of project management life cycle are:-

- Activity 1
- Activity 2
- Activity 3
- Activity 4
- Activity 5
- Activity 6
- Activity 7
- Activity 8

Activity 5 Assign resources

Assign resources is the process of creating the most efficient schedule but not schedule we have yet to consider the allocation of resources to the project.

Predefined roles of assign resources

- ❖ Name or tiles of people

Include specific services,facilities,equipment etc

- ❖ Column for percentage

What percentage will be allocated to the project

- ❖ Cost of each resources

Estimate cost of each resources

- ❖ Each have calendar

Consider the standard work week and holidays

Assigning people to tasks

Recruiting the right team members can make or break a project.

- Recruit talented, highly motivated people
- Select best task for each person
- Promote team harmony
- Keep the team size small

Resource leveling

We have identified tasks, task duration and inter task dependencies and assigned resources to each task to produce the project schedule.

- **Schedule and budget**

Schedule based on leveled resources and given the cost of each resources the project manager can produce a printed document that communicated the project plan to all concerned parties. Project management tools will provide multiple views of project such as calendars, Gantt chart, PERT chart, resources and resources leveling reports, and budget reports.

- **Communication**

The statement of work, timetable for major deliverables, and overall project schedule should be communicated to all parties involved both in project by orally and in writing. The frequency of such communication and a contact person and method for parties to submit feedback and suggestion. A corporate intranet can be an effective way to keep everyone informed of project progress and issues.

Activity 6:- Direct the team effort

There are several dimensions to directing the team effort. Tom demarco states in his book project management is the hardest job in management is people. Few new project managers are skilled at supervising people.

Activity:-7 Monitor and control progress

While executing the project, the project manager must control the project, that is monitor its progress against the scope, schedule and budget.

- Progress reporting
- Change management
- Expectations management
- Schedule adjustments - critical path analysis

- **Progress reporting**

Progress reporting should be frequent enough to establish accountability and control but not so frequent as to become a burden and impediment to real project progress.

- **Change management**

It is not uncommon for scope to grow out of control even when a properly completed statement of works was agreed on early in the planning process." change is is frequently a point of contention between the customer and the information systems organization, because they disagree on whether a particular function is a change or part of the initial agreement."

- **Expectations Management**

Experienced project manager often complain that managing system owners and users expectations of a project is more difficult then managing cost, schedule, people or quality. And expectations management matrix is a rule-driven tool for helping management understand the dynamic and impact of changing project parameters such as cost , schedule, scope and quality.

- **Schedule adjustment- critical path analysis**

  Understanding the critical path and slack time in the project is indispensable to the project manager knowledge of such project factors influences the people management decision to be made by the project manager. Emphasis can and should be placed on the critical path task , and if necessary resources might be temporary diverted from task with the slack time to help get critical task back on schedule.

- **Activity -8 Assess project Results and Experiences**

Project managers must learn their mistake! They should embrace continuous progress improvement. This final activity involves soliciting feedback from the project team members (including customers) concerning their project experiences and suggestions aimed at improving the project and process management of the organization. Project review(s) should be concerned to answer the following fundamental questions.

- Did the final product meeting or exceed user expectations?
- Did the project come in on schedule?
- Did the project come in under budget?

Unit-11 SYSTEM DESIGN METHODS

SYSTEM DESIGN & ITS APPROACHES

SYSTEM DESIGN

Definition:-

System design is the process of defining the elements of a system such as the architecture, modules and components, the different interfaces of those components and the data that goes through that system.

It is meant to satisfy specific needs and requirements of a business or organization through the engineering of a coherent (reasonable) and well-running system.

TYPES OF SYSTEM DESIGN

1. Architectural Design

2. Logical Design

3. Physical Design

1. ARCHITECTURAL DESIGN

The architectural design of a system emphasizes the design of the system architecture that describes the structure, behavior and more views of that system and analysis.

2. LOGICAL DESIGN

The logical design of a system pertains to an abstract representation of the data flows, inputs and outputs of the system. This is often conducted via modeling, using an over-abstract (and sometimes graphical) model of the actual system. In the context of systems, designs are included.

Logical design includes entity-relationship diagrams (E-R diagrams)

3. PHYSICAL DESIGN

The physical design relates to the actual input and output processes of the system. This is explained in terms of how data is input into a system, how it is verified/authenticated, how it is pr ocessed, and how it is displayed.

APPROACHES OF SYSTEM DESIGN

The main approaches of system design are as follows:

- Model Driven Approach
- Rapid Application Development
- FAST System Design Strategies

MODEL DRIVEN APPROACH

Model-driven design emphasizes the drawing of pictorial system models to document the technical or implementation aspects of a new system.

OR

A system design approach that emphasizes drawing system models to document technical and implementation aspects of a system.

Example: Blueprint for Implementation of system.

Types Of Model Driven Approach

1) Information engineering
2) Object oriented
3) Prototyping

1) INFORMATION ENGINEERING

It is a model driven and data centered , but process-sensitive technique for planning, analyzing, and designing information systems. IE models are pictures that illustrate and synchronize the system's data and processes.

- The primary tool of IE is a data model diagram, E-R diagram.

2) OBJECT ORIENTED

Objects oriented techniques are used to refine the object requirements definitions identified earlier during analysis, and to define design specific objects.

- Extension of object oriented analysis
- Attempt to eliminate the separation of concerns about data and process

3) PROTOTYPE

- It is a small-scale, incomplete,but working sample of a desired system
- Iterative process involving a close working relationship between the designer and users

Benefits

- Encourages and requires active end-user participation.
- Endorses philosophy that end-users won't what they want until they see it.
- Errors can be detected earlier.
- Accelerates several phases of the lifecycle.
- Can increase creativity as it allows for quicker user feedback.

RAD and FAST Design Strategies

System Design Strategies

- System design is the process of defining the architecture, modules, interfaces and data for a system to satisfy specified requriements.
- System design strategy is a discipline that helps firms in deciding what to make ,why to make it and how to innovate it, immediately and for the long time.

  There are different strategies for desigining any system .Two of them are:-
- Rapid application development strategy
- Fast design strategy

1. Rapid Application Development Strategy

- It is based on prototyping and iterative model with less planning.
- It emphasize the speed of development by the involvement of many manpower.
- Mainly focus to accelerate the requirements analysis and design phases.
- Often uses prototyping approach.
- The prototype itself may become the system or may serve as the model for the system.

Phases of RAD Design Strategy

a) Define initial system improvement objectives, business requirement statement
b) Logical design
c) Physical design.

Advantages

- Focus on user requirement.
- Encourage active user and management participation.
- Projects get higher visibility and support.
- Errors detection is earlier.
- More natural process as change is expected.

Disadvantages

- Requires large number of technical manpower.
- Requires high amount of budget.
- Quality of system may degrade due to speed of development.
- Only system that can be modulized can be built.

2. FAST Design strategy

- It stands for the Framework for the Application System Thinking.
- It is a hypothetical strategy ,not real world commercial methodology.
- It is the Integration of other approach like Rapid Application Development(RAD).
- Provide best quality at reasonable time.

Phases of FAST Design Strategy

1. Scope Definition
2. Problem Analysis
3. Requirement analysis
4. Logical design
5. Decision analysis
6. Physical design

Advantages

- Mainly focus on the user requirement
- Encourage the participation of designer as well as user
- Provide conceptual framework

Disadvantages

- Time consuming
- Each stage requires proper design.

Steps Of In-House Buy Methods

- In-house development of a system is named so since building a system and a house are almost identical.
- The design phase is followed by an approved proposal system from the decision analysis phase.
- Design made by the analyst mainly focuses on fulfilling the requirements and being user-friendly.
- Also seeks to present clear and complete specifications to the builders and technicians.

Steps In Designing

- Task 1 : Design the Application Architecture
- Task 2 : Design the System Database(s)
- Task 3 : Design the System Interface
- Task 4 : Package Design Specifications
- Task 5 : Update the Project Plan

About The "Buy" Solution

- Most notable difference from the in-house development projects is the inclusion of a *procurement phase* and a special decision analysis phase.
- Helps to address software and services.
- A poor decision can ruin an otherwise successful analysis and design.
- Due to it, the decisions need to be analysed too.

Purposes Of The Phases

- Identify and research specific products that could support our recommended solution for the targeted information system.
- Solicit, evaluate and rank vendor proposals.
- Select and recommend the best vendor proposal.
- Contract with the awarded vendor to obtain the product.

Procurement And Decision Analysis Related Tasks

Procurement Phase :

- Task 1 : Research Technical Criteria and Options
- Task 2 : Solicit Proposals or Quotes from Vendors

Decision Analysis Phase :

- Task 3 : Validate Vendor Claims and Performances
- Task 4 : Evaluate and Rank Vendor Proposals
- Task 5 : Award (or Let) Contract and Debrief Vendors