

# Feasibility Analysis



- The definition of ‘Feasibility’:
  - The word ‘**feasibility**’ means the degree or state of being easily, conveniently, or reasonably done.
  - If something is ‘**feasible**’ it means that we can do it, make it, or achieve it.
  - In other words, it is doable and also viable.
- In terms of Information Systems Analysis and Design, a feasibility study is an evaluation and analysis of a project/system that somebody has proposed. We also call it a feasibility analysis.
- A feasibility study/analysis decides/determines:
  - Whether or not we can complete implementing the proposed system.
  - Whether or not the proposed system is worth implementing.
  - How profitable or unprofitable it might be.

# Feasibility Analysis (Contd.)



- A feasibility study should provide management with enough information regarding different queries such as follows:
  - Will the new system contribute to the organizational objectives?
  - Will the final product benefit its intended users?
  - Can the system be implemented within schedule and budget using current technology?
  - What resources are available for given candidate system?
  - Can the system be integrated with other systems that are used?
  - What are the likely impacts of the candidate system on the organization?
- In feasibility study you may consult information sources such as -
  - Managers of department where the system will be used
  - Software engineers who are familiar with the type of proposed system
  - Technology experts
  - End user of system

# Feasibility Analysis (Contd.)



- The systems analyst should not spend too much time doing feasibility studies, The feasibility study must be highly time compressed, encompassing several activities in a short span of time. (two or three weeks)
- After a feasibility study,
  - Analysts make a recommendation whether or not the system should continue.
  - Analysts may also propose changes to scope, budget and schedule of the system.
  - Lastly, the Management makes a go/no go decision.
- It is suggested that, if the answer to any of the questions (mentioned in the previous slide) is not satisfactory enough, you should probably not go ahead with the project.
- Although feasibility study is painstaking, it is worthwhile because it saves businesses and systems analysts in terms of time and money.

# Feasibility Analysis (Contd.)



- In order for an analyst to recommend further development, a project must show that it is feasible in all four of the following ways:
  - Technically
  - Economically
  - Operationally
  - In terms of project timing and schedule
  
- So, there will be four kinds of feasibility study –
  - Technical Feasibility
  - Economic Feasibility
  - Operational Feasibility
  - Schedule Feasibility

# Feasibility Analysis vs. Business Plan



- The terms are similar to each other, but the meanings are not the same.
- When somebody has an initial business idea, the company carries out a feasibility study and this study aims to flesh out the possibilities in that business idea.
- On the contrary, the business plan describes about -
  - The Company
  - Company's Goals
  - Strategies
  - Financial projections (forecasts)
- So, the difference is that,
  - A feasibility analysis tells you whether something will work or not.
  - A business plan tells you how it will work.
  - Feasibility study comes first and if the projects gets approved then business plan comes at last.

# Feasibility Analysis Example



Suppose, A hospital is aiming to expand, i.e., add an extension to the present building. So it may perform a feasibility study. The study will determine whether the project should go ahead or not. How?

- The people carrying out the study will take into account -
  - Labor costs
  - Material costs
  - How disruptive the project might be for staff and patients
- The study may have to gauge public opinion regarding the new extension. In other words, how will the local community react on the proposal of such a project?
  - Accept/be in favor of the project
  - Be against the project

# Feasibility Analysis Example (Contd.)



- It is important to determine how the stakeholders will respond. Hospital stakeholders (a person with an interest or concern in a project, business, or organization) are –
  - Doctors
  - Nurses
  - Other hospital staff
  - Patients
  - Hospital visitors
  - The hospital's owner.
  - Members of the local community
- The people conducting the study go through all the pros and cons of the project. They then weigh them against each other.
- Finally, they determine whether it is a good idea to go ahead.

# Technical Feasibility



- The system is said to be technically feasible if the assessment and the availability of the following things can be ensured that may affect the ability to accomplish user requirements and thus to achieve an acceptable system:
  - Technical resources (hardware, software and network resources)
  - Technology
- The analyst must find out the following:
  - Is it possible to develop the new system given the current technical resources and available personnel?
  - If not, can the existing system be upgraded or added to in a manner that fulfills the request under consideration?
  - If existing systems cannot be added onto or upgraded, is there any stable, well-established and relevant technology in existence that meets the specifications?
  - If the technology is available, does it have the capacity to handle the solution?



# Technical Feasibility (Contd.)



- Is the technology available within given resource constraints (budget and schedule)?
- Does the organization have the staff who are technically skilled and proficient enough in term of capabilities to accomplish the objectives
- If not, can they hire additional programmers, testers, experts, or others who may have different programming skills from theirs, or maybe outsource the project completely?
- Are there software packages available that can accomplish the objectives, or does the software need to be customized for the organization?
- Will the proposed system provide adequate response/performance to inquiries, regardless of the number or location of users?
- Will a prototype be required?
- Does the proposed platform have sufficient capacity for future needs (transaction volume and company growth)? If not, can it be expanded?
- Will the hardware and software environment be reliable? Will it integrate with other company information systems, both now and in the future? Will it interface properly with external systems operated by customers and suppliers?

# Economic Feasibility



- The system is said to be economically feasible if
  - The system can be developed with the available funds of the organization and thus ensuring the economic justification.
  - The system is capable of generating financial gains for the organization, that is, the projected benefits of the proposed system outweigh the estimated costs.
- Economic justification includes a broad range of concerns that includes cost benefit analysis.
- Economic feasibility involves/considers the incurred cost regarding some basic resources such as
  - Cost of system analyst time and also the time of system analysis team members
  - Cost of full system study
  - Cost of employee time
  - The estimated cost of hardware and any sort of purchase
  - The estimated cost of packaged software and software development team
  - Cost required to conduct full software investigation (requirements elicitation and requirements analysis).
  - Cost of formal and informal training
  - License fees and consulting expenses

# Economic Feasibility (Contd.)



- In addition, it is necessary to consider the benefits (both tangible and intangible) like reduced work hour, good company image, increased accuracy etc. that can be achieved by developing the system.
- In terms of economic feasibility, you might seek answers for the following queries and try your best to ensure positive/convenient/practical feedback in return:
  - Can it be ensured that the concerned business is able to see the value of the investment before committing to an entire system study?
  - Can the project be done within given budget/cost constraints?
  - What are the projected savings and costs?
  - What is the minimal cost to attain such a system?
  - What are the development and operational costs?
  - Can the new system produce any immediate reduction in operating costs?
  - Can the short-term costs be overshadowed by long-term gains? (because benefits outweigh costs!)
  - What are the benefits in the form of reduced costs that will result from the system, including tangible and intangible ones?
  - Is the project justified? Are the benefits that will accrue from the new system worth the costs? Will the request result in a sound business investment?

# Operational Feasibility



- The system is said to be operationally feasible if
  - The human resources are available to make the system operative once it has been installed.
  - The system comes out to be very easy for the end users to operate and thus gets operated.
- Operational feasibility is dependent on the human resources available for the project and their operating skills.
- Users that do not want a new system (see no problems with the current system, and generally are not involved in requesting a new system) may prevent it from becoming operationally feasible. So,
  - Chances of getting operationally feasible for the new system gets low!
  - A workable solution might fail because of strong end-user or management resistance.
- Also if the users find any difficulty with the operation of the new system, it will not produce the expected benefits.

# Operational Feasibility (Contd.)



- On the contrary, if the users themselves have expressed a need for a system that is operational more of the time, in a more efficient and accessible manner, chances are better that the requested system will eventually be used.
- Some issues are related to the fact whether the new system will be accepted and get operated right away.
- Internal issues, such as:
  - Manpower problems
  - Labor objections
  - Manager resistance
  - Organizational conflicts
  - Organizational policies
- External issues, including:
  - Social acceptability
  - Legal aspects
  - Government regulations
- Much of the art of determining the operational feasibility rests with the User Interfaces (UI) that are chosen carefully.

# Operational Feasibility (Contd.)



- In terms of operational feasibility, you might seek answers for the following queries and try your best to ensure positive/convenient/practical feedback in return:

If the system is developed, then the vital issues to be considered are:

- Will the new system get the acceptance and operate when put in service?
- Is the current system well liked and effectively used?
- Do the users see the need for change?
- If so, then what changes will be brought with the new system?
- What organizational structures will get affected by this change?
- Will the management get satisfaction and support this change/adapt to this change?
- Will the new system place any new demands/constraints on the users or require any operating change? For example, will any information be less accessible or produced less frequently than before? Can the performance get declined in any way?
- Will the users be involved in planning the new system right from the start?
- Is there enough human resource/man power available to use/operate the new system?
- If so, will the new system be used by the users?

# Operational Feasibility (Contd.)



- What new user-skills will be required?
- Do the existing staff members have these skills? If not, can they be trained in due course of time?
- How do the end-users feel about their role in the new system?
- How will the working environment of the end-users change?
- Can or will the end-users adapt to the change?
- What end-users may resist or not use the system? People tend to resist change. Can this problem be overcome? If so, how?
- Will the new system result in a workforce reduction?
- If so, what will happen to the affected employees?
- Will the customers experience adverse affects in any way, either temporarily or permanently?
- Will any risk to the company's image or goodwill result?
- Do legal or ethical issues need to be considered if the new system gets operated?

# Schedule Feasibility



- Schedule feasibility means that a project can be implemented in an acceptable time frame.
- Schedule Feasibility deals with timeline estimations and optimizing resources.
- The technology may be there but that doesn't ensure the skills required to properly apply that technology. All information systems professionals can learn new technologies. However, that learning curve will impact the schedule.
- Some projects are initiated with specific deadlines that need to be determined whether they are
  - Mandatory or
  - Desirable
- If the deadlines are desirable rather than mandatory, the analyst can propose alternative schedules.
- It is preferable (unless the deadline is absolutely mandatory) to deliver a properly functioning information system two months late than to deliver an error-prone, useless information system on time!
- Missed schedules are bad, but inadequate systems are worse!



# Schedule Feasibility



- When assessing schedule feasibility, a systems analyst must consider the interaction between time and costs.
  - For example, speeding up a project schedule might make a project feasible, but much more expensive.
- To ensure the schedule feasibility of the proposed system, the system analyst should consider the following relatable issues:
  - Has management established a firm timetable for the project?
  - Given technical expertise, are the project deadlines reasonable?
  - Can the proposal be accomplished within an acceptable time frame?
  - What conditions must be satisfied during the development of the system?
  - Will an accelerated schedule pose any risks?
  - If so, are the risks acceptable?
  - Will project management techniques be available to coordinate and control the project?
  - Will a project manager be appointed?