**SYSTEM STUDY**

1. TECHNICAL FEASIBILITY

2. OPERATIONAL FEASIBILITY

3. ECONOMIC FEASIBILITY

**INTRODUCTION**

A feasibility study assesses the operational, technical and economic merits of the proposed project. The feasibility study is intended to be a preliminary review of the facts to see if it is worthy of proceeding to the analysis phase. From the systems analyst perspective, the feasibility analysis is the primary tool for recommending whether to proceed to the next phase or to discontinue the project.

The feasibility study is a management-oriented activity. The objective of a feasibility study is to find out if an information system project can be done and to suggest possible alternative solutions.

Projects are initiated for two broad reasons:

1. Problems that lend themselves to systems solutions

2. Opportunities for improving through:

(a) upgrading systems

(b) altering systems

(c) installing new systems

A feasibility study should provide management with enough information to decide:

* Whether the project can be done
* Whether the final product will benefit its intended users and organization
* What are the alternatives among which a solution will be chosen
* Is there a preferred alternative?

**TECHNICAL FEASIBILITY**

A large part of determining resources has to do with assessing technical feasibility. It considers the technical requirements of the proposed project. The technical requirements are then compared to the technical capability of the organization. The systems project is considered technically feasible if the internal technical capability is sufficient to support the project requirements.

The analyst must find out whether current technical resources can be upgraded or added to in a manner that fulfils the request under consideration. This is where the expertise of system analysts is beneficial, since using their own experience and their contact with vendors they will be able to answer the question of technical feasibility.

The essential questions that help in testing the operational feasibility of a system include the following:

* Is the project feasible within the limits of current technology?
* Does the technology exist at all?
* Is it available within given resource constraints?
* Is it a practical proposition?
* Manpower- programmers, testers & debuggers
* Software and hardware
* Are the current technical resources sufficient for the new system?
* Can they be upgraded to provide to provide the level of technology necessary for the new system?
* Do we possess the necessary technical expertise, and is the schedule reasonable?
* Can the technology be easily applied to current problems?
* Does the technology have the capacity to handle the solution?
* Do we currently possess the necessary technology?

**OPERATIONAL FEASIBILITY**

Operational feasibility is dependent on human resources available for the project and involves projecting whether the system will be used if it is developed and implemented.

Operational feasibility is a measure of how well a proposed system solves the problems, and takes advantage of the opportunities identified during scope definition and how it satisfies the requirements identified in the requirements analysis phase of system development.

Operational feasibility reviews the willingness of the organization to support the proposed system. This is probably the most difficult of the feasibilities to gauge. In order to determine this feasibility, it is important to understand the management commitment to the proposed project. If the request was initiated by management, it is likely that there is management support and the system will be accepted and used. However, it is also important that the employee base will be accepting of the change.

The essential questions that help in testing the operational feasibility of a system include the following:

* Does current mode of operation provide adequate throughput and response time?
* Does current mode provide end users and managers with timely, pertinent, accurate and useful formatted information?
* Does current mode of operation provide cost-effective information services to the business?
* Could there be a reduction in cost and or an increase in benefits?
* Does current mode of operation offer effective controls to protect against fraud and to guarantee accuracy and security of data and information?
* Does current mode of operation make maximum use of available resources, including people, time, and flow of forms?
* Does current mode of operation provide reliable services
* Are the services flexible and expandable?
* Are the current work practices and procedures adequate to support the new system?
* If the system is developed, will it be used?
* Manpower problems
* Labour objections
* Manager resistance
* Organizational conflicts and policies
* Social acceptability
* Government regulations
* Does management support the project?
* Are the users not happy with current business practices?
* Will it reduce the time (operation) considerably?
* Have the users been involved in the planning and development of the project?
* Will the proposed system really benefit the organization?
* Does the overall response increase?
* Will accessibility of information be lost?
* Will the system affect the customers in considerable way?
* Legal aspects
* How do the end-users feel about their role in the new system?
* What end-users or managers may resist or not use the system?
* How will the working environment of the end-user change?
* Can or will end-users and management adapt to the change?

**ECONOMIC FEASIBILITY**

Economic analysis could also be referred to as cost/benefit analysis. It is the most frequently used method for evaluating the effectiveness of a new system. In economic analysis the procedure is to determine the benefits and savings that are expected from a candidate system and compare them with costs. If benefits outweigh costs, then the decision is made to design and implement the system. An entrepreneur must accurately weigh the cost versus benefits before taking an action.

Possible questions raised in economic analysis are:

* Is the system cost effective?
* Do benefits outweigh costs?
* The cost of doing full system study
* The cost of business employee time
* Estimated cost of hardware
* Estimated cost of software/software development
* Is the project possible, given the resource constraints?
* What are the savings that will result from the system?
* Cost of employees' time for study
* Cost of packaged software/software development
* Selection among alternative financing arrangements (rent/lease/purchase)

The concerned business must be able to see the value of the investment it is pondering before committing to an entire system study. If short-term costs are not overshadowed by long-term gains or produce no immediate reduction in operating costs, then the system is not economically feasible, and the project should not proceed any further. If the expected benefits equal or exceed costs, the system can be judged to be economically feasible. Economic analysis is used for evaluating the effectiveness of the proposed system.

The economic feasibility will review the expected costs to see if they are in-line with the projected budget or if the project has an acceptable return on investment. At this point, the projected costs will only be a rough estimate. The exact costs are not required to determine economic feasibility. It is only required to determine if it is feasible that the project costs will fall within the target budget or return on investment. A rough estimate of the project schedule is required to determine if it would be feasible to complete the systems project within a required timeframe. The required timeframe would need to be set by the organization.