

SYSTEM ANALYSIS & DESIGN (SDLC) - 2

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SYSTEM ANALYSIS & DESIGN

- To develop a systems we need to carry out a detailed systems analysis and design activity.
- Systems like Management Information System (MIS), General Business System etc.
- System development follows an iterative process that recycles through each stage and almost all stages overlap each other.
- This is also termed as the *System Life Cycle*.

SYSTEMS ANALYSIS AND DESIGN PROCESS

The complete process of systems analysis and design may be considered as consisting of following phases

- **Recognition of problem (Initial Investigation)** :
 - What is the problem or opportunity?
- **Feasibility study** : What are the user's needs?
 - What are the benefits?
 - How can the problem be redefined?
- **System analysis** : What must be done to solve the problem?,
 - What are the facts?
- **System design** : How must the problem be solved?,
 - What is system flow?
- **System testing** : How ready are programs for test?
- **Implementation** : What is the actual operation?
- **Maintenance**: Should the system be modified?

RECOGNITION OF PROBLEM

Preliminary assessment is a brief investigation of the system.

When user recognizes that he has a problem with the means by which he currently carries out his business.

Following are the major classification of the problems:

- *The existing system is slow and cannot respond to information* i.e. problem of responsiveness.
- *The present services are very expensive* i.e. problem of economy.
- *Problem of Occurrence/ Reliability*
- *There is a problem of information.*
- *Problem of efficiency.*
- *Problem of security of information.*

FEASIBILITY STUDY

Three phases of feasibility study is used are as follows:

- The *technical feasibility* is concerned with the available hardware and software resources whether they meet the given requirements of the analysed system or not.
- The *operational feasibility* is to take the operational staff into confidence. The success of a good system depends upon the willingness of the operating staff.
- The *economic feasibility* deals with the study of cost benefit analysis. All the costs of the new proposed system are compared with the benefits which can be obtained for the management approval. The benefits may be quantitative or qualitative in nature.

The following steps are used in the complete feasibility study:

- Study the existing system
- Define the scope of the proposed system
- Study the strengths and weakness of the existing system
- Study various alternatives
- Carry out feasibility studies
- Get the management approvals

SYSTEM ANALYSIS

It involves an in-depth study of the existing system with to the following :

- **Organization structure**
- Sources of data origination
- **flow of data within the organization**
- Accuracy and timeliness aspect of the data handling process.
- **The process of data storage**
- The type of data processing
- **The reports being generated at various stages**
- The new user requirements
- **Estimation of resources needed to design the new system**

SYSTEM DESIGN

It includes many steps such as :

- **The preparation of system outlines chart**
- Design of input forms, validation procedures and data preparation procedures
- **Design of output reports**
- Code designing
- **Detailed file layout and file designing**
- Selection of system software and selection of programming languages or database to be used
- **Computer procedure design**
- Program development
- **Testing of the programs**
- Security and Controls

SYSTEM TESTING

This phase involves the testing of overall system.

- **First, it test the parts separately and finally the system as a whole.**
- It may also be referred as the **acceptance testing** by the user.
- Such a testing should be carried out by the user, the users representative, the system analyst, the standards group, the external systems auditor or any combination thereof.
- **The test data is normally prepared by the user to check for all possible combination of correct data as well as the wrong data which should be trapped by the system and reported as an error.**

IMPLEMENTATION

Direct Changeover :In this method, the old system is scrapped or withdrawn the moment new one is put into use. For example if it is a Banking System, this type of changeover would mean that the manual record keeping is stopped and is directly handled through the new computerized system.

Parallel Running : Parallel running is a method of submitting a new system to a final acceptance test, in which data is processed using both the old and new systems simultaneously. The main drawback of this method is extra cost because the user staff will have to work with two systems i.e. old and new.

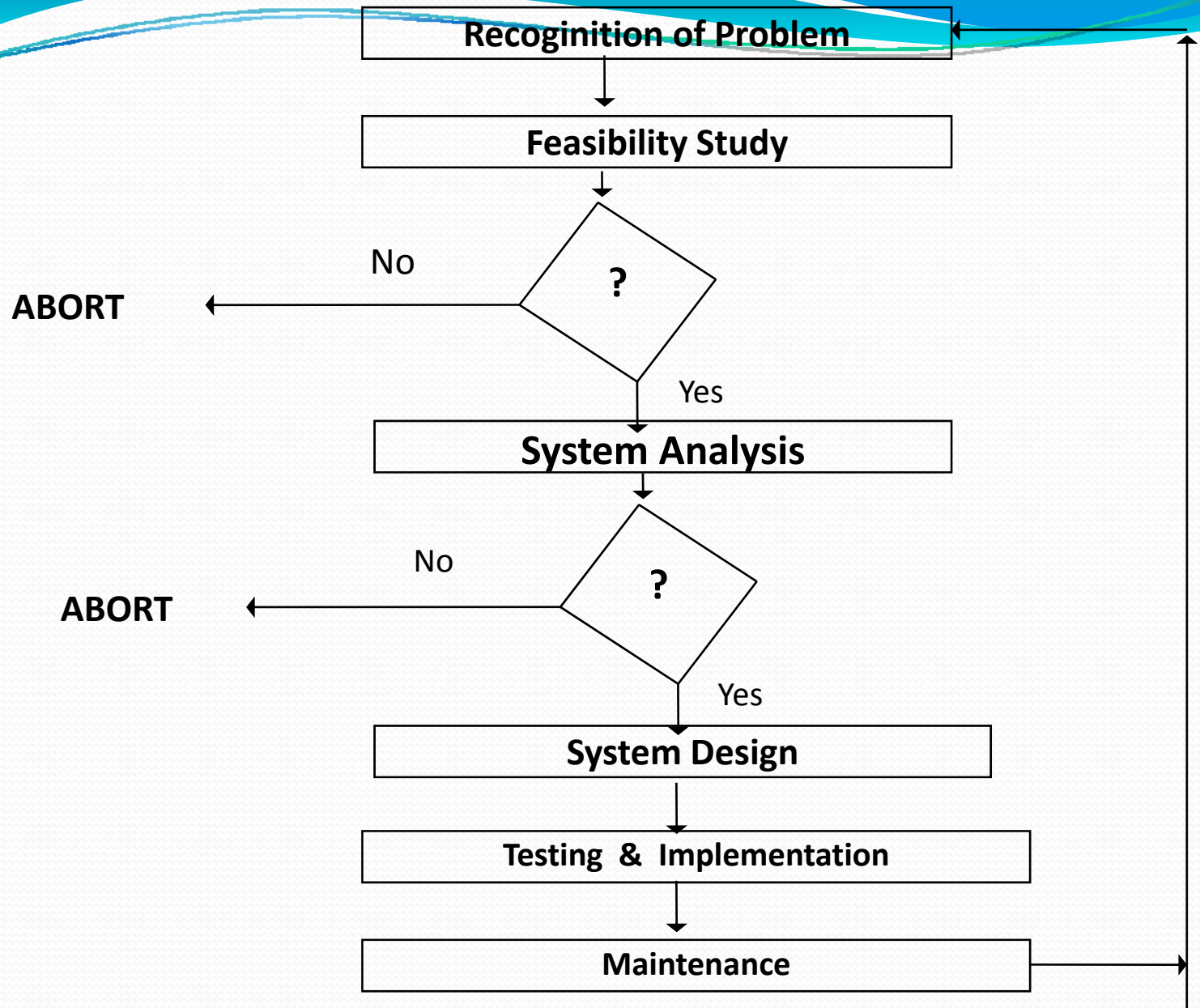
Pilot Running : Pilot running is an alternative to parallel running, and consists of the allocation of a certain amount of work to be performed by the computer while the remainder is done by old method. The amount of work performed on the computer is gradually increased until the changeover is complete and the old system is discontinued.

MAINTENANCE

- This is an ongoing exercise after the system has been implemented. The real life world is never static. Its requirements and objectives keep changing. So shall be the system which have been designed primarily to meet those objectives.
- System Analyst's main work is audit and evaluation. In auditing the system to check that the stated objectives of the system are still valid in the present environment; and in evaluating the achievement of those objectives.
- Thus the system analyst has to keep on carrying out changes and modification into the system, a stage called normally as system maintenance.

SYSTEM LIFE CYCLE

- It is in the nature of system that they share a common life cycle pattern.
- After a system has been in operation for a number of years, it gradually decays and becomes less and less effective because of the changing environment to which it has to adapt.
- For a time it is possible to overcome problems by amendments and minor modifications to the system but eventually it will be necessary to acknowledge the need for fundamental changes.
- At this stage the systems analyst becomes involved and investigates the problems and the requirements have been adequately identified, a new system can be designed and subsequently implemented.



PRINCIPLES OF SYSTEM DESIGN

There are some of the do's and dont's that help in designing an effective system. Some of these are :

- Principle of modular design
- Principle of sub system integration
- Principle of minimum information
- Principle of user based design
- Principle of manager-analyst co-operation
- Principle of cost effective design



Thanks!

- For Any Question ... Leave comment