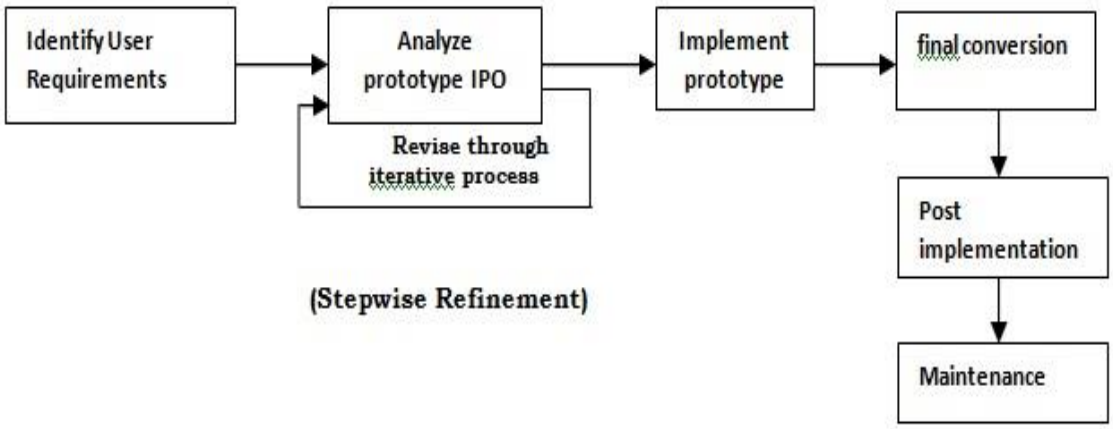
PROTOTYPING



In the SDLC there are two major problems

1. The SDLC takes too long time that might be undesirable.
2. The correct/right system is rarely developed the first time and hence the SDLC may evolve as an incorrect/undesirable system.

To overcome these stated problems there is an alternative often used called prototyping.

The prototyping recognizes the problem in cognitive way helps in generating a model closer to the correct requirement.

The prototyping is a method of development that uses trial and error technique also called stepwise refinement in developing the system.

In prototype construct we consider the current system as a set of sub problems from which one by one sub problems are considered for development. The basic steps are:

1. Identifying the user's requirement and the operating methods.

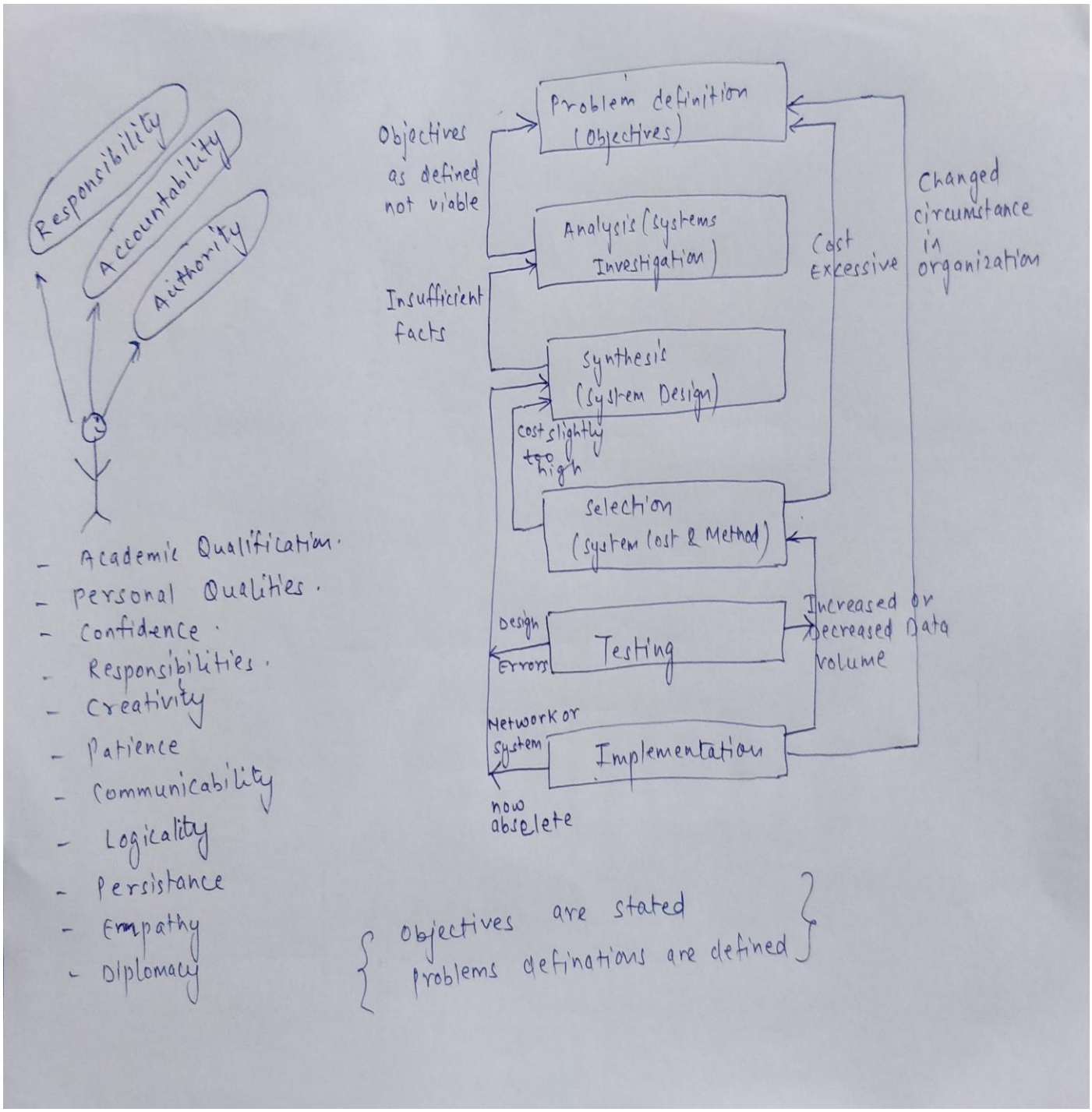
2. Develop a working prototype (working model) that focuses initially on only the most important functions.
3. The developed model is discussed with user if changes or amendments are required then are implemented.
4. An enhancement in the accepted sub prototype is carried out following points 1 to 4.

Finally where the prototype is complete in nature, fulfills the sub problem then it is finally converted to a system and is implemented.

Several prototypes are created one by one or in parallel in same fashion yielding a final system.

The developed system requires post implementation scenario as well as maintenance.

ROLE OF SYSTEM ANALYST



A system always requires a person who holds the responsibility of designing and developing the system with maintain it over time, since the inception of the system is the systems analyst.

The systems analyst thus is a key person associated with SDLC and is fully responsible from the first stage that is system definition to the entire life of the system.

Figure illustrates a typical diagram showing the stages of systems analysis associated with the objectives defined for the systems analyst.

A **system analyst** is also called a **business process engineer** who holds all the responsibilities of the system. A system analyst must have three major attributes.

1. Responsibilities (activities)
2. Accountability (results)
3. Authority

1. Responsibility

The fundamental responsibility of the system analyst is to identify and describe problems in the organization. The identified problems are then investigated and opportunities are determined in terms of feasibility solutions.

The system analyst assists and guides the system development with reference to the superiors and sub-ordinates. The system analyst is also responsible for project management where resources are identified and depending on the skills of the staff, development parts are allotted.

The system analyst is also responsible for analyzing cost benefits, designing user manuals, providing training and holds the responsibility for implementing the system.

2. Accountability

Here the accountability of the system analyst means that he should be result oriented that is he must perform to act as mediator between the

superiors and sub-ordinates such that the development of system is time bounded the accountability also includes:

1) Post implementation review

2) Difficulties or negative effects of the system.

3) The business need understanding.

4) Appropriate up-to date technology.

3. Authority

The analyst, in order to accomplish the project should posses an authority to handle the staff or the persons associated in the project. The system analyst should show a sense of authority while talking with the sub-ordinates and also show an authoritative attitude while working with the seniors.

SYSTEM ANALYST ROLES AND RESPONSIBILITIES

The following listed responsibilities are suggested for a system analyst:

1. Define and analyze the problem / Identify the problem.
2. Identify solution requirements and expectations.
3. Gather and analyze data.
4. Develop and test alternate solutions and decide a course of action.
5. Select the best solution.
6. Design program test and evaluate the result re-iterate if appropriate.
7. Train employees.
8. Always work towards betterment of system and improve the system.

A successful System Analyst should have following skills:

1. Communication ability.
2. Logical ability.
3. Creativity
4. Technical competence.
5. General business knowledge.
6. Working knowledge of IT.
7. Computer programming expertise and experience.
8. Problem solving skills.
9. Inter personal communication skills.
10. Flexibility and adaptibility.
11. Good character and strong ethics.
12. System analysis and design skills.

System Analysis and System Analyst

1. When objectives are defined and systems investigation is followed and if objectives are not viable then the objectives must be redefined.

2. After system investigation the synthesis follows. At this time the facts are collected in accordance with the analysis made. If insufficient facts are there the analysis must be reconsidered.

3. The system design phase follows the system cost and methods. There can be two drawbacks.

i. If the cost is excessive move back to problem definition.

ii. If the cost is slightly too high, re-synthesize the system.

4. The testing phase follows the established system, during the testing, there may be errors in accordance with test data. This again needs re-synthesize. Many-a-times testing leads to increased or decreased data volumes then some alternative low cost system may be needed to acquire.

5. The final implementation follows the testing and it then requires post implementation techniques where maintenance is a must. In case of hardware/software obsolescent, the synthesis phase must be followed. In case of changed circumstance in organization a redefinition of system is needed.

SYSTEM PLANNING AND INITIAL INVESTIGATION

A project is a planned undertaking of related activities to reach an objective. A collection of objectives that specifies a central objective is called a plan. The project management process consists of four phases.

1. Initiation
2. Planning
3. Execution
4. Closing down

The planning process involves following phases:

1. Development of objective that is described project scope, alternatives and feasibility.
2. Divide the project into manageable tasks.
3. Estimate resource and create a resource plan.
4. Develop a preliminary schedule.
5. Develop a communication plan.
6. Determine project standards and procedures.
7. Identify and assess risks.
8. Create a preliminary budget and set a base line for project plan.

Objectives

The objectives of a system must be well defined for the success of a plan

Significance of objectives

The objectives must be defined very clearly that what to do? , how to do?, when to do? And who will do it?

All the clarifications must be clearly stated in objectives. The objectives should be justifiable.

Nature of objectives

The objectives should have following characteristics:

1. Realistic and operational.
2. Multiple objectives.
3. Short range and long range objectives.
4. Objectives should follow a hierarchy.

Features of valid objectives

1. They must be concrete and specific.
2. They should be verifiable.
3. They should be result centered.
4. They must be balanced.
5. They must form an objective network.

Business objective

A key objective of business information system is to identify what type of managerial information is needed to be generated for taking the decisions. Providing the right information to the right person at the right time in a cost effective manner is the basic goal of the business information system (BIS).

The following key points are considered:

1. **Goals:**
   They are defined with a time line and are monitored continuously with reference to their specifications
2. **Strategy:**
   It is stated to be a specific action considered or taken to achieve a objective.
3. **Project Team, Planning the system investigation:**
   The basic concept of any system development is the team approach that us forming group of persons who work together for the defined objective.