System Analysis Design

Chapter 2

Systems Analysis and Life Cycle

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Learning Goals

1. Nine Steps in designing Information Systems.
2. Tasks performed in each step.
3. Nature of tasks performed by Systems Analysts.
4. The attributes of Systems Analysts.
5. The tools used by Systems Analysts.

Life Cycle of Systems Analysis and Design

- **Nine Steps involved in Analysis and Design**

1. **Requirements Determinations**
2. **Requirements Specifications**
3. **Feasibility Analysis**
4. **Final Specifications**
5. **Hardware Study**
6. **System Design**
7. **System Implementation**
8. **System Evaluation**
9. **System Modification**

Life Cycle of Systems Analysis and Design

❑ Step 1 : Requirements Determination

- **Arrived at by a consensus among managers**
- **Priorities among applications determined**
- **Pick high priority applications.**

Life Cycle of Systems Analysis and Design

❑ Step 2 : Requirements Specification

- **Known as System Requirements Specification (SRS)**
- **Understand the existing System**
- **Applications where a system is required are listed**
- **Arrive at the specifications of the users' Requirements after discussions with the user**
- **A system may encompass several applications**

Life Cycle of Systems Analysis and Design

❑ Step 3 : Feasibility Analysis

- Formulate Goals of the system and quantify goals
- Find alternative methods of meeting the goals
- For each alternative assess resources needed
  - Human Resources
  - Time and Money
  - Equipment needed
- Assess cost of each alternative
- Find the best alternative method subject to resource constraints

Life Cycle of Systems Analysis and Design

❑ Step 4 : Final Specifications

- **Specifications would state what the system would achieve.**
- **Specification drawn up are improved for implementation.**
- **SRS written- given to user and agreement reached**

Life Cycle of Systems Analysis and Design

❑ Step 5 : Hardware Study

- **Determine Hardware and Software required to execute the application.**
- **Determine Response time,Volume of data to be processed, Frequency of reports etc & then pick the hardware.**

Life Cycle of Systems Analysis and Design

❑ Step 6 : System Design

- Logical Design of the System
- Objects Identified
- Database Designed
- Program Specification drawn up
- Implementation Plan Drawn up
- Test Plan

Life Cycle of Systems Analysis and Design

Step 7 : System Implementation

- Write Programs
- Create Database
- Document System
- Train Users
- Trial run of the system
- Test and Accept

Life Cycle of Systems Analysis and Design

❑ Step 8 : System evaluation

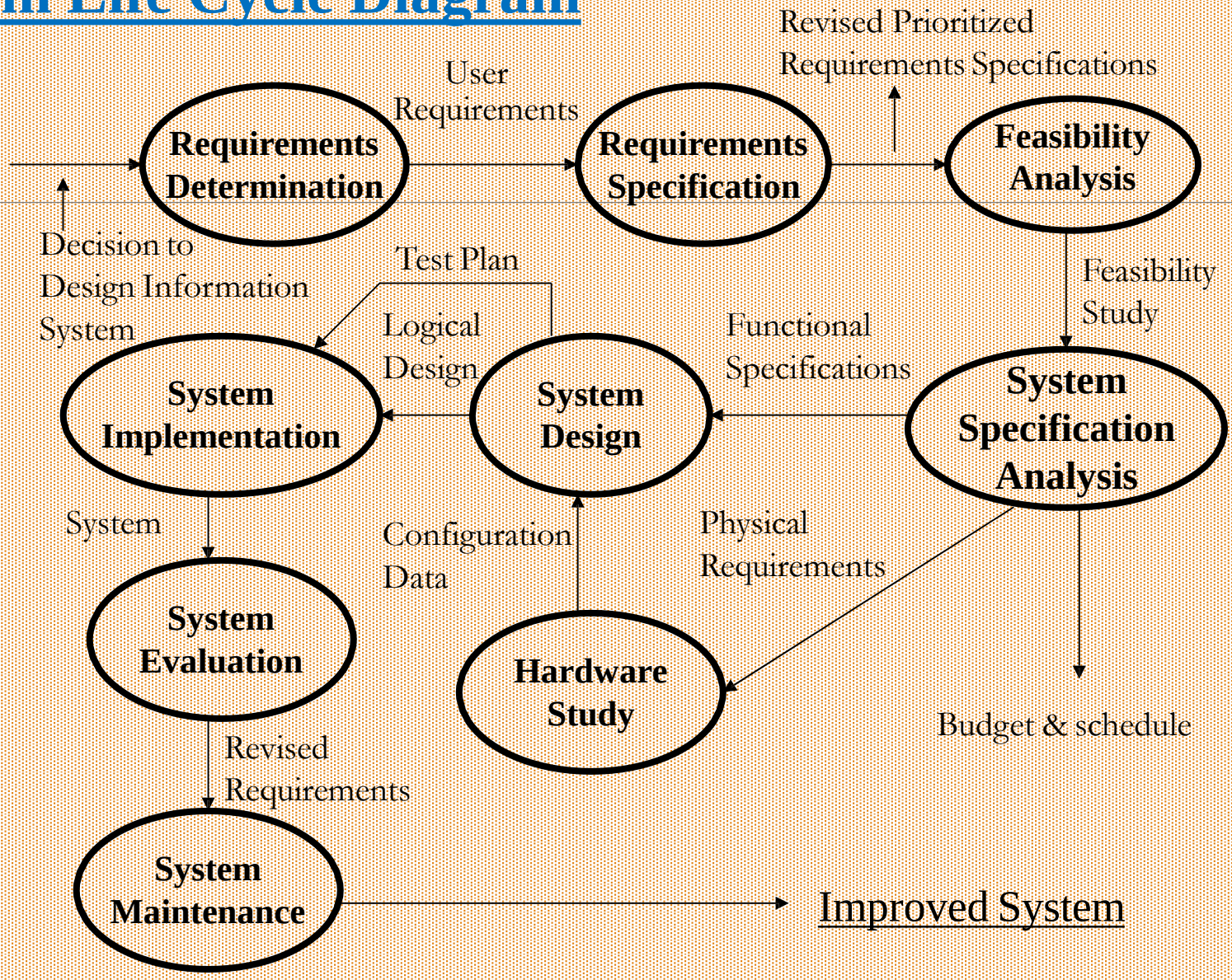
- **Find out from Users whether the System meets specified requirements.**
- **List areas of dissatisfaction and find reasons**
- **Suggest if there has to be any improvements to the system**

Life Cycle of Systems Analysis and Design

❑ Step 9 : System Modification

- **Fix errors**
- **Add/Delete features as required by users**
- **Tune the System**
- **Continuously monitor system and assess performance**

System Life Cycle Diagram



Roles of Systems Analyst

- **Defining Requirements**

  - Involves Interviewing Users

- **Prioritizing Requirements**

  - Obtain Users Consensus

- **Fact Gathering**

  - Data, Facts, Opinions of Managers

  - Lower level Users should be consulted

Continue…

- **Analysis and evaluation**

  - Arrive at appropriate system

- **Solving problems**

  - Hazy requirements converted into specific requirements

  - Suggest many alternative solutions
  - Quantify cost and benefits

Continue…

- **Drawing up Specifications**
  - Functional Specifications
    - Understood by users and programmers
    - Accepted by users
    - Precise and detailed
    - Account for possible changes

Continue…

- **System Design**
  - **Logical design of system**
    - **Objects identification**
    - **Normalizing database**
    - **Test plan**
  - **Design must be modular to accommodate change**

Continue…

- **Evaluating Systems**

  - Evaluation after use for sometime
  - Plan periodicity for evaluation
  - Modify as needed

Attributes of a Systems Analyst

- **KNOWLEDGE OF ORGANISATION**
  - Knowing user's jargon & practices
  - Know Management functions.
- **KNOWLEDGE OF COMPUTERS AND SOFTWARE**
  - Knowledge of system design tools
  - Keep abreast of modern developments

Continue…

- **GOOD INTERPERSONNAL RELATIONS**
  - Need to work as team member
  - Lead smaller teams
  - Interface with programmers & Users
  - Motivator.
- **ABILITY TO COMMUNICATE**
  - Oral Presentation
  - Report Writing
  - Answer queries

Continue…

- **ANALYTICAL MIND**

  - Problem solving attitude
  - Ability to assess trade offs
  - Sound commonsense
  - Curiosity to learn about new organizations

- **BREADTH OF KNOWLEDGE**

  - Broad Liberal Knowledge
  - Variety of jobs to be tackled in diverse organizations

Tools used by Systems Analyst

- Data Flow Diagram
- Decision Tables
- Modeling Language such as UML
- Normalization of Databases
- Testing tools
- ISO/CMM procedure manuals