Computer Application And Management Information System
MB 402

UNIT V – **M**anagement **I**nformation **S**ystem (**MIS**)

✉: bobbyban29@gmail.com

☏: 95 76 71 28 45

Shamit Sarkhel, Guest Faculty

Department of Applied Economics & Commerce

System Development Life Cycle (SDLC)
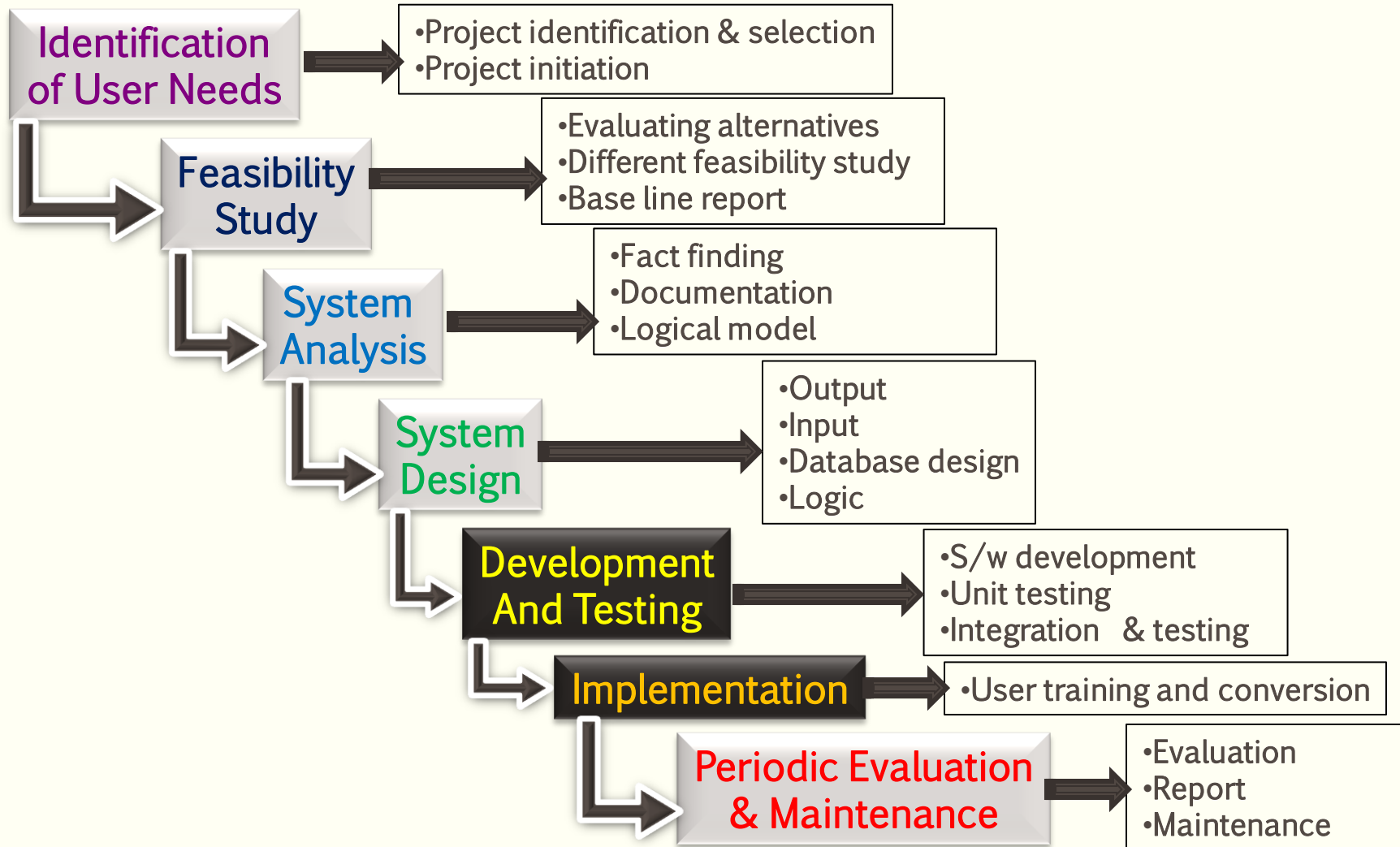
Period : 08 (1hr.)

SDLC : Introduction

- Every information system has a life cycle, just as a living system or a new product has.
- System analysis and design constitute the key stages of the system development life cycle.
- These activities are highly interrelated and overlap with each other.
- For example, an analyst might think about the alternative ways to improve the system while still in the evaluation stage of the existing system.
- So, there can be overlap during any stage of the life cycle.
- The various stages in systems analysis and design are discussed next.

SDLC : Stages and tasks involved

Identification of User Needs
→
- Project identification & selection
- Project initiation

Feasibility Study
→
- Evaluating alternatives
- Different feasibility study
- Base line report

System Analysis
→
- Fact finding
- Documentation
- Logical model

System Design
→
- Output
- Input
- Database design
- Logic

Development And Testing
→
- S/w development
- Unit testing
- Integration & testing

Implementation
→
- User training and conversion

Periodic Evaluation & Maintenance
→
- Evaluation
- Report
- Maintenance

SDLC : Key Concerns of stages

Stages	Key Concern
Identification of User need • Preliminary Investigation	What is the problem or opportunity?
Feasibility study •Evaluation of existing system •Analysis of alternative candidate systems •Cost/benefit analysis	What are the user's requirements? Is the problem worth solving? How can the problem be redefined?
System analysis •Detailed evaluation of present system •Data collection	What must be done to solve the problem? What are the facts?

System design
•General design specifications
•Detailed design specifications
    ✓Output
    ✓Input
    ✓procedures
	In general, how must the problem be solved?
	In specific, how must the problem be solved?
	What is the system (processing) flow?
	What does user provides?
	Does the user approve the system?

SDLC : Key Concerns of stages

Stages	Key Concern

System development and testing
•Program Design and Coding
•Testing
 	
    ✓Unit testing
    ✓Combined module testing
    ✓User acceptance testing
	How well do individual programs/ modules test out?
	
	How ready are programs for acceptance test?

Implementation •User training •File/system conversion	What is the actual operation? Are user manuals ready? Are there delays in loading files?
Periodic evaluation and maintenance •Evaluation •Maintenance •Enhancements	Is the system running? Should the system be modified?

SDLC : Outcome of Concerns

Key Concern	Outcome
What is the problem or opportunity?	Statement of scope and objectives Performance criteria.
What are the user's requirements?	Technical/behavioural feasibility and Cost/benefit analysis.
Is the problem worth solving?	System scope and objective.
How can the problem be redefined?	Statement of new scope and objectives.
What must be done to solve the problem?	Logical model of system—i.e., data dictionary, data flow diagram.
What are the facts?	Relevant data.
In general, how must the problem be solved?	Design of alternative solutions.
In specific, how must the problem be solved?	Final Cost/benefit analysis, Hardware specifications, Cost estimates.
What is the system (processing) flow?	Implementation specifications.
Does the user approve the system?	Implementation schedule.

SDLC : Outcome of Concerns

Key Concern	Outcome
How well do individual programs/ modules test out? How ready are programs for acceptance test?	Approval of system by user Programs Test plans. Security, audit and operating procedures. Actual hardware use. Formal system test.
What is the actual operation? Are user manuals ready? Are there delays in loading files?	Training programme. User-friendly documentation.
Is the system running? Should the system be modified?	User requirements met User expectations met Satisfied user

SDLC Stages : Explained

- **Identification of user Needs**

  It is essential to understand the problem in all its perspectives before starting to solve it. The idea for a new system originates with the identification of the need for change.

  For example, a manager may not be satisfied with the purchasing system of the organisation, or a bank official might be getting complaints about the long lines in the ATM counter.

  These situations require a preliminary survey or an initial investigation to decide whether an alternative system can solve the problem.

  It involves looking into the duplication of efforts, obstructions, existing procedures, or whether parts of the existing system would be candidates for computerisation.

SDLC Stages : Explained

The source of change may be in the environment or within the organisation. The idea for change may come from vendors, customers, government sources, competitors, etc.

For example, customer complaints about the delivery of orders may warrant an investigation of the delivery schedule, the mode of transportation, the volume of orders to be delivered, etc.

The need for change may also arise as a result of the advances in computer technology. Personnel in an organisation may feel the need to update existing applications or improve procedures.

SDLC Stages : Explained

In case of a serious problem, management may wish to hire an analyst to address the situation. In larger organisations where formal procedures are adhered to, the analyst is required to start by preparing a statement indicating the scope and objective of the problem. He/she then discusses it with the user for validation. The system analyst is in a unique position to spot the need for change. Experienced system analyst can prove to be a rich resource of ideas.

SDLC Stages : Explained

- **Feasibility Study**

  Planning of a project includes determining the validity of request, analysing the alternatives, and selecting the best alternative based upon feasibility study. Feasibility study is an examination of system proposal according to its workability, impact on the organisation, ability to satisfy user requirements, and effective use of resources. The key questions that it addresses to are:

  - What are the user's requirements and how does the candidate system satisfy them?
  - What are the available resources for a given candidate system? Does the problem need to be dealt with? Is it worth solving?
  - How will the candidate system affect the organisation? How well does the system fit in the organisation's MIS plan?

SDLC Stages : Explained

The answers to these questions will help the analyst understand the problem, identify and describe candidate systems, and select the best system after giving due consideration to the cost and workability The feasibility study aims at acquiring knowledge about the scope of the problem at hand. During the study, the problem definition is finalised and aspects of the problem to be included in the system determined. Consequently, costs and benefits are estimated with greater precision at this stage.

SDLC Stages : Explained

The outcome of the feasibility study is a report—a formal proposal detailing the nature and scope Of the proposed solution. After the proposal is reviewed by the management, it becomes a formal agreement that paves the way for actual design and implementation. The feasibility study report consists of the following:

Statement of the Problem — a well documented statement of the problem that led to analysis.

Abstract of Findings and Recommendations — a list of findings and recommendations of the study.

Details of Findings —a summary of the procedures used in the existing system, followed by the procedures of the candidate system.

Recommendations and Conclusions — explicit recommendations concerning the candidate system, including personnel assignments, costs, project schedules and deadlines.

SDLC Stages : Explained

- **System Analysis**

  System analysis is a detailed study of the various functions performed by a system and their relationships within and outside the system.

  A vital question that needs to be answered is: **What must be done in order to solve the problem?**

  Analysis specifies the boundaries of the system and determines whether or not a candidate system should consider other related systems.

SDLC Stages : Explained

During analysis, data are gathered on the available files, decision points, and transactions managed by the existing system. Tools are used and logical models of the system developed. After the completion of the analysis, the analyst gets a clear picture of what needs to be done. The next issue of concern is to decide how the problem might be solved.

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