System Analysis and Design
COMP 302
[3 Credit]

Course Objective

- This course introduces established and evolving methodologies for the analysis, design, and development of an information system.
- More than technical this course focuses on managerial aspects of software development.
- It describes the modeling methods used in structured system analysis to create analysis model.

System Analysis and Design

- **System analysis and design** is a complex, challenging, and simulating organizational process that a team of business and systems professionals uses to develop and maintain computer-based information systems.
- It is an organizational improvement process. Information systems are built and rebuilt for organizational benefits.
- An important (but not the only) result of system analysis and design is **application software** i.e. software designed to support organizational functions or processes such as inventory management, payroll, or mark-sheet analysis.

System analysis & design

Chapter 1

Overview of Systems Analysis and design

System:

- The term system is derived from the Greek word '**Systema**' which means an organized relationship among functioning units or components.
- A system is an orderly grouping of interdependent components linked together according to a plan to achieve a specific objective.
- Systems are created to solve problems. One can think of the systems approach as an organized way of dealing with a problem.
- In this dynamic world, the subject System Analysis & Design mainly deals with the software development activities.

Characteristics of a system

- Organization (Order)
- Interaction
- Interdependence
- Integration
- Central Objective

Organization

- Organization implies structure and order. It is the arrangement of components that helps to achieve objectives.
- In the design of a business system, for example, the hierarchical relationships starting with the president on top and leading downward to the blue – collar workers represents the organization structure.
- Such an arrangement portrays a system – subsystem relationship, defines the authority structure, specifies the formal flow of communication and formalizes the chain of command.
- Like – wise, a computer system is designed around an input device, a central processing unit, an output device and one or more storage units. When linked together they work as a whole system for producing information.

Interaction

- Interaction refers to the manner in which each component functions with other components of the system.
- In an organization, for example, purchasing must interact with production, advertising with sales and payroll with personnel.
- In a computer system, the central processing unit must interact with the input device to solve a problem.
- In turn, the main memory holds programs and data that the arithmetic unit uses for computation.
- The interrelationship between these components enables the computer to perform.

Interdependence

- Interdependence means that parts of the organization or computer system depend on one another. They are coordinated and linked together according to a plan.
- One subsystem depends on the input of another subsystem for proper functioning: that is, the output of one subsystem is the required input for another subsystem.
- This interdependence is crucial in systems work. An integrated information system is designed to serve the needs of authorized users (department heads, managers, etc.) for quick access and retrieval via remote terminals.
- The interdependence between the personnel subsystem and the organization's users is obvious.

Interdependence

- In summary, no subsystem can function in isolation because it is dependent on the data (inputs) it receives from other subsystems to perform its required tasks.
- Interdependence is further illustrated by the activities and support of systems analysts, programmers, and the operations staff in a computer centre.
- A decision to computerize an application is initiated by the user, analyzed and designed by the analyst, programmed and tested by the programmer, and run by the computer operator.
- None of these persons can perform property without the required input from others in the computer center subsystem.

Integration

- Integration refers to the holism of systems. Synthesis follows analysis to achieve the central objective of the organization.
- Integration is concerned with how a system is tied together.
- It is more than sharing a physical part or location. It means that parts of the system work together within the system even though each part performs a unique function.
- Successful integration will typically produce a synergistic effect and greater total impact than if each component works separately.

Central objective

- The last characteristic of a system is its central objective. Objectives may be real or stated.
- Although a stated objective may be the real objective, it is not uncommon for an organization to state one objective and operate to achieve another.
- The important point is that users must know the central objective of a computer application early in the analysis for a successful design and conversion.
- Political as well as organizational considerations often cloud the real objective. This means that the analyst must work around such obstacles to identify the real objective of the proposed change.

Elements of a system

- Outputs and Inputs
- Processor
- Control
- Feedback
- Environment
- Boundaries and Interface

Outputs & inputs

- A major objective of a system is to produce an output that has value to its user. Whatever the nature of the output (goods, services, or information), it must be in line with the expectations of the intended user.
- Inputs are the elements (material, human resources, and information) that enter the system for processing. Output is the outcome of processing.
- A system feeds on input to produce output in much the same way that a business brings in human, financial, and material resources to produce goods and services.
- It is important to point out here that determining the output is a first step in specifying the nature, amount, and regularity of the input needed to operate a system.
- For example, in systems analysis, the first concern is to determine the user's requirements of a proposed computer system – that is, specification of the output that the computer is expected to provide for meeting user requirements.

Processor

- The processor is the operational component of a system that involves the actual transformation of input into output.
- Processors may modify the input totally or partially, depending on the specifications of the output.
- This means that as the output specifications change so does the processing.
- In some cases, input is also modified to enable the processor to handle the transformation.

Control

- The control element guides the system. It is the decision – making subsystem that controls the pattern of activities governing input, processing, and output.
- In a computer system, the operating system and accompanying software influence the behavior of the system.
- Output specifications determine what and how much input is needed to keep the system in balance.
- In systems analysis, knowing the attitudes of the individual who controls the area for which a computer is being considered can make a difference between the success and failure of the installation.
- Management support is required for securing control and supporting the objective of the proposed change.

Feedback

- In systems analysis, feedback is important in different ways. During analysis, the user may be told that the problems in a given application verify the initial concerns and justify the need for change.
- Another form of feedback comes after the system is implemented. The user informs the analyst about the performance of the new installation. This feedback often results in enhancements to meet the user's requirements.

Environment

- A system exists within an **environment**—everything outside the system's boundary that influences the system.
- For example, the environment of a state university includes prospective students, foundations and funding agencies, and the news media.
- Usually the system interacts with its environment. A university interacts with prospective students by having open houses and recruiting from local high schools.
- An information system interacts with its environment by receiving data (raw facts) and information (data processed in a useful format).

Environment

- The environment is the “super-system” within which an organization operates. It is the source of external elements that impinge on the system.
- In fact, it often determines how a system must function.
- For example, the organization’s environment, consisting of vendors, competitors, and others, may provide constraints and, consequently, influence the actual performance of the business.

Boundaries & interface

- A system should be defined by its boundaries – the limits that identify its components, processes and interrelationship when it interfaces with another system.
- For example, a teller system in a commercial bank is restricted to the deposits, withdrawals and related activities of customers checking and savings accounts.
- Each system has boundaries that determine its sphere of influence and control.
- A system has a **boundary,** within which all of its components are contained and which establishes the limits of a system, separating it from other systems.

Boundaries & interface

- Components within the boundary can be changed, whereas systems outside the boundary cannot be changed. All of the components work together to achieve some overall **purpose** for the larger system: the system's reason for existing.

- This means that in systems analysis, knowledge of the boundaries of a given system is crucial in determining the nature of its interface with other systems for successful design.

- The points at which the system meets its environment are called **interfaces;** an interface also occurs between subsystems.

Types of system

- Physical or Abstract System
- Open or Closed System
- Deterministic or Probabilistic System
- Social, Human Machine, Machine System
- Natural and Manufactured system
- Permanent or Temporary System
- Adaptive or Non –adaptive system
- Information system

Physical or abstract system

- Physical systems are tangible entities that may be static or dynamic in operation.
- For example, the physical parts of the computer center are the officers, desks, and chairs that facilitate operation of the computer.
- They can be seen and counted; they are static.
- In contrast, a programmed computer is a dynamic system. Data, programs, output, and applications change as the user's demands or the priority of the information requested changes.

Physical or abstract system

- Abstract systems are conceptual or non-physical entities.
- They may be as straightforward as formulas of relationships among sets of variables or models – the abstract conceptualization of physical situations.
- A model is a representation of a real or a planned system. The use of models makes it easier for the analyst to visualize relationships in the system under study.
- The objective is to point out the significant elements and the key interrelationships of a complex system.

Open or closed system

- Another classification of systems is based on their degree of independence.
- An open system has many interfaces with its environment. It permits interaction across its boundary; it receives inputs from and delivers outputs to the outside.
- An information system falls into this category, since it must adapt to the changing demands of the user.
- In contrast, a closed system is isolated from environmental influences.
- In reality, a completely closed system is rare. In systems analysis, organizations, applications and computers are invariably open, dynamic systems influenced by their environment.

Deterministic or probabilistic system

- **Deterministic System:** It operates in a predictable manner and the interaction between parts is known with certainty. For example: Two molecules of hydrogen and one molecule of oxygen makes water.

- **Probabilistic System:** It shows probable behavior. The exact output is not known. For example: weather forecasting.

Social, Human Machine, Machine System

- **Social System:** It is made up of people. For example: Social clubs, Societies
- **Human Machine System:** When both human and machines are involved to perform a particular task to achieve a target. For example:- Computer.
- **Machine System:** Where human interference is neglected. All the tasks are performed by the machine. Example: Robot

Natural and Manufactured

- Natural System- The system which is natural. For example- Solar system, Seasonal System.

- Manufactured System- System made by man is called manufactured system. For example- Rockets, Dams, Trains.

Permanent or Temporary System

- Permanent System- Which persists for long time. For example- policies of business.

- Temporary System- Made for specified time and after that they are dissolved. For example- setting up DJ system.

Adaptive and Non Adaptive System

- Adaptive System- respond to change in the environment in such a way to improve their performance and to survive. For example- Human beings, animals.

- Non Adaptive System-The system which doesn’t respond to the environment. For example- Machines

Information system

- In the simplest sense, a system that provides information to people in an organization is called **information system (IS)**.
- Information systems in organizations capture and manage data to produce useful information that supports an organization and its employees, customers, suppliers and partners.
- So, many organizations consider information system to be the essential one.
- Information systems produce information by using data about significant *people*, *places*, and *things* from within the organization and/or from the external environment to *make decisions*, *control operations*, *analyze problems*, and *create new products or services*.
- **Information** is the data shaped into a meaningful form.
- **Data**, on the other hand, are the collection of raw facts representing events occurring in the environment before they have been organized and arranged into a form that people can understand.

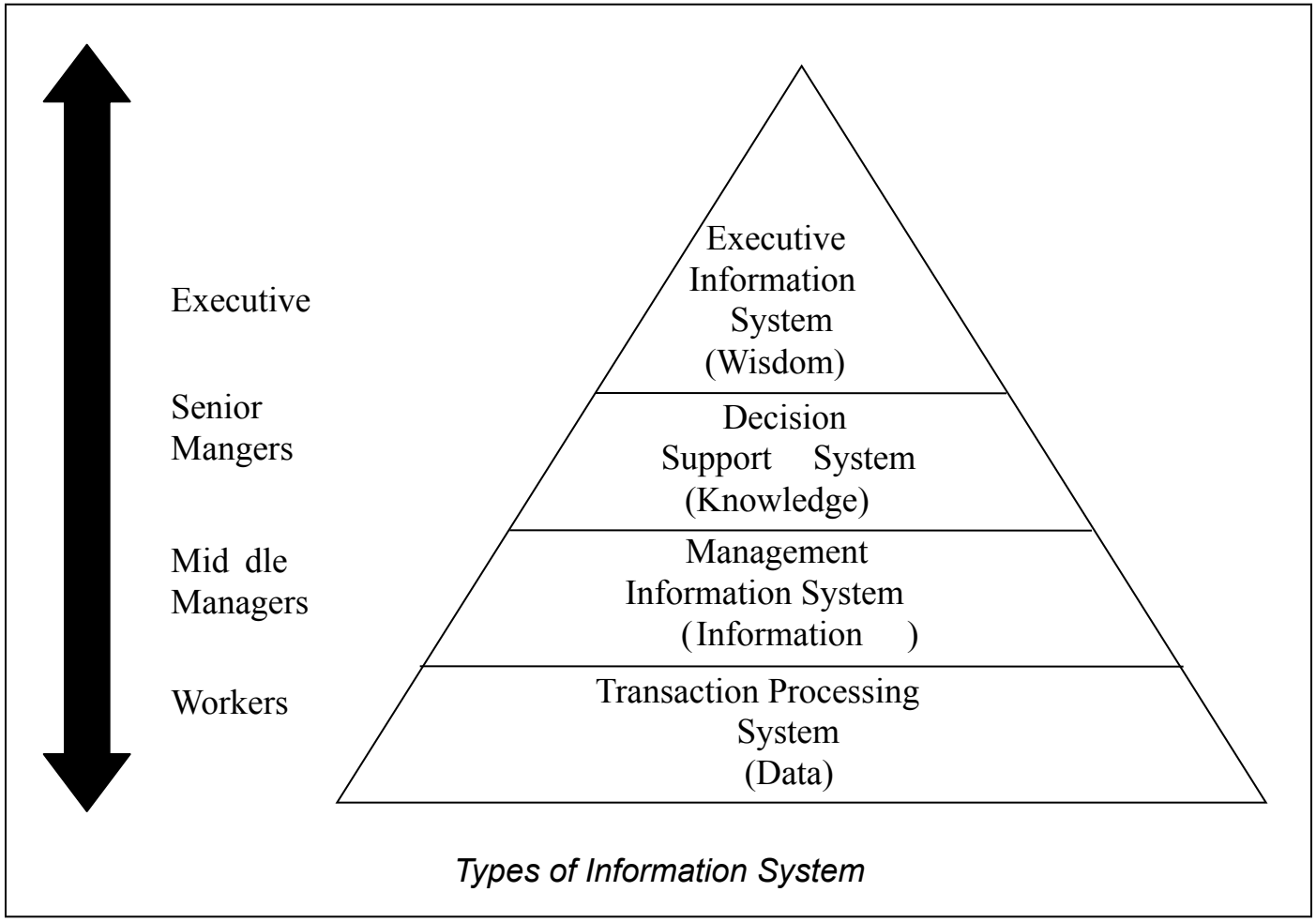
Information system

- Ideally, information reduces uncertainty about a state or event.
- An information system is the basis for interaction between the user and the analyst. It provides instruction, commands and feedback. It determines the nature of the relationships among decision-makers.
- In fact, it may be viewed as a decision center for personnel at all levels.
- *From this basis, an information system may be defined as a set of devices, procedures and operating systems designed around user based criteria to produce information and communicate it to the user for planning, control and performance.*
- In systems analysis, it is important to keep in mind that considering an alternative system means improving one or more of these criteria.

Types of information system

- The two types of information systems are formal and informal.
- Formal information systems are based on accepted and fixed definitions of data and procedures for collecting, storing, processing, disseminating, and using these data with predefined rules.
- Informal information systems, in contrast, relay on unstated rules.
- Formal information systems can be manual as well as computer based.
- Manual information systems use paper-and-pencil technology. In contrast, computer-based information systems (CBIS) relay on computer hardware and software for processing and disseminating information.
- In practice there are several classes of information systems in organizations. Each class serves the needs of different types of users. These are:
-

Types of information system



Types of Information System

Transaction processing system

- These are the computerized systems that perform and records the daily routine transactions necessary to conduct business.
- These systems serve the operational level of the organization. Some examples include sales order entry, hotel reservation systems, payroll, employee record keeping, and shipping.
- Transaction processing systems are boundary-spanning systems that permit the organization to interact with external environments.
- Transaction processing systems are central to a business. TPS failure for a few hours can cause a firm's demise and perhaps other firms linked to it.
- Managers need TPS to monitor the status of internal operations and the firm's relations with external environment. TPS are also major producers of information for the other types of systems.

MIS

- These are the information systems at the management level of an organization and serve management-level functions like planning, controlling, and decision-making.
- These systems provide reports that are usually generated on a predetermined schedule and appear in prearranged format.
- Typically, these systems use internal data provided by the transaction processing systems.
- These systems are used for structured decision-making and in some cases for semi-structured decision making as well.
- Salary analysis and sales reporting are the examples in which MIS can be used.

DSS

- These systems also serve at the management level of the organization. These systems combine data and sophisticated analytical models or data analysis tools to support semi- structured and unstructured decision-making.
- These systems use internal information from TPS and MIS, and often information from external sources, such as current stock prices or product prices of competitors.
- DSS have more analytical power than other systems. Contract cost analysis is an example in which DSS can be used.

Executive information system

- These systems are also called **executive support systems (ESSs)** and serve the strategic level of the organization.
- These systems are designed to address unstructured decision making through advanced graphics and communication.
- These systems incorporate data about external events such as new tax laws or competitors, but they also draw summarized information from internal MIS and DSS.
- These systems are not designed to solve a specific problem but they provide a generalized computing and telecommunication capacity that can be applied to a changing array of problems. 5-year operating plan is an example in which EIS can be used.
- ESS extend and support the capabilities of executives, permitting them to make sense of their environments.

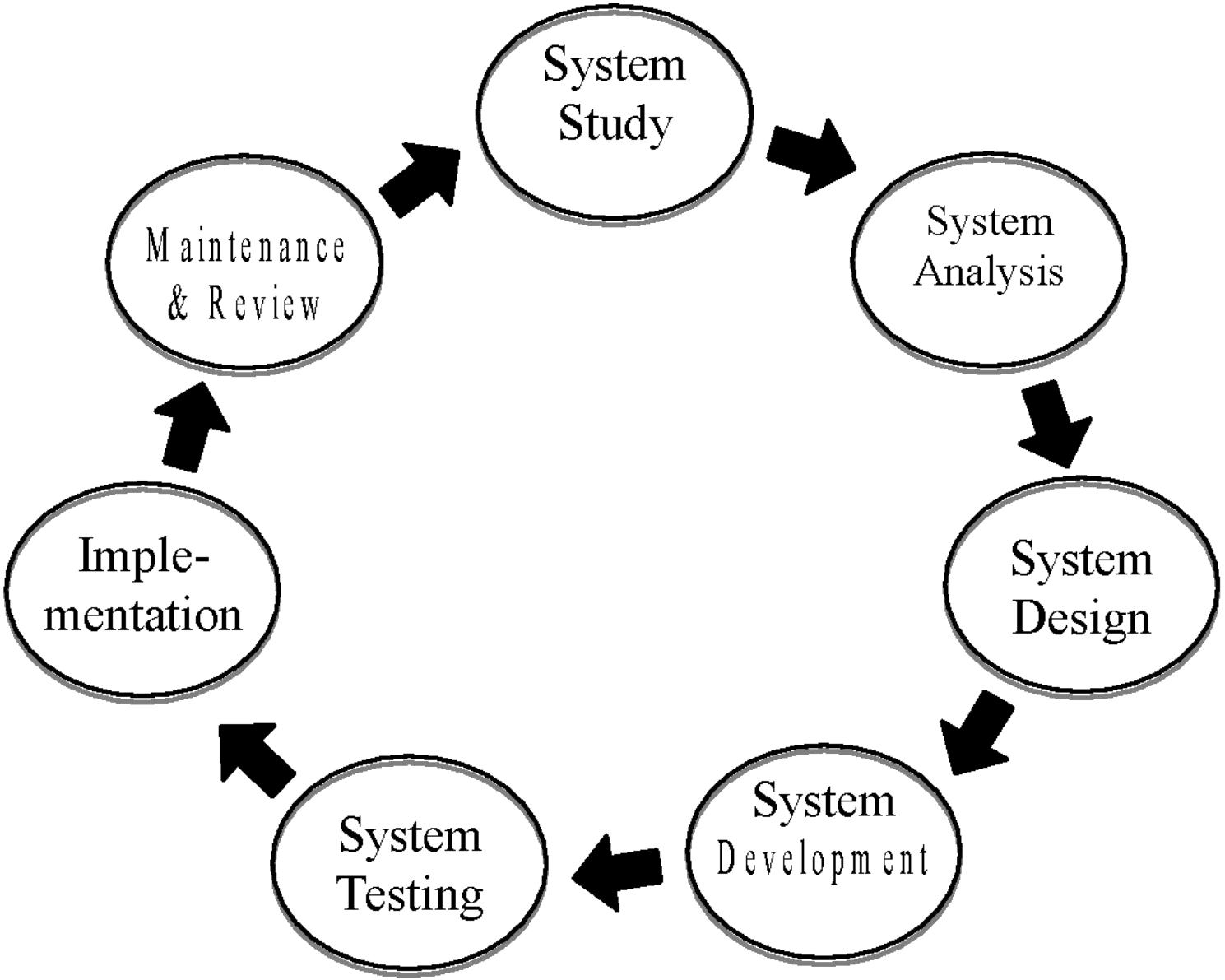
System analysis & design

- System analysis and design is a complex, challenging, and simulating organizational process that a team of business and systems professionals uses to develop and maintain computer-based information systems.
- It is an organizational improvement process. Information systems are built and rebuilt for organizational benefits.
- An important (but not the only) result of system analysis and design is application software i.e. software designed to support organizational functions or processes such as inventory management, payroll, or mark-sheet analysis.
- In addition to application software, the total information system includes the hardware and systems software on which the application software runs, documentation and training materials, the specific job roles associated with the overall system, controls and the people who use the software along with their work methods.

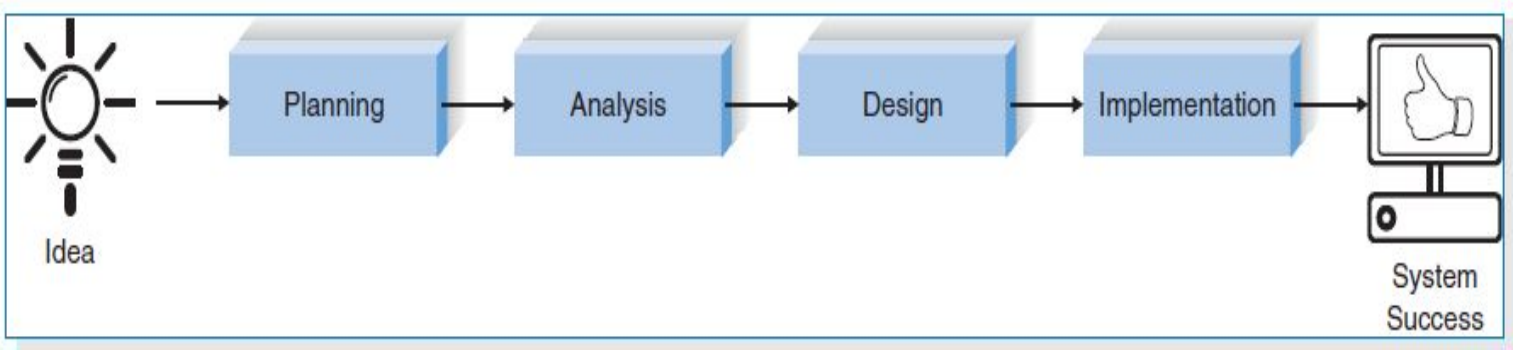
System analysis and design

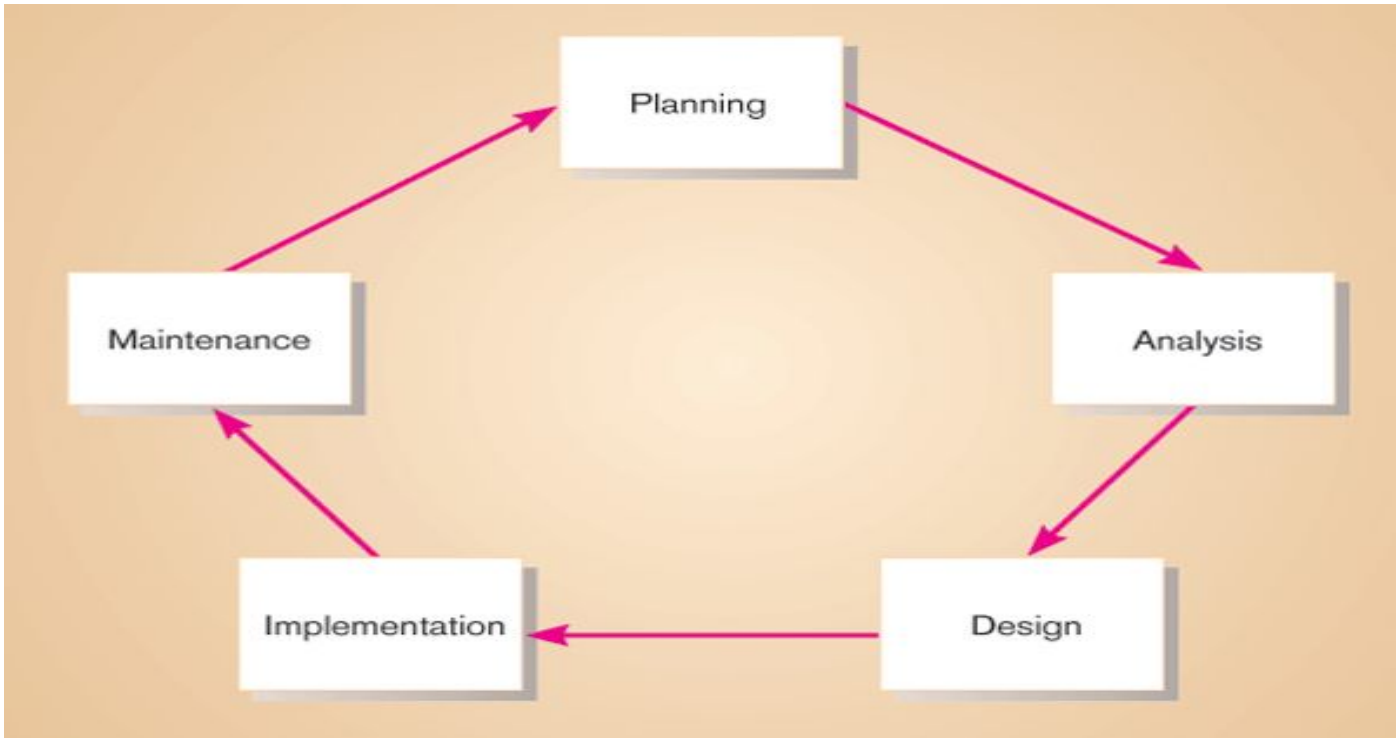
- In systems analysis and design, we use various *methodologies*, *techniques* and *tools* that have been developed, tested, and widely used over the years to assist people during system analysis and design.
- **Methodologies** are comprehensive, multistep approaches to systems development that will guide your work and influence the quality of your final product: the information system. Methodologies use a standard set of steps. A methodology adopted by an organization will be consistent with its general management style. Most methodologies incorporate several development techniques.
- **Techniques** are particular processes that will help to ensure that your work is well thought-out, complete, and comprehensible to other on the project team. Techniques also provide support for a wide range of tasks like conducting interviews, planning and managing the activities in a system development project, diagramming the system's logic, and designing the reports that the system will generate.
- **Tools** are typically computer programs that make it easy to use and benefit from the techniques and to faithfully follow the guidelines of the overall development methodology.
- To be effective, both techniques and tools must be consistent with an organizations system development methodology. These make easy for system developers to conduct the steps in methodology.

SDLC


System Study
System Analysis
System Design
System Development
System Testing
Imple-mentation
Maintenance & Review

SDLC


Idea
Planning
Analysis
Design
Implementation
System
Success


Planning
Analysis
Design
Implementation
Maintenance

Systems Development Life Cycle (SDLC)

- Traditional methodology used to develop, maintain, and replace information systems.
- Phases in SDLC:
  - Planning
  - Analysis
  - Design
  - Implementation
  - Maintenance

Standard and Evolutionary Views of SDLC

Figure 1-3 The systems development life cycle

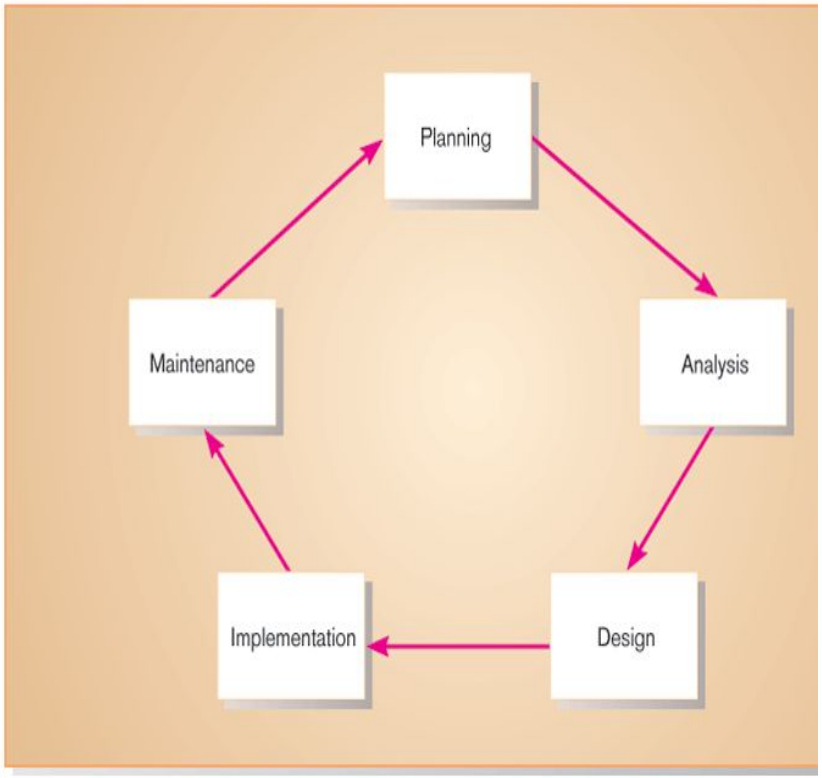
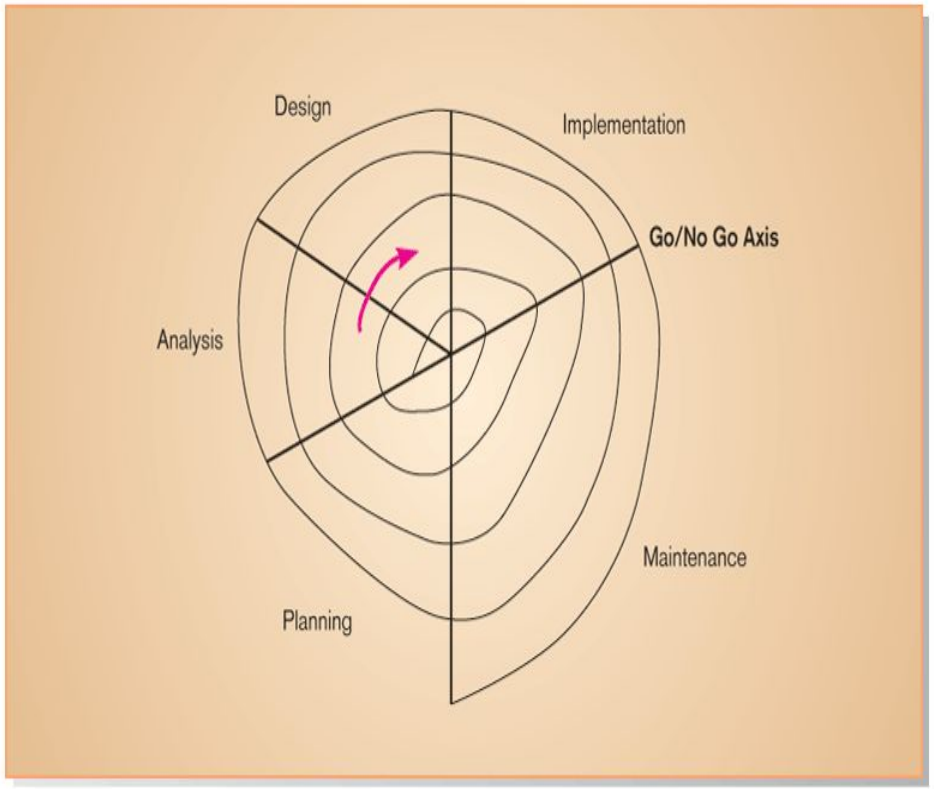


Figure 1-4 Evolutionary model SDLC



Systems Development Life Cycle (SDLC) (Cont.)

Planning

- An organization's total information system needs are identified, analyzed, prioritized, and arranged.
- Project management begins

  Project management is the application of knowledge, skills, tools and techniques to project activities to meet project requirement
- Input
- Initiation/ Investigation – highest level
- System concepts development
- Tools used: Gantt chart (for project scheduling)

Systems Development Life Cycle (SDLC) (Cont.)

Analysis

- System requirements are studied and structured.
- Gathering system requirements.
- Documentation
- Know scope, constraints, risk and costs

Tool used

- DFD diagram
- WBS (work breakdown structure)

Systems Development Life Cycle (SDLC) (Cont.)

- **Design** – a description of the recommended solution is converted into logical and then physical system specifications.
- **Logical design** – all functional features of the system chosen for development in analysis are described independently of any computer platform.

✔ Process view

✔ Tools : UML diagram

✔ Activities diagrams

Systems Development Life Cycle (SDLC) (Cont.)

- **Physical design** – the logical specifications of the system from logical design are transformed into the technology-specific details from which all programming and system construction can be accomplished.
- Data view
- Tools : ERD diagram
- Communication sequence
- Dimensional model

Tools

- **Logical**

✔ UML diagrams (unified modeling language) standardized general purpose modeling language in the field of object oriented software engineering.

✔ Activity diagram – graphical representation of workflow.

- **Physical**

✔ ERD (Entity relationship diagram) is notational way to describe relationships in a diagram.

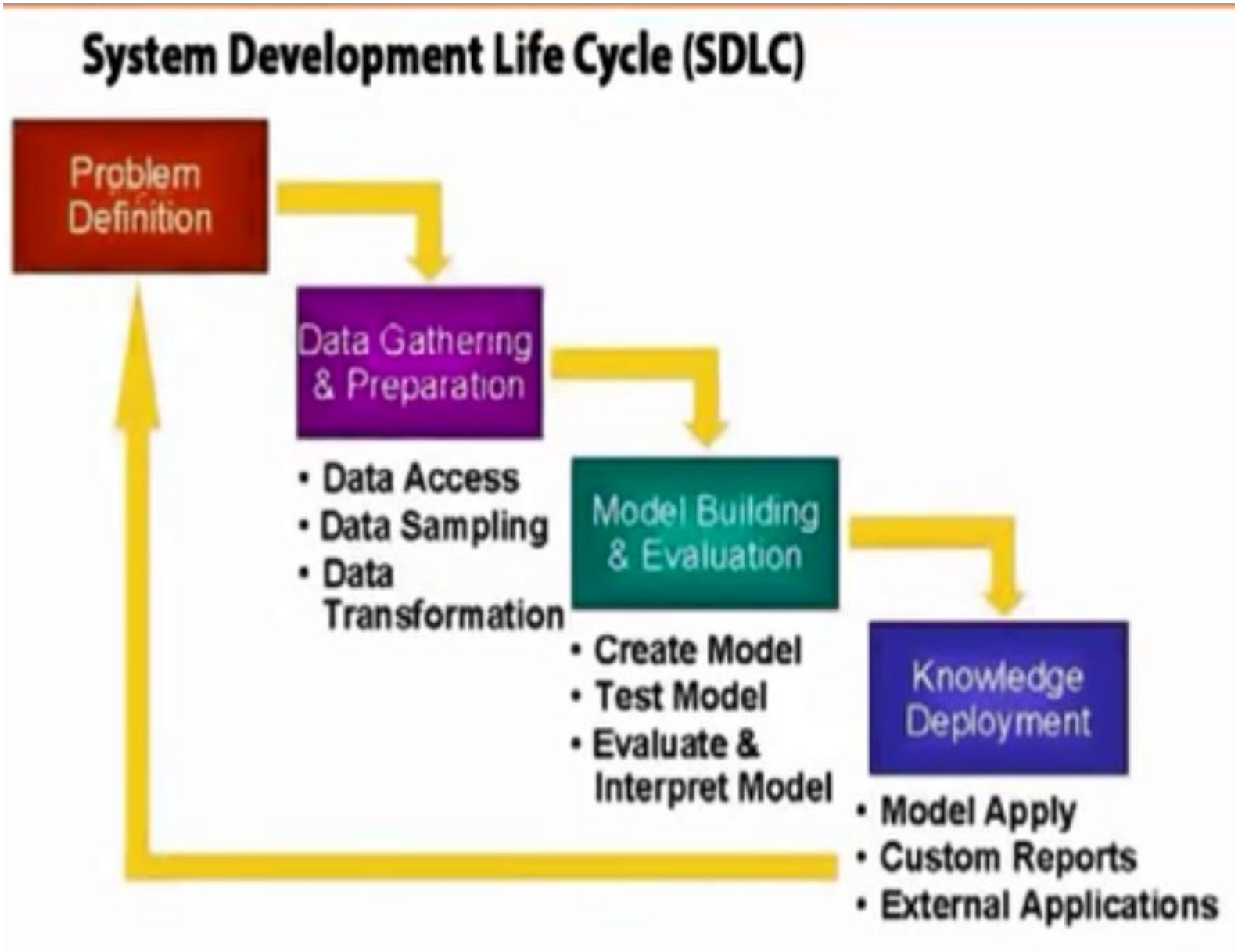
Systems Development Life Cycle (SDLC) (Cont.)

- **Implementation** – the information system is coded, tested, installed and supported in the organization.
- Execute
- Coding/ Construct system
- Testing
- Installing

Systems Development Life Cycle (SDLC) (Cont.)

Maintenance – an information system is systematically repaired and improved

- Maintaining the system
- Supporting
- Training
- Updating/ Improving
- Repairing


System Development Life Cycle (SDLC)
Problem Definition
Data Gathering & Preparation
• Data Access
• Data Sampling
• Data Transformation
Model Building & Evaluation
• Create Model
• Test Model
• Evaluate & Interpret Model
Knowledge Deployment
• Model Apply
• Custom Reports
• External Applications

Feasibility Analyses

- Technical Feasibility: can we build it?
- Economic Feasibility: should we build it?

TECHNICAL FEASIBILITY: CAN WE BUILD IT?

- Familiarity with application: less familiarity more risk.
- Familiarity with technology: less familiarity generates more risk.
- Project size: large projects have more risk.
- Compatibility: the hard it is so integrate the systems with the company's existing technology, the higher the risk will be.

Economic Feasibility: should we build it?

- Development Costs.
- Annual operating costs.
- Annual benefits (cost saving and revenues).
- Intangible costs and benefits.

Methodologies:
-is used to execute a process

Examples(System analysis and design tools)

- Waterfall approach
- Prototyping
- Computer-Aided Software Engineering (CASE) Tools
- Joint Application Design (JAD)
- Rapid Application Development (RAD)
- Agile Methodologies
- eXtreme Programming

Waterfall approach

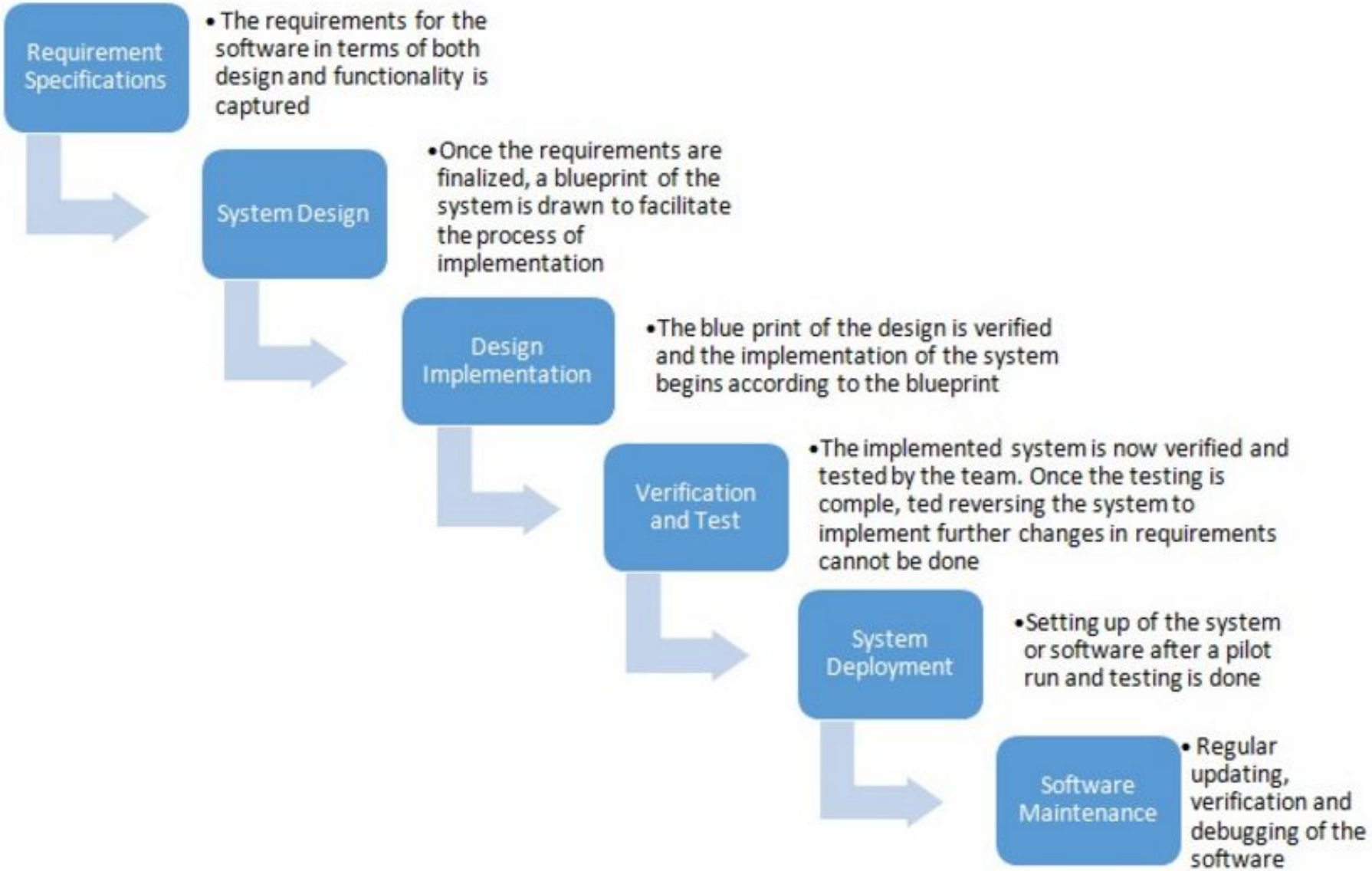
- Is one phase begins when another competes with back tack or looping

Pros

- High control for the developer

Cons:

- Increased time for development
- System requirement are locked in and cannot be changed

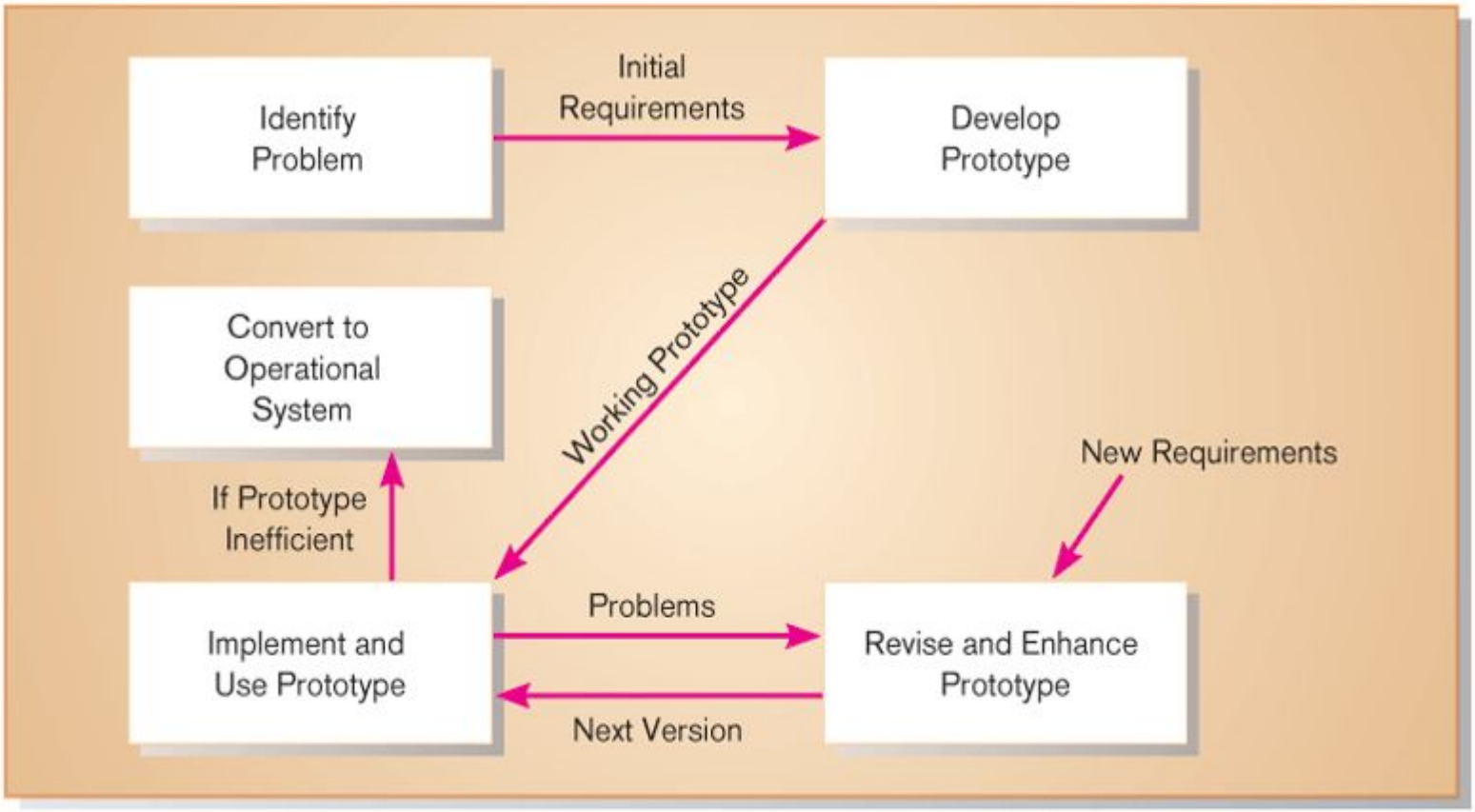

Requirement Specifications
• The requirements for the software in terms of both design and functionality is captured
System Design
•Once the requirements are finalized, a blueprint of the system is drawn to facilitate the process of implementation
Design Implementation
•The blue print of the design is verified and the implementation of the system begins according to the blueprint
Verification and Test
•The implemented system is now verified and tested by the team. Once the testing is comple, ted reversing the system to implement further changes in requirements cannot be done
System Deployment
•Setting up of the system or software after a pilot run and testing is done
Software Maintenance
• Regular updating, verification and debugging of the software

Prototyping

- Iterative development process:
- Requirements quickly converted to a working system.
- System is continually revised.
- Close collaboration between users and analysts.

Prototyping (Cont.)

Figure 1-11 The prototyping methodology



Source: Adapted from "Prototyping: The New Paradigm for Systems Development," by J. D. Naumann and A. M. Jenkins, *MIS Quarterly* 6 (3): 29–44.

Computer-Aided Software Engineering (CASE) Tools

- Diagramming tools enable graphical representation.
- Computer displays and report generators help prototype how systems “look and feel”.
- Analysis tools automatically check for consistency in diagrams, forms, and reports.
- Central repository for integrated storage of diagrams, reports, and project management specifications

Computer-Aided Software Engineering (CASE) Tools (Cont.)

- Documentation generators standardize technical and user documentation.
- Code generators enable automatic generation of programs and database code directly from design documents, diagrams, forms, and reports

Computer-Aided Software Engineering (CASE) Tools (Cont.)

Pros

- Display a good look and feel
- Creates graphical representation
- Keep it in a central repository

Cons:

- Difficult to use with existing system

Joint Application Design (JAD)

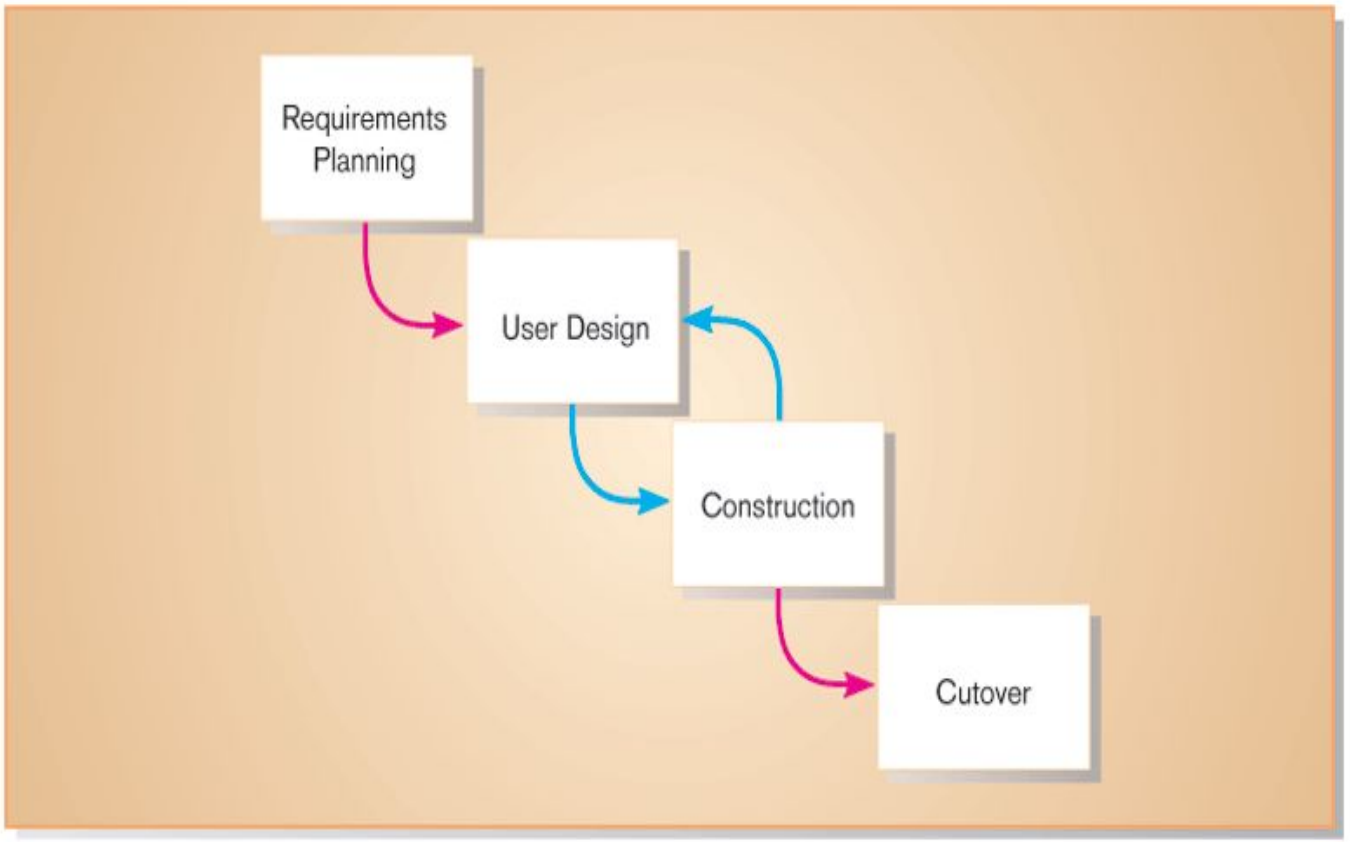
- Structured process involving users, analysts, and managers.
- Several-day intensive workgroup sessions.
- Purpose: to specify or review system requirements.

Rapid Application Development (RAD)

- Methodology to radically decrease design and implementation time.
- Involves: extensive user involvement, prototyping, JAD sessions, integrated CASE tools, and code generators.

Rapid Application Development (RAD) (Cont.)

Figure 1-12 RAD life cycle



Rapid Application Development (RAD) (Cont.)

Pros:

- Decrease design and implementation time

Cons:

- High cost
- Meant for large project

Agile Methodologies

- Motivated by recognition of software development as fluid, unpredictable, and dynamic.
- Three key principles

  Adaptive rather than predictive.

  Self-adaptive process.

  Pros: Flexible, Adaptive

  Cons: Heavy customer interaction

eXtreme Programming

- Short, incremental development cycles.
- Automated tests.
- Two-person programming teams.

eXtreme Programming (Cont.)

Pros:

- Communication between developers
- High level of productivity.
- High-quality code.

Cons:

- Requires lots of communication with developer who are not necessarily good at communicating with individual who are not technical

System Analyst

- System analyst is a key person in system development process who analyses existing system; designs, implements and evaluates the new system that tries to overcome the limitations of the existing system.
- The systems analyst plays a key role in information systems development projects. The primary objective of the systems analyst is not to create a wonderful system. The primary goal is to create value for the organization.
- The systems analyst works closely with all project team members so that the team develops the right system in an effective way.
- Systems analysts must understand how to apply technology to solve business problems.
- In addition, systems analysts may serve as *change agents who identify the organizational improvements needed,* design systems to implement those changes, and train and motivate others to use the systems.

Skills of System Analyst

- Technical
- Business
- Analytical
- Interpersonal
- Management
- Ethical

Skills of system analyst

- **Technical Skills:** Analysts must have the technical skills to understand the organization's existing technical environment, the new system's technology foundation, and the way in which both can be fit into an integrated technical solution.
- **Business Skills:** Business skills are required to understand how IT can be applied to business situations and to ensure that the IT delivers real business value.
- **Analytical Skills:** Analysts are continuous problem solvers at both the project and the organizational level, and they put their analytical skills to the test regularly.

Skills of system analyst

- **Interpersonal**: Often, analysts need to communicate effectively, one-on-one with users and business managers (who often have little experience with technology) and with programmers(who often have more technical expertise than the analyst does).
- They must be able to give presentations to large and small groups and to write reports.
- **Management Skills:** They also need to manage people with whom they work, and they must manage the pressure and risks associated with unclear situations.

Skills of system analyst

- **Ethical:** Finally, analysts must deal fairly, honestly, and ethically with other project team members, managers, and system users.
- Analysts often deal with confidential information or information that, if shared with others, could cause harm; it is important for analysts to maintain confidence and trust with all people.

Role of System Analyst

- The systems analyst role focuses on the IS issues surrounding the system. This person develops ideas and suggestions for ways that IT can support and improve business processes, helps design new business processes supported by IT, designs the new information system, and ensures that all IS standards are maintained.

Role of system analyst

- Business Analysis
- Requirement Analysis
- Infrastructure Analysis
- Software Architect
- Change Management Analysis
- Project Management
- Psychologist & Motivator

Role of system analyst

Business Analysis:

- The business analyst role focuses on the business issues surrounding the system.
- This person helps to identify the business value that the system will create, develops ideas for improving the business processes, and helps design new business processes and policies.

Role of system analyst

Requirement Analysis:

- The requirements analyst role focuses on eliciting the requirements from the stakeholders associated with the new system.
- As more organizations recognize the critical role that complete and accurate requirements play in the ultimate success of the system, this specialty has gradually evolved.
- Requirements analysts understand the business well, are excellent communicators, and are highly skilled in an array of requirements elicitation techniques.

Role of system analyst

- **Infrastructure Analyst:**
- The infrastructure analyst role focuses on technical issues surrounding the ways the system will interact with the organization's technical infrastructure (hardware, software, networks, and databases).
- This person ensures that the new information system conforms to organizational standards and helps to identify infrastructure changes that will be needed to support the system.

Role of system analyst

Software Architect:

- The analyst’s role as an architect is an interface between the user’s logical design requirements and the detailed physical system design.
- As an architect, the analyst also creates a detailed physical design of system.
- A system analyst makes the design of the information system architecture on the basis of the end user's requirements. This design becomes the blue print for the programmers.

Role of system analyst

Change Management Analysis:

- The change management analyst role focuses on the people and management issues surrounding the system installation.
- This person ensures that adequate documentation and support are available to users, provides user training on the new system, and develops strategies to overcome resistance to change.

Role of system analyst

Project Manager:

- The project manager role ensures that the project is completed on time and within budget and that the system delivers the expected value to the organization.

Psychologist & Motivator:

- The system analyst plays the role of psychologist when he/she reaches the people, interprets their thoughts and draws conclusion from the interaction. Psychologist plays a major role during the phase of fact finding.
- The analyst plays the role of motivator in order to make the users ready for new system from every aspects.

System development life cycle

- SDLC is a systematic way of developing any new system. It consists of a set of development activities that have a prescribed order.
- It is the life span of an information system from its (beginning) initiation until it is removed or redesigned.
- The term “development cycle” is used to acknowledge the importance of recycling in meeting information needs.
- The systems development life cycle is classically thought of as the set of activities that analysts, designers and users carry out to develop and implement an information system.
- It creates the framework carefully for structuring, planning and control the process of developing an information system which fulfils the demands of information needs. It is a part of software engineering.
- IEEE defines SDLC as "the period that starts when the product is conceived and ends when the software is no longer available for use".