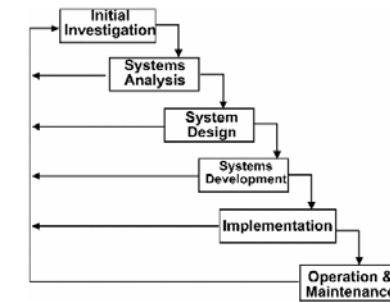


Alternative System Building Method

Systems Lifecycle

- A methodology for developing an Information System that partitions the systems development process into formal stages that must be completed sequentially with a very formal division of labor between end users and Information System specialists.



Traditional Systems Lifecycle

- Project Definition
- Systems Study
- Design
- Programming
- Installation
- Post-implementation

Project Definition

- Determines whether the organization has a problem and whether the problem can be solved by launching a system project.

Systems Study

- Analyzes the problems of existing systems, defines the objectives to be attained by a solution, and evaluates various solution alternatives.
- Requires extensive information gathering and research to determine Information System requirements.

Design

- Produces the logical and physical design specifications for the system solution.
- Tools include DFD, program structure charts, system flowcharts etc.

Programming

- Translates the design specifications produced during the design stage into software program code.

Installation

- Testing, training, and conversion in order to put the system into operation.

Post-implementation

- The system is used and evaluated while in production and is modified to make improvements or meet new requirements.
 - ◆ Post-implementation audit to determine how well the new system has met its original objectives.
 - ◆ Require maintenance to correct errors, meet requirements, or improve processing efficiency.

Limitations of Lifecycle Approach

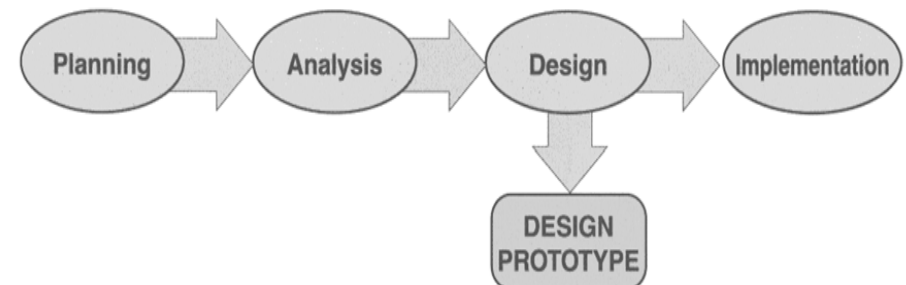
- Costly
- Time-consuming
- Inflexible & discourage change
- Many documents
- Steps repeated if requirements & specifications need to be revised.

Prototyping

- The process of building an experimental system quickly and inexpensively for demonstration and evaluation so that users can better determine information requirements.
- By interacting with the prototype, users can get a better idea of their information requirements.

Throw-away Prototyping

- The role of prototype is to perfect requirements, and **MUST** be thrown away at the end.
- Don't try to deliver prototype to customer because it has not been properly designed, coded and tested.



Evolutionary Prototyping

- The prototype surfaces out as the final product and there is no Product Engineering stage.
- To achieve this, analyze, design, code and test of prototype must be done carefully and much more time is required.
- The process of building a preliminary design, trying it out, refining it, and trying again is called **Iterative Process of Systems Development**.



Steps in Prototyping

- Identify the user's basic requirements.
- Develop an initial prototype.
- Use the prototype.
- Revise & enhance the prototype.

Advantages of Prototyping

- Most useful when there is uncertainty about requirements or design solutions.
- Valuable for the design of End-user interface of an Information System .
- Prototyping encourages intense end-user involvement throughout the systems development lifecycle.
- It is more likely to produce systems that fulfill user requirements.

Disadvantages of Prototyping

- If prototype works well, management may not see the need for reprogramming, redesign, or full documentation and testing.

Application Software Packages

- A set of prewritten, pre-coded application software programs that are commercially available for sale or lease.
 - ◆ E.g. Payroll, accounts receivable, general ledger, inventory control.
- Applications which are common to all business organizations.

Advantages of Software Packages

- Reduced time frame and costs.
- Pre-tested
- Vendors supply much of the ongoing maintenance and support for the system.
- Modular design that allows clients to select only the software functions they need.

Disadvantages of Software Packages

- Cannot handle unique requirements.
- Organization have to adapt to the package and change its procedures.

Customization

- The modification of a software package to meet an organization's unique requirements without destroying the integrity of the package software.

Evaluation Criteria of Software Packages

- Functions
- Flexibility
- User-friendliness
- Hardware & Software Resources
- Database Requirements
- Installation & Maintenance Effort
- Documentation
- Vendor Quality
- Cost

Request for Proposal (RFP)

- A detailed list of questions submitted to vendors of software to determine how well the vendor's product can meet the organization's specific requirements.

End-User Development

- The development of Information System by end users with little or no formal assistance from technical specialists.
- Use 4GL software tools.

Benefits of End-User Development

- Improved requirements determination as users specify their own business needs
- Increased user involvement and satisfaction.
- Reduced application backlog.

Problems of End-User Development

- Increase organizational risks because it is outside of traditional IS management & control.
- May not meet organizational objectives & quality standard
- Testing & documentation may be inadequate.
- Data control problem

Information Center

- A special facility within an organization that provides training & support for end-user computing.

Outsourcing

- The practice of contracting computer centre operations, telecommunications networks, or applications development to external vendors.
- Organizations perceive it as cost-effective measure that eliminates the need for maintaining their own computer center and Information System staff.
- The provider of outsourcing services benefits from economies of scale.
- Outsourcing allows a company with fluctuating needs for computer processing to pay for only what it uses.
- Some firms outsource because their internal Information System staff cannot keep pace with technological change.

Problems of Outsourcing

- Lose control over its IS function.
- Lose control over technological direction.
- Trade secrets or proprietary information may leak to competitors.

When to Use Outsourcing

- To reduce costs or offload some work of the Information System department.
- When firm's existing Information System capabilities are limited, ineffective, or technically inferior.
- To improve the contribution of Information Technology to business performance. Vendors have more expertise in technology, management, and business process reengineering.
- To create new sources of revenue and profit. Vendors can help companies create, develop, and market new technology-based products and services.

Solution Centers

- Outsourcing vendors are adding to their range of services by setting up solution centers where teams of experts provide reusable or repeatable processes, models, and architecture solutions for solving common Information System problems.

