IMPLEMENTATION, EVALUATION & MAINTENANCE OF MIS:

The design of a management information system may seem to management to be an expensive project, the cost of getting the MIS on line satisfactorily may often be comparable to that of its design, and the implementation has been accomplished when the outputs of the MIS are continuously utilized by decision makers.

Once the design has been completed, ***there are four basic methods for implementing the MIS***. They are as follow:

1. ***Install the system in a new operation or organization.***
2. ***Cut off the old system and install the new.***
    a. This produces a time gap during which no system is in operation.
    b. Practically, installation requires one or two days for small companies or small systems.
3. ***Cut over by segments.***
    a. This method is also referred as" phasing in" the new system.
    b. Small parts or subsystems are substituted for the old.
    c. In the case of upgrading old systems, this may be a very desirable method.
4. ***Operate in parallel and cut over.***
    a. The new system is installed and operated in parallel with the current system until it has been checked out, then only the current system is cut out.
    b. This method is expensive because of personal and related costs.
    c. Its big advantages are that the system is fairly well debugged when it becomes the essential information system.

Plan the Implementation

There are three main phases in implementation that take place in series. They are as follows:

1. Initial installation
2. Test of the system as a whole
3. Evaluation, maintenance and control of the system

Many implementation activities should be undertaken in parallel to reduce implementation time.

Training of personnel and preparation of software may be in parallel with each other and with other implementation activities.

The *first step* in the implementation procedure is to plan the implementation. Some analyst includes the planning of the implementation with the design of the system, the planning and the action to implement the plan should be bound closely together.

Planning is the first step of management, not the last. The MIS design and the urgent need for the system at the time the design is completed will weigh heavily on the plan for implementation.

IMPLEMENTATION TASKS:

The major implementation task consists of:

1. Planning the implementation activities
2. Acquiring and laying out facilities and offices
3. Organizing the personnel for implementation
4. Developing procedures for installation and testing
5. Developing the training program for operating personnel
6. Completing the system's software
7. Acquiring required hardware
8. Generating files
9. Designing forms
10. Testing the entire system
11. Completing cutover to the new system
12. Documenting the system
13. Evaluating the MIS
14. Providing system maintenance (debugging and improving)

1. Planning the implementation activities

Establish Relationships among tasks: For small projects, the order of performance may simply be described in text form. A Gantt chart or network diagram makes visualization of the plan and schedule much clearer.

For large projects, many concurrent and sequential activities are interrelated so that a network diagram must be employed in any good plan.

Establish a Schedule: Schedule is prepared by having the system designer's estimate the times between the events in the program network. The critical path (longest time through the network) can be calculated. After specifying the starting date, the end date is established.

Cost Schedule to Tasks and Time: The cost for completing each task required to complete is established as part of the plan; then the rate of expenditures should be budgeted.

Reporting and control of the work in progress may be obtained by weekly meetings. The financial personnel must make certain that report formats allow them to show cost and technical progress relationship as well as cost and time.

2. Acquiring and laying out facilities and offices

For the installation of a new system to replace a current one may require a major revision of facilities as well as completely new office, computer room etc.

The MIS project manager must prepare rough layouts and estimates of particular floor areas that feel to be needed. The manager then prepares cost estimates.

Space planning must be done by the space to be occupied by people, the space occupied by equipment and the movement of people and equipment in the work progress. A large investment in good working conditions will repay its cost many times.

3. Organizing the personnel for implementation

As the implementation tasks have been defined, management usually assigns a project manager to guide the implementation.

The purpose of the MIS is to increase the amount and quality of their contributions, the system is their system.

Top management must make the middle managers for their involvement in implementation, besides these, systems specialists, computer programmer; top management should make sure that each people who will operate the system should have active parts in the implementation.

4. Developing procedures for installation and testing

After organizing the personnel for implementation the next task is to develop or prepare the procedures for implementation. As the project leader has the network plan for proceeding with the implementation, this leader calls the key people in the project to prepare more detailed procedures for system installation.

Procedures for evaluating and selecting hardware must be spelled out. Procedures for phasing in parts of the MIS or operating the MIS in parallel must be developed.

The major part of implementing the MIS is the testing of each segment of total system as it is installed.

5. Developing the training program for operating personnel

A program is developed keeping in mind to impress management and support. After developing the program, it is necessary to train operating personnel in their new duties. They must have a thorough understanding of what the new MIS is like and what it is supposed to do. They must learn how it will operate. They are faced with many changes in their work and have to obtain acceptance of changes.

As there are various levels of personnel and these people will be working with only a small part of the MIS, the seminars should be designed to provide them with an understanding of the complete system.

6. Completing the system's software

As the software is developed internally or under contract, in both cases, the software development must take in mind the nature of the hardware required.

As the system designers and programmers provide the flow diagrams and the block diagrams during the detailed design state. Some modification may be required, as the implementation stage progresses.

7. Acquiring required hardware

This acquisition is usually the limiting factor in getting am MIS implementation. These tasks should be started during the design stage.

The decision is to be needed, whether to buy or lease the hardware. Capital expenditure analysis is only one of many factors involved in this decision. Others are prestige, usage etc.

8. Generating files

In the implementation stage, the actual data must be obtained and recorded for the initial testing and operation of the system. This requires format of the data, storage form and format and remarks to indicate when the data have been stored.

The collection of data used in routine operations is often called the master file.

Responsibility for file maintenance for each file item should also be assigned. The development of files or databases belongs to information system designers and storage and retrieval experts.

The translation of specifications for files into computer programs is a function of computer specialists.

9. Designing forms

For controlling the marketing, a salesperson has to fill out the forms summarizing the day's activities. The form ensures the right information to be supplied for computer storage.

Forms are required not just for input and output but also for transmitting data at intermediate stages.

10. Testing the entire system

As the total system is installed, tests should be performed with the test specifications and procedure. A test during installation stage consists of component tests, subsystem tests and total system acceptance tests.

Components may be equipment (that can be new or old), new software programs, new data collection methods, work procedures, reporting formats. Difficulties that occur during component tests may lead t design changes.

As more components are installed, subsystems may be tested. There is a difference between the testing of component and the testing of a system.

System tests require verification of multiple inputs, complex logic systems, and timing aspects of many parts.

11. Completing cutover to the new system

Cutover is a point at which the new component replaces the old component to the new system replaces the old system. This involves old forms, old files and old equipment being retried.

The debugging proves associated with the cutover to the new system may extend for several months.

12. Documenting the system

Documentation of the MIS means preparation of written descriptions of the scope, purpose, information flow components, and operating procedures of the system.

Documentation is a necessity for troubleshooting, for replacement of subsystems, for interfacing with other systems, for training new operating personnel and also for evaluating and upgrading the system.

13. Evaluating the system

After the MIS has been operating smoothly for a short period of time, an evaluation of each step in the design and of the final system performance should be made.

Evaluation should not be delayed beyond the time when the system's analysts have completed most of the debugging. The longer the delay, the more difficult it will be for designer to remember important details.

The evaluation should be made by the customer as well as by the designers.

14. Providing system maintenance

Control and maintenance of the system are the responsibilities of the line managers.

Control of the systems means the operation of the system as it was designed to operate. Sometimes, well-intentioned people or operators may make unauthorized changes to improve the system, changes that are not approved or documented.

Maintenance is closely related to control. Maintenance is that ongoing activity that keeps the MIS at the highest levels of effectiveness and efficiency within cost constraints.

Maintenance is directed towards reducing errors due to design, reducing errors due to environmental changes and improving the system's scope and services.

PITFALLS OF A MANAGEMENT INFORMATION SYSTEM:

- Management information systems (MIS) are a set of procedures to collect important business information for making management decisions.
- Traditional MIS were manual processes handled by certain employees inside the company.
- Modern technology and business software has allowed companies to automate their traditional MIS processes.

While automating the MIS can provide several obvious benefits, ***there are disadvantages to automating or enhancing the company MIS*** like additional implementation costs, employee training or new MIS-gathering tools and techniques may provide some difficult situations.

Some of the pitfalls in MIS with brief description will be given as follows:

- ***Cost of Technology Upgrades:*** Implementing a new MIS or new MIS procedures can prove to be a difficult process for older computer mainframe systems or business software applications.

Because modern technology can change rapidly in a short amount of time, companies must maintain current hardware and software systems in their company.

Business hardware is an additional overhead expense companies usually pass on to consumers. Failing to recoup these infrastructure costs can leave companies with a large capital expense on their financial statements.

- ***Training Needs:*** Training managers and employees on a new MIS may be a process that takes a lot of time and effort.

  Companies may not be prepared to train their managers and employees on such a large scale business system.

  Additionally, older employees may take longer to train since they are usually less familiar with current business technology.

  The company size and number of departments needing the new MIS may also create training difficulties for the company.

  Companies may need to shut down operations during the training period, creating a potential for lost profits.

- ***MIS as Distraction:*** MIS processes may provide little benefit as a management tool if they are allowed to get out of hand.

  This may happen if companies spend more time designing, implementing, reviewing and controlling the MIS.

  Companies should view the MIS as a behind-the-scenes operation; allowing it to become a major distraction in the decision-making process cheapens the value of the MIS.

  It may also be a distraction when companies attempt to expand their current operations.

- ***Misconceptions:*** Companies may not need a completely new MIS process or renovation. Simple tweaks may be sufficient to ensure the current MIS operates smoothly.

  Business software packages can quickly become overpriced when new hardware and maintenance agreements are included.

  This expense may be avoided if company management simply review their current MIS processes and determine where any flaws or errors exist. Correcting these issues may breathe new life into the current MIS.

- ***Too Much Information:*** MIS processes are designed to gather and collect pertinent information for business decisions.

  Creating an MIS that collects too much information can lead to the management problem known as the “paralysis of analysis.”

  This management theory is based on the principles of so much information is gathered that it leads to the inability of making a decision.

Management information must be timely, relevant and accurate. Information that does not meet these guidelines may not be necessary for making business decisions.

SYSTEM MODELING FOR MIS:

System modeling is the interdisciplinary study of the use of models to conceptualize and construct systems in business and IT development.

A common type of systems modeling is function modeling, with specific techniques such as the Functional Flow Block Diagram and other techniques, which can be extended using functional decomposition, and can be linked to requirements models for further systems partition.

The Business Process Modeling Notation (BPMN), a graphical representation for specifying business processes in a workflow, can also be considered to be a systems modeling language.

In business and IT development the term "systems modeling" has multiple meaning. It can relate to:

- the use of model to conceptualize and construct systems
- the interdisciplinary study of the use of these models
- the systems modeling, analysis, and design efforts
- the systems modeling and simulation, such as system dynamics
- any specific systems modeling language

As a field of study systems modeling has emerged with the development of system theory and systems sciences.

As a type of modeling, a system modeling is based on systems thinking and the systems approach. In business and IT systems modeling contrasts other approaches such as:

- agent based modeling
- data modeling and
- mathematical modeling

In "Methodology for Creating Business Knowledge", the systems approach (systems modeling) was considered to be one of the three basic methodological approaches for gaining business knowledge, beside the analytical approach and the actor's approach (agent based modeling).

SYSTEM ENGINEERING METHODOLOGY FOR MIS PROBLEM SOLVING:

Systems engineering is an interdisciplinary field of engineering that focuses on how to design and manage complex engineering projects over their life cycles.

Systems engineering deals with work-processes, optimization methods, and risk management tools, which overlaps technical and human-centered disciplines such as control engineering, industrial engineering, organizational studies, and project management.

Systems engineering ensures that all likely aspects of a project or system are considered, and integrated into a whole.

The systems engineering process: Depending on their application, tools are used for various stages of the systems engineering process:

Using models: Models play important and diverse roles in systems engineering. A model can be defined in several ways, including:

1) An abstraction of reality designed to answer specific questions about the real world
2) An imitation, analogue, or representation of a real world process or structure or
3) A conceptual, mathematical, or physical tool to assist a decision maker

Systems engineering signifies only an approach and, more recently, a discipline in engineering.

The aim of education in systems engineering is to simply formalize the approach and in doing so, identify new methods and research opportunities similar to the way it occurs in other fields of engineering. As an approach, systems engineering is holistic and interdisciplinary in flavor.

Systems engineering encourages the use of tools and methods to better comprehend and manage complexity in systems. Some examples of these tools can be seen here:

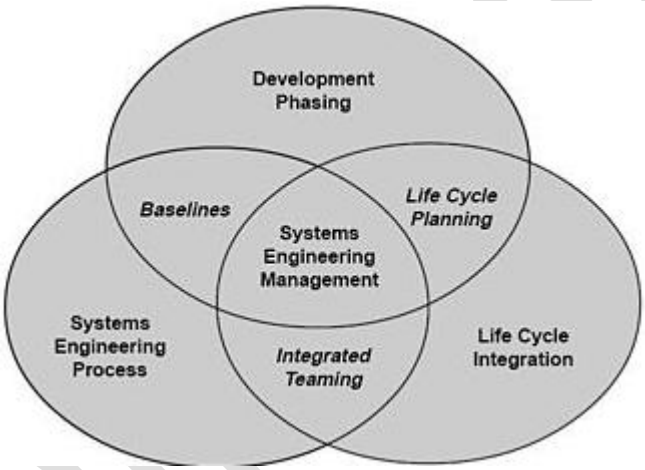
- System model, Modeling, and Simulation,
- System architecture,
- Optimization,
- System dynamics,
- Systems analysis,
- Statistical analysis,

- Reliability analysis, and
- Decision making

Taking an interdisciplinary approach to engineering systems is inherently complex since the behavior of and interaction among system components is not always immediately well defined or understood.

Defining and characterizing such systems and subsystems and the interactions among them is one of the goals of systems engineering. In doing so, the gap that exists between informal requirements from users, operators, marketing organizations, and technical specifications is successfully bridged.

The scope of systems engineering activities:



Systems engineering tools are strategies, procedures, and techniques that aid in performing systems engineering on a project or product. The purpose of these tools vary from database management, graphical browsing, simulation, and reasoning, to document production, neutral import/export and more.