

Chapter 4: Implementation, Evaluation and Maintenance of IS

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Introduction

- Systems construction is the development, installation, and testing of system components.
- Systems implementation is the delivery of that system into production (meaning day-to-day operation).



Implementation Alternatives (1)

- Four alternatives for implementing the IS:
 - Install a First-Time System**
 - Cut off old, Install new:** *Bump off the old system and turn on the new system*
 - Cut-over by segments:** *an incremental approach. phase wise*

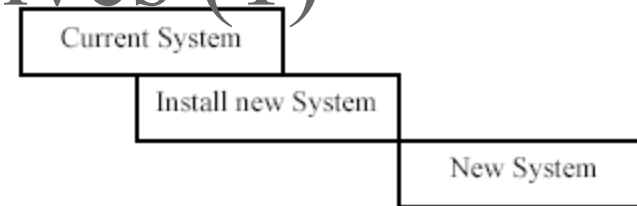


Fig: Direct installation

- Parallel operations and cutover:** *new system installed and operated in parallel with the current system until the new system is checked out. The current system is then detached. **Relate: RAID***

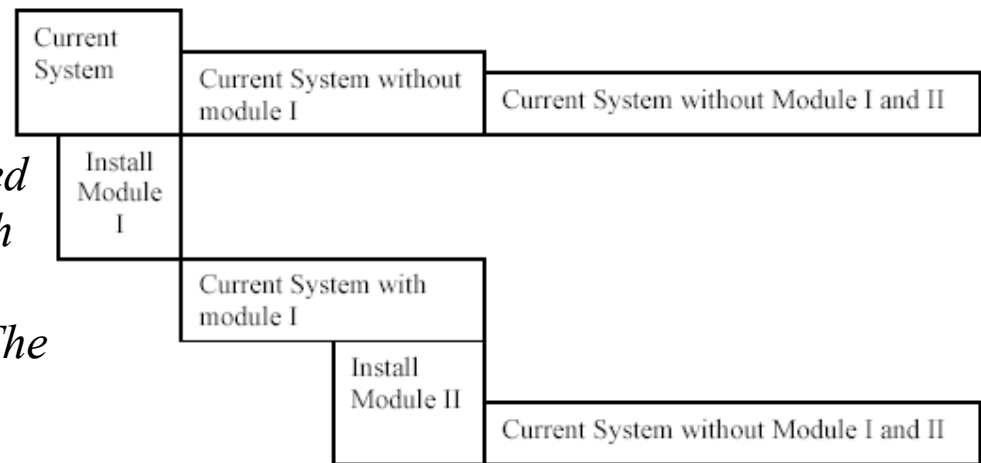


Fig: Phase wise installation

Implementation Alternatives (2)

- **Benefits of parallel operations and cutover**
 - It is riskless
 - Outputs are compared to test the performance of new system
 - Errors discovered in the new system don't cost the organization much
 - The new system is fairly well debugged
- **Drawbacks of parallel operations and cutover**
 - Can be very expensive.
 - A parallel approach can also be confusing to the users since they must deal with both systems
 - A parallel approach may not be feasible esp. if the users of the system cannot tolerate redundant effort or the size of the system is large



Plans for implementation (1)

- System analyst, together with the manager of the system that sets the plan for installation
- Installation plan includes following activities:
 - Identify the implementation tasks.
 - Establish relationships among tasks.
 - Establish a schedule
 - Prepare a cost schedule tied to tasks and time
 - Establish a reporting and control system



Plans for implementation (2)

- Identify the implementation tasks
 - Milestones
 - Planning the implementation activities
 - Acquiring and laying out facilities and offices
 - Organizing the personnel for implementation
 - Developing procedure for implementation
 - Developing the training program for operation personnel
 - Completing the systems software
 - Acquiring required hardware
 - Testing of the entire system
 - Completing cut over to the new system
 - Documenting the system
 - Evaluating the IS
 - Providing system maintenance



Plans for implementation (3)

- Establish relationships among tasks
 - Use Gantt chart or network diagrams for clear visualization of the project planning and scheduling
 - Case tool: Microsoft Project and Microsoft VISIO.
- Establish a schedule
 - Estimate times between events in the program network. The actual desired end date is then specified on the basis of this information (CPM-critical path analysis).
 - Case tool: Microsoft Project
- Prepare a cost schedule tied to tasks and time
 - The cost for completing each milestone(a major event)
 - The number of tasks required to complete a milestone
 - The rate of expenditures
 - Case tool: Microsoft Office Project + Excel



Plans for implementation (4)

- Establish a reporting and control system
 - weekly gathering/meeting of key people or brief progress report
 - Correlate and correct.
 - Large numbers of people involved in regular operations and introducing new equipment, arrangements, and operations → Confusion. The objective of the control system is to minimize this confusion and associated delays and cost.
- Evaluation of implemented system
 - Evaluation to measure the value of results
 - No procrastination and delay for evaluation
 - Evaluated by the designers and the users.
 - Evaluate in terms of planned cost vs. actual cost



Plans for implementation (5)

- Evaluation on the basis of system characteristics

- System integrity

- How well is the sub systems integrated into a total system without
- redundancy?
- How flexible is the system?
- How easily may the system be expanded?

- Operating integrity

- How skilled are the people operating the system?
- What backup is there to prevent system breakdown in event of loss of
- key personnel or equipment failure?

- Internal integrity

- How well does the system do what it is supposed to do?
- How valid are system outputs?
- How secure is the system against human errors, manipulation or theft?

- Procedural integrity

- How good is the documentation of the system and procedures?
- Are procedures such that employees are motivated to follow them?
- How well are the procedures followed in practice?
- What controls ensure that procedures are followed?



Control: Control and Maintenance (1)

- Adaptively governs the overall behavior of a system
- Control system must repeatedly interpret the current situation, predict the future, diagnose the causes of anticipated problems, formulate a remedial plan, and monitor its execution to ensure success
- Periodic spot checks of the system are necessary for control purposes because:
 - Sometimes operators will develop their own private procedure or will short-circuit procedure designs.
 - Often well –intentioned people make unauthorized changes to improve the system changes that are not approved or documented.
 - Managers may be using their intuitions rather than accurate data and information for the decision/investment process.



Maintenance: Control and Maintenance (2)

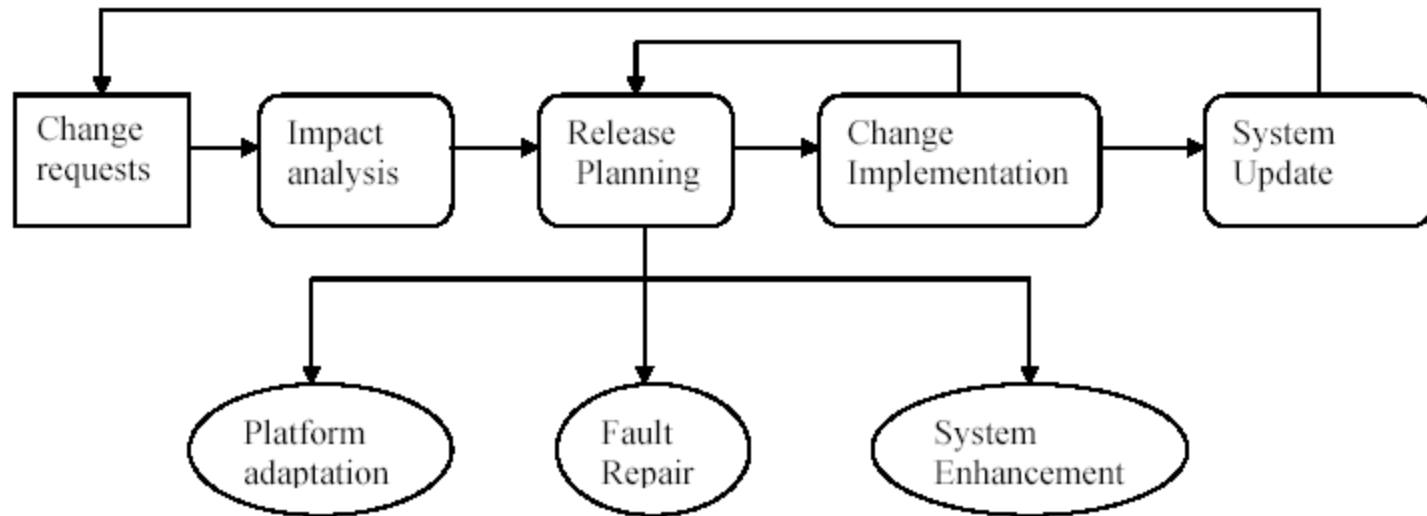


Fig: An overview of maintenance process

- Maintenance is that ongoing activity that keeps the IS at the highest level of effectiveness and efficiency with cost constraints
 - The emergence of a system fault which must be repaired to allow normal operation to continue.
 - Environmental changes which have unexpected effects on the system
 - Unanticipated business changes which might be due to the emergence of new competitors or new legislations.

Maintenance: Control and Maintenance (3)

- Maintenance activities
 - Emergency Maintenance
 - Routine maintenance
 - Request for special report
 - System improvements
- When to perform maintenance ?
 - changes in policy statements
 - changes in operating systems
 - changes in working procedures
 - changes in hardware or hardware configurations
 - software modifications or additions
 - system control or security needs
 - changed in inputs from environment



Maintenance: Control and Maintenance (4)

- Problem related to IS Maintenance
 - No plan for maintenance
 - No resource/budget allocation for maintenance
 - Lack of management understanding, interest and commitment
 - Lack of user understanding and commitment
 - Inadequate and improper documentation
 - Lack of qualified personnel
- Planning for maintenance
 - Log all requests for change. Only written request should be accepted and included in the log.
 - Assign priorities to all requests based on urgency, long range benefits, time and resources required.
 - Prepare long range and short range plans
 - Document maintenance for future reference.

