Systems Development

Behind the Scenes: Building Applications

Six Phases
1. Preliminary Investigation or Problem/Opportunity Identification
2. Systems Analysis
3. Systems Design
4. Systems Development, Testing and Documentation
5. Systems Implementation and Installation
6. Systems Maintenance and Evaluation

System Development Life Cycle

Phase 1
Preliminary Investigation or Problem/Opportunity Identification

Phase 2
Systems Analysis

Phase 3
Systems Design

Phase 4
Systems Development, Testing and Documentation

Phase 5
Systems Implementation and Installation

Phase 6
Systems Maintenance and Evaluation

Phase 4
Systems Development

• Acquiring or developing software
• Acquiring hardware
• Testing the new system
Phase 4
Systems Development
• Development & Documentation
  – Actual programming takes place
  – First step of the program development life cycle (PDLC)
  – Development is documented
  – User documentation is created

Phase 4
Systems Development
• Testing & Installation
  – Testing the program for proper operation
  – Installation of the program for use
  – Document testing and results

Phase 5
Testing and Installation
• Program is tested for proper operation
• Program is installed for use
• Testing and results are documented

Phase 5
Systems Installation and Implementation
• New system installed
• Types of conversion
• Document results
• Training

Phase 5
Systems Implementation
• Types of conversion
  – Direct
  – Parallel
  – Pilot
  – Phased
• Training

• Types of conversion
  – Direct approach-minor changes, risky
    • stop old, start new system
  – Parallel approach-very expensive, low risk
    • operate old until new system reliable
  – Pilot approach-similar operations, riskier than parallel, less than direct
    • implement system in only one department, add to rest of organization when reliable
  – Phased approach-expensive, few risks
    • break operations of the system into phases and implement in sequence
Phase 5
Systems Implementation
• Pilot and phased approaches most favored
• Parallel used when catastrophic cost of failure or interruption too great
• Training
  – Most commonly overlooked activity
  – Can be commenced before equipment delivery
  – Outside trainers sometimes used

Phase 5
Systems Implementation
• Trial or Pilot Group for New System

Phase 6
Systems Maintenance
• Performance of the system is monitored
• Corrections and modifications to the programs are made
• Document maintenance procedures and results

Phase 6
Systems Maintenance
• Ongoing activity
  – Longest phase
• Two tasks
  – Systems audit
  – Periodic evaluation

Phase 6
Systems Maintenance
• Systems audit checks
  – Performance compared to original specifications
  – New procedures furthering productivity
• Periodic evaluation of goals and service
  – "Checkups" from time to time, modifications if necessary

Systems Development Alternatives
• Prototyping
  – Alternative to the systems life cycle
  – Use if systems life cycle is not feasible
• Rapid Applications Development (RAD)
Prototyping

- The alternative to the six-step systems analysis and design process
- Problem easily identified
- Building a model or prototype as a “quickie” way of building a system
- Test model, feedback, modify model, and repeat process

RAD

- Rapid applications development
- Automated design tools for helping systems analyst evaluate alternatives
- Called computer-aided software engineering tools or CASE tools (also CAD)
- Small specialized teams of highly trained personnel

Summary Questions

- What must be accomplished in Phase 4?
- What are the main activities of the Systems Maintenance Phase?
- What is prototyping?
- What does systems implementation involve?
- Explain the four approaches of converting to a new information system.
- Explain the need for RAD.

Systems Development

- Identify, acquire, and test new system software and hardware
- Switch from an existing information system(s) to a new one(s)
- Perform system audits and periodic evaluations

Participation Question

In this phase of the SDLC, the new information systems are installed and adapted to the new system, and people are trained to use them.

A. Systems Implementation
B. Systems Design
C. System Maintenance
D. Systems Analysis
E. Systems Development
Participation Question

The final step of development phase is to ______.

A. acquire software  
B. prepare a systems development report  
C. acquire hardware  
D. test the system  
E. training materials

Systems Development

• Any questions?