Component 4: Introduction to Information and Computer Science

Curriculum Development
Centers Program

Awardee of The Office of the National Coordinator for
Health Information Technology

Unit 9: Components and
Development of Large Scale
Systems
Lecture 7

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Topic II: Systems Development Lifecycle (SDLC)

1. Systems Planning
2. Systems Analysis
3. Systems Design
4. Systems Implementation
5. Systems Support and Security

System Security

- CIA triangle
  - Confidentiality
  - Integrity
  - Availability

- Risk Management
  - Risk identification
  - Risk assessment
  - Risk control

Physical Security

- Operations center security
- Servers, desktop computers, notebook, laptop and tablet computers
- Network security
- Application security
- File security
- User security
- Procedural security

Backup and Recovery

- Backup Policies
  - Types of backups
  - Backup media
  - Retention periods
- Recovery issues
  - Disaster recovery plan
  - Business Continuity Plan (BCP)

System Obsolescence

- No longer supports users needs
- Becomes out-dated
- Economically no longer useful

DEAD END

Topic III: Financial Support

- Investment
  - Hardware and Software
  - People
- Positive Benefits
- Cost-Avoidance Benefits

Costs and Benefits

- Economic Feasibility
- Total Cost of Ownership
  - Acquisition costs
  - Ongoing support
  - Maintenance costs

Cost-Benefit Analysis

- Payback Analysis
  - Time it takes to recover the system cost.
- Return on Investment (ROI)
  - Return vs. Investment
- Present Value Analysis
  - Net Present Value (NPV)

$$ROI = \frac{(TOTAL\ BENEFITS - TOTAL\ COSTS)}{TOTAL\ COSTS}$$

Cost Classifications

- Developmental
- Operational

- Tangible/ Intangible
- Direct/ Indirect
- Fixed/ Variable

Allocating Costs

- No Charge
- Fixed Charge
- Variable Charge
  - based on resource usage
  - based on volume

SUMMARY

- Described the building blocks of a large scale system
- Explained the initial design process/options for a large scale system
- Described the evaluation process/criteria for including and selecting existing software applications
- Described the process for new software development
- Described the different types of testing and when testing should occur
- Described systems maintenance
- Explained the process of financially supporting large scale systems over time

Future Challenges & Opportunities

- Predictions
- Strategic Planning
  - What do we do?
  - For whom do we do it?
  - How do we excel?
- Credentials and Certifications
  - Personal
  - Organizational