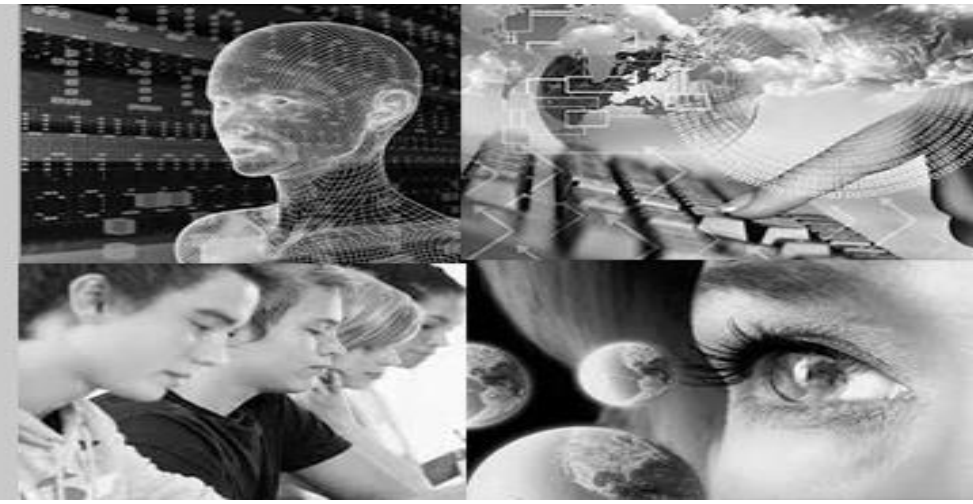
CSM 31212: Software Engineering

Lecture 10:Software Implementation



MM. Mohamed Mufassirin

Lecturer in Computer Science

Dept. of Computer Science

FAS/SEUSL

Introduction to System Implementation

What is System Implementation?

- The process of deploying the developed system into the production environment.
- Involves converting theoretical designs into practical, working solutions.

Key Objectives:

- Ensure the system operates effectively.
- Minimize disruption during deployment.
- Train users and document processes.

Steps in System Implementation

1. **Installation of Hardware and Software**
   - Setting up servers, networks, and user devices.
2. **System Configuration**
   - Adjusting settings to match organizational requirements.
3. **Data Migration**
   - Transferring data from old systems to the new one.
4. **Testing**
   - Validating functionality, performance, and security.
5. **Training**
   - Providing end-user training and manuals.
6. **Go-Live**

   Officially launching the system in the production environment.

Types of Implementation Approaches

- **Four Main Types of Implementation:**

1.Direct Implementation (Big Bang):

- Immediate switch from the old system to the new system.
  - **Advantages:**
    - Quick transition.
    - Reduced cost of running parallel systems.
  - **Disadvantages:**
    - High risk of failure.
    - Disruptive if issues arise.

2.Parallel Implementation:

- Both old and new systems run simultaneously for a set period.
  - **Advantages:**
    - Safe fallback if the new system fails.
    - Provides a testing ground for the new system.
  - **Disadvantages:**
    - High cost of maintaining two systems.
    - Resource-intensive.

Types of Implementation Approaches (Cont.)

3.Phased Implementation:

- The system is deployed in stages, module by module, or department by department.
  - **Advantages:**
    - Easier to manage and monitor progress.
    - Reduced initial impact on operations.
  - **Disadvantages:**
    - Prolonged transition period.
    - Requires clear coordination.

4.Pilot Implementation:

- The system is implemented in a limited area or for a small group initially. If it is successful, then whole system will be implemented at the same time.
  - **Advantages:**
    - Early identification of issues.
    - Feedback can be incorporated before full-scale rollout.
  - **Disadvantages:**
    - Delay in full deployment.
    - Risk if pilot results do not generalize.

Factors to Consider When Choosing an Implementation Approach

1. **Organizational Needs:**
   - Size and complexity of the organization.
2. **Budget:**
   - Costs associated with running parallel systems or prolonged implementation.
3. **Risk Tolerance:**
   - Ability to manage risks during transition.
4. **Technical Expertise:**
   - Availability of skilled personnel for implementation and troubleshooting.

Challenges in System Implementation

1. **Resistance to Change:**
   - Addressing user hesitations.
2. **Data Migration Issues:**
   - Ensuring data integrity during transfer.
3. **Testing and Bug Fixes:**
   - Identifying and resolving issues before go-live.
4. **Training:**
   - Ensuring users are comfortable with the new system.
5. **Post-Implementation Support:**
   - Providing helpdesk and troubleshooting services.

Best Practices for Successful Implementation

1.Clear Planning:

- Develop a detailed implementation plan.

2.Effective Communication:

- Keep all stakeholders informed.

3.Thorough Testing:

- Conduct comprehensive testing before go-live.

4.User Involvement:

- Engage users early in the process.

5.Continuous Monitoring:

- Track system performance post-implementation.

Summary

1. **System Implementation:**
   - Key step in the SDLC to operationalize the system.
2. **Types of Implementation Approaches:**
   - Direct, Parallel, Phased, Pilot.
3. **Key Challenges and Best Practices:**
   - Address resistance, ensure proper training, and plan effectively.

Questions?