

Planning Design and Implementation of ERP Systems

Learning Objectives

- Understand the information systems development process for enterprise systems, including planning, design, and implementation

Traditional Systems Development Life Cycle

- Phases
 - Problem Definition
 - Feasibility Study
 - Systems Analysis
 - Systems Design
 - Detailed Design
 - Implementation
 - Maintenance

TABLE 3-1 Information Systems Design: Traditional Approach

<i>Step</i>	<i>Activities</i>	<i>Tools and Techniques</i>
Problem definition	Identify problems with the current system	Interviewing and data collection
Feasibility study	Assess the need for a systems project, including technical, economic, and management feasibility	Preliminary cost analysis
Systems analysis	Undertake a detailed analysis of the current system, including processes, information flows, and work organization	Logical process models—present system; Logical data models—present system; Organization charts (functional hierarchy diagrams)
Systems design	Development of objectives for the new system; re-engineering of processes and information	Logical process models—proposed system; logical data models—proposed system; organization charts—proposed system
Detailed design	Design of specifications for the proposed system	Program design specifications output design; input design Database design; forms design
Implementation	Software implementation; training end-users; development of reporting systems; design of controls and security	Coding; testing; documentation
Maintenance	Ongoing technical support; ongoing upgrades and enhancements	

Traditional Systems Development Life Cycle

- Automating current system is counter-productive
 - Inherit old problems and flaws
- Provides opportunity to re-engineer current system
- Create logical database design before details are refined
- Takes too much time
- Uses a great deal of resources
- Expensive

ERP Systems Design Process

- Phases
 - Planning
 - Requirements analysis
 - Design
 - Detailed design
 - Implementation
 - Maintenance

Planning and Requirements Phases

□ Planning

- Needs assessment
- Business justification
 - Tangible and intangible benefits

□ Requirements analysis

- Identify business processes to be supported
- “Best practices” offered by vendors
 - Models of supported functions
- Checklist of activities and factors

Design Phase

- Re-engineering business processes to fit software
 - Traditional SDLC defines new business requirements and implements conforming software
- Re-engineering versus customization
 - Re-engineering can disrupt organization
 - Changes in workflow, procedures
 - Customizing
 - Upgrading can be difficult

Alternative Designs

- “Vanilla”
 - Easy to implement
 - Follow vendor prescribed methodology
 - Employ consultants with specialized vendor expertise
 - Usually on time and on budget implementations
- Customized
 - Time and costs increase
 - Not easily integrated into new version

Alternative Designs cont.

- Maintain legacy systems and add ERP modules
 - Support specific functions
 - Cost-effective
 - Organization doesn't get full benefit of ERP
 - Less disruptive
 - Lacks integration
- Outsourcing
 - External vendor operates
 - ASPs (Application Service Providers) provide on time-sharing basis
 - Depends on reliability and stability of vendor

TABLE 3-9 Menu of ERP Alternatives

<i>Option</i>	<i>Time</i>	<i>Cost</i>	<i>Advantages</i>	<i>Disadvantages</i>
Vanilla implementation of a single vendor ERP	Moderate	Moderate	Easiest to implement	May forfeit internal systems which provide a strategic advantage
Single-vendor ERP with customization	High	High	Maintains strategic processes	Poses greater risk and higher cost because vendor modifications cannot be easily adopted
In-house with supplementary ERP modules	Moderate	High	Minimizes the extent of change that users have to accept	Higher cost because of maintaining legacy systems and new ERP modules; limited benefits because of lack of integration
ASP	Moderate	Moderate	Provides vendor support and expertise at lower cost	Creates dependence on the provider

Detailed Design Phase

- Team selects the models, processes, and information to be supported
 - “Best practices” methodology provides models
 - Select applicable business processes
 - Discard inapplicable processes
 - Those processes that do not match the system will serve as foundation for re-engineering
 - Identify any areas not covered as candidates for customization
- Interactive prototyping
- Extensive user involvement

Implementation Phase

- **Implementation**
 - Address configuration issues
 - Data ownership and management
 - Security issues
 - Migrate data
 - Ensure accuracy
 - Build interfaces
 - Documentation review
 - User training
 - Reporting
 - Testing

Implementation Strategies

- **Big Bang**
 - Cutover approach
 - Rapid
 - Requires many resources
 - Small firms can employ
- **Mini Big Bang**
 - Partial vendor implementation
- **Phased by Module**
 - Module-by-module
 - Good for large projects
- **Phased by Site**
 - Location-based implementation

Case: Response to Request for Proposal for an ERP System

- Wingate Electric
 - Mid-sized manufacturer of electric motors
 - Owned by Dick, CEO, and Steve, COO
- MIS system
 - Supports major accounting and financial functions
 - Sales order processing, inventory control, accounts payable, accounts receivable, general ledger
 - Multiple legacy systems
 - Redundant data
 - Inconsistent data
 - Queries difficult

Case: Response to Request for Proposal for an ERP System, continued

- **Competitors adopting ERP systems**
 - Integrating financial and manufacturing
 - Web-based front ends
 - Order processing, tracking, follow-up
- **RFP for ERP system**
 - Initially to support accounting, financials
 - Additional support for production, manufacturing
 - Eventual support for sales and marketing, HR, CRM, eBusiness
 - \$1,000,000 budget for system
 - Determination made by five executives, representing different user groups
 - 10 scored criteria
 - Vendor presentations, supplemental materials

Summary

- Traditional SDLC has been modified by the use of prototyping, end-user developments, and software packages
- ERP systems design process consists of six phases: planning, requirements analysis, design, detailed design, implementation, and maintenance
 - The design phase considers the use of traditional methods, re-engineering, and customization, as well as outsourcing

THANK YOU
