



IS203.3 Enterprise systems

Introduction to ERP Systems

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Information Silos and Systems Integration

- Information Systems create a mass of independent nonintegrated systems
 - [Islands of Information](#)
 - Resulting bottlenecks and interfering with productivity
- Information systems have to integrated data, applications, and resources from across the organization.
- To compete effectively, organizations have to be customer focused.
 - Cross-functional integration among the accounting, marketing and other departments of the organization.

Information Islands



Enterprise Resource Planning (ERP) Systems

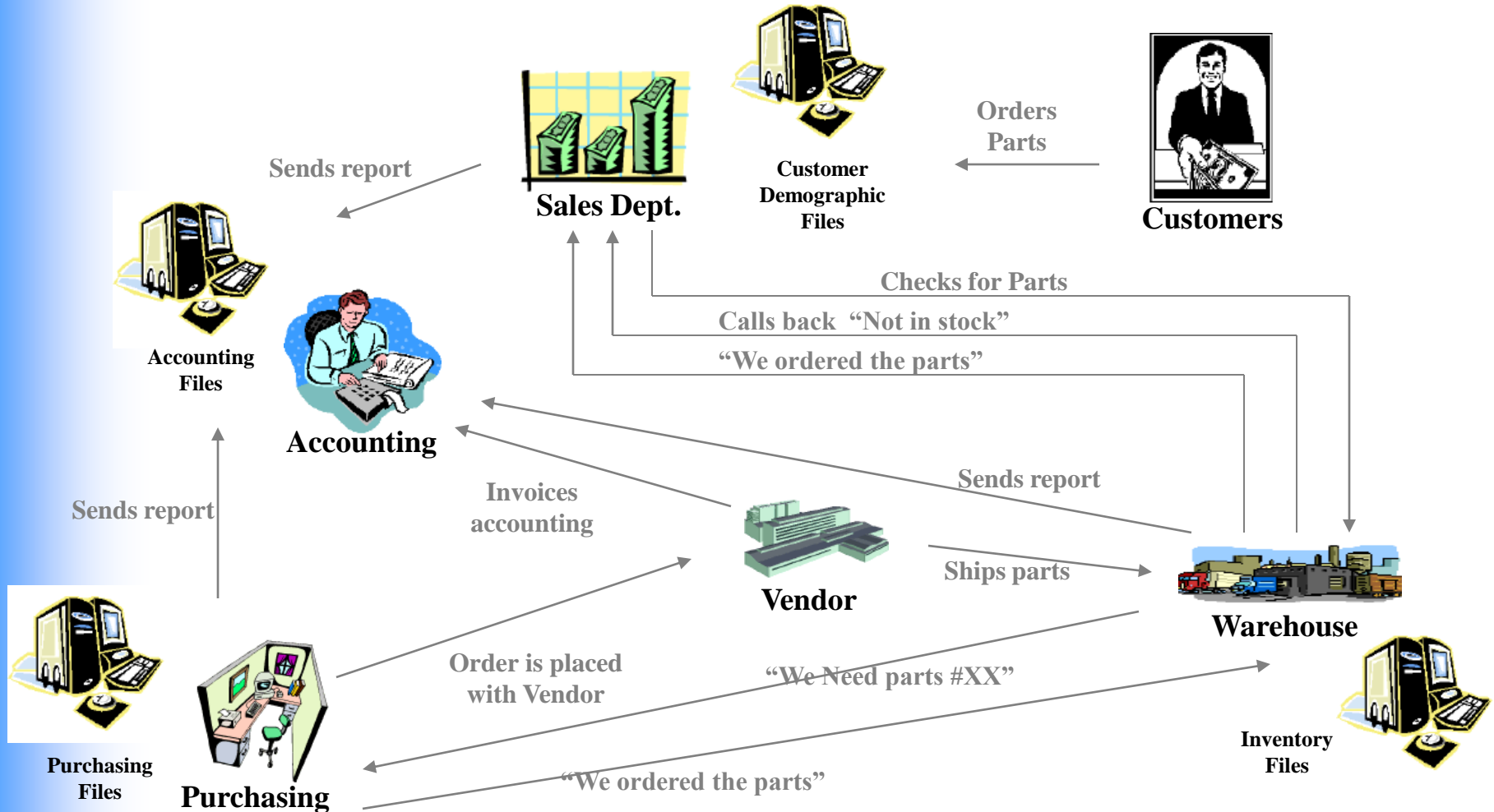
WHAT IS AN ERP SYSTEM?

- Enterprise Resource Planning Systems are the first generation of enterprise systems meant to integrate data and support all the major functions of organizations.
- ERP systems integrate various functional aspects of the organization as well as systems within the organization of its partners and suppliers.

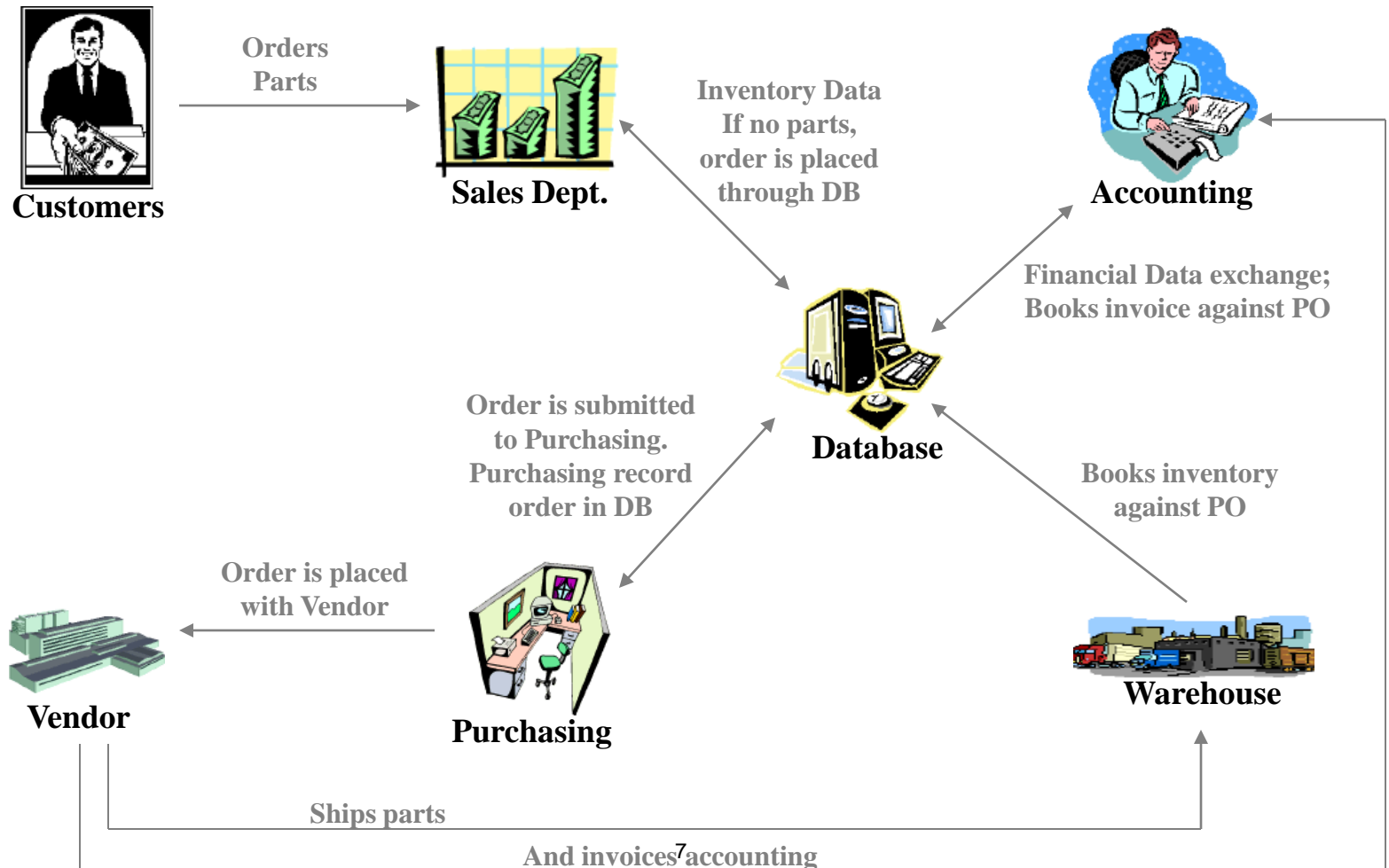
Goals of ERP Systems

- Make the information flow dynamic and immediate, therefore, increasing its usefulness and value.
- Integrate departments and functions across an organization into a single infrastructure that serves the needs of each department.
- Integrate information from different sources and make it available in real-time.
- Replace an assortment of systems that typically existed in organizations.

An ERP Example: Before ERP



An ERP Example: After ERP



ERP – Expectations

- Integrating all the functions
- Integrating the systems running in all the locations
- Transparency of information using a single data source across the organization
- Software must be responsive
 - ◆ Modular
 - ◆ Flexible
 - ◆ Easy to add functionalities
 - ◆ Provide growth path

Evolution of ERP

- 1960's - Systems Just for Inventory Control
- 1970's - MRP – Material Requirement Planning
(Inventory with material planning & procurement)
- 1980's - MRP II – Manufacturing Resources Planning
(Extended MRP to shop floor & distribution Mgmt.)
- Mid 1990's - ERP – Enterprise Resource Planning
(Covering all the activities of an Enterprise)
- 2000 onwards – ERP II – Collaborative Commerce
(Extending ERP to external business entities)

Business Processes and ERP

- A crucial role of ERP in business is to better position the organization to change its business processes.
- ERP software have hundreds of business processes built into the logic of the system which may or may not agree with current processes of an organization.
- When implementing an ERP system, organizations have two choices:
 - Change business processes to match the software functionality.
 - Modify the ERP software to match the business processes.

Discussion question

If you had a choice between customizing an ERP application to meet the organization processes and modifying organization processes to meet the ERP functionality which would you choose? Explain.

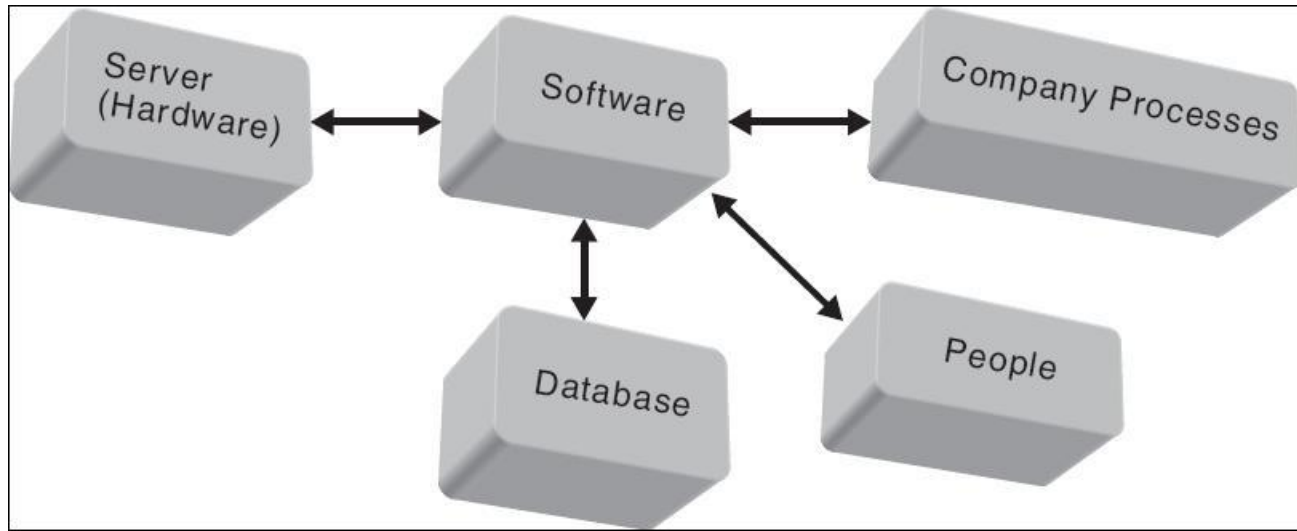


ERP Systems Components

- An ERP system consists of:

Hardware	Servers and peripherals
Software Process	Operating systems and database
Information	Organizational data from internal and external sources
Process	Business processes, procedures, and policies
People	End users and IT staff

ERP Components



System Benefits of an ERP System

- Integration of data and applications across functional areas
- Improvements in maintenance and support as IT staff is centralized.
- Consistency of the user interface across various applications
 - less employee training, better productivity, and cross-functional job movements.
- Security of data and applications is enhanced due to better controls and centralization of hardware.

System Limitations of an ERP System

- Complexity of installing, configuring, and maintaining the system
 - Require specialized IT staff, hardware, and network facilities.
- Consolidation of IT hardware, software, and people resources can be difficult.
- Data conversion and transformation from an old system to a new one is complex.
- Retraining of IT staff and end users of the new system can produce resistance and reduce productivity.

Business Benefits of an ERP System

- Increasing agility of the organization in terms of responding to changes in environment for growth and maintaining market share.
- Information sharing helps collaboration between units.
- Linking and exchanging information in real-time with supply-chain partners improves efficiency.
- Better customer service due to quicker information flow across departments.
- Efficiency of business processes are enhanced due to the re-engineering of business processes.

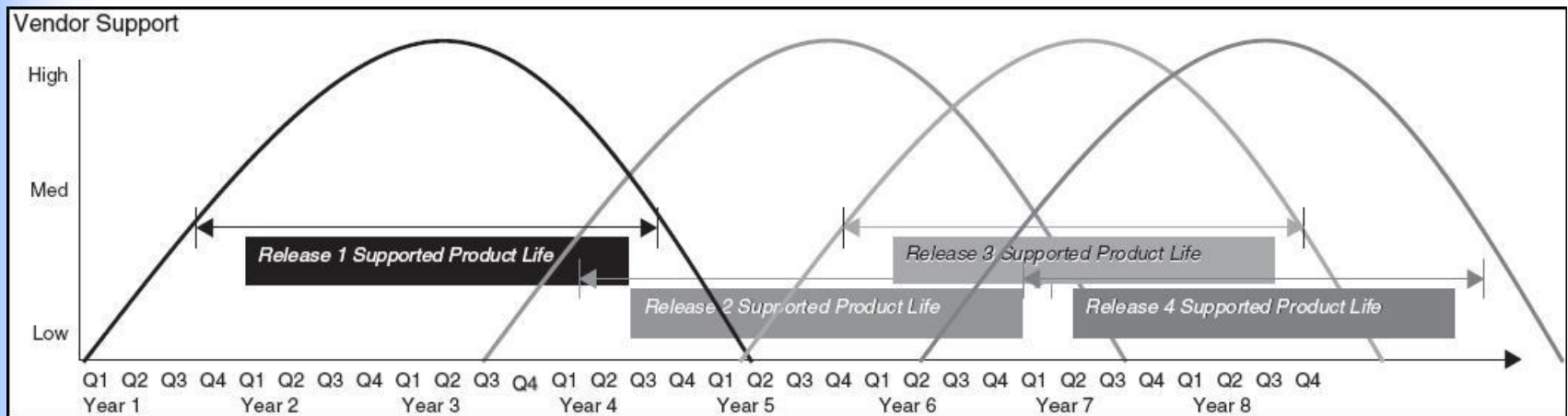
Business Limitations of an ERP System

- Retraining of all employees with the new system can be costly and time consuming.
- Change of business roles and department boundaries can create upheaval and resistance to the new system.

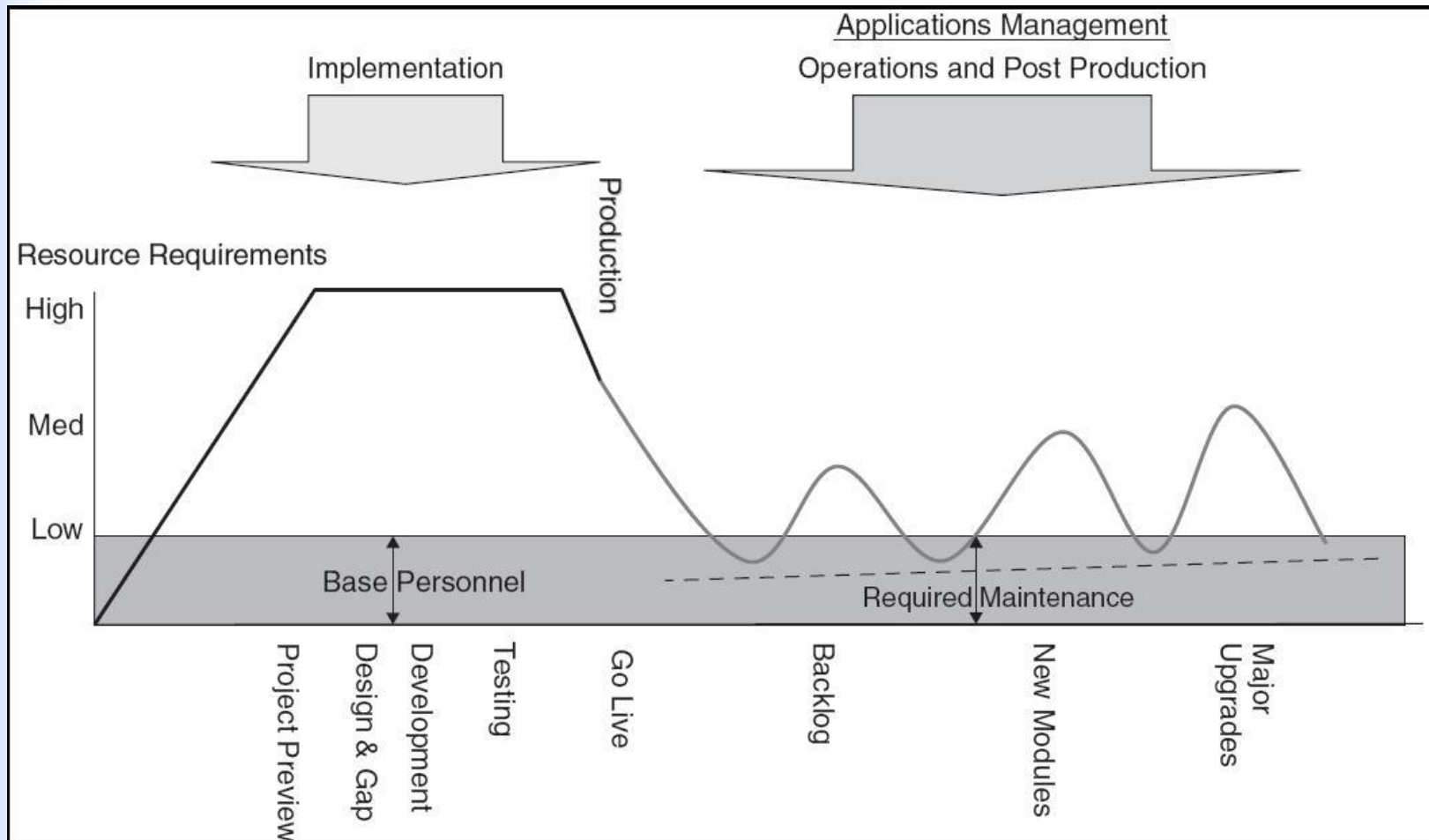
ERP Implementation (ERP Life Cycle)

- **ERP life cycles** are intended to **span** 5-15 years or more.
- The steps in the **life cycle** process are complex.
- Typically, the CIO must lead a process to select the right system, maintain and enhance the system to align processes with changing business goals, and evaluate the system's effectiveness.

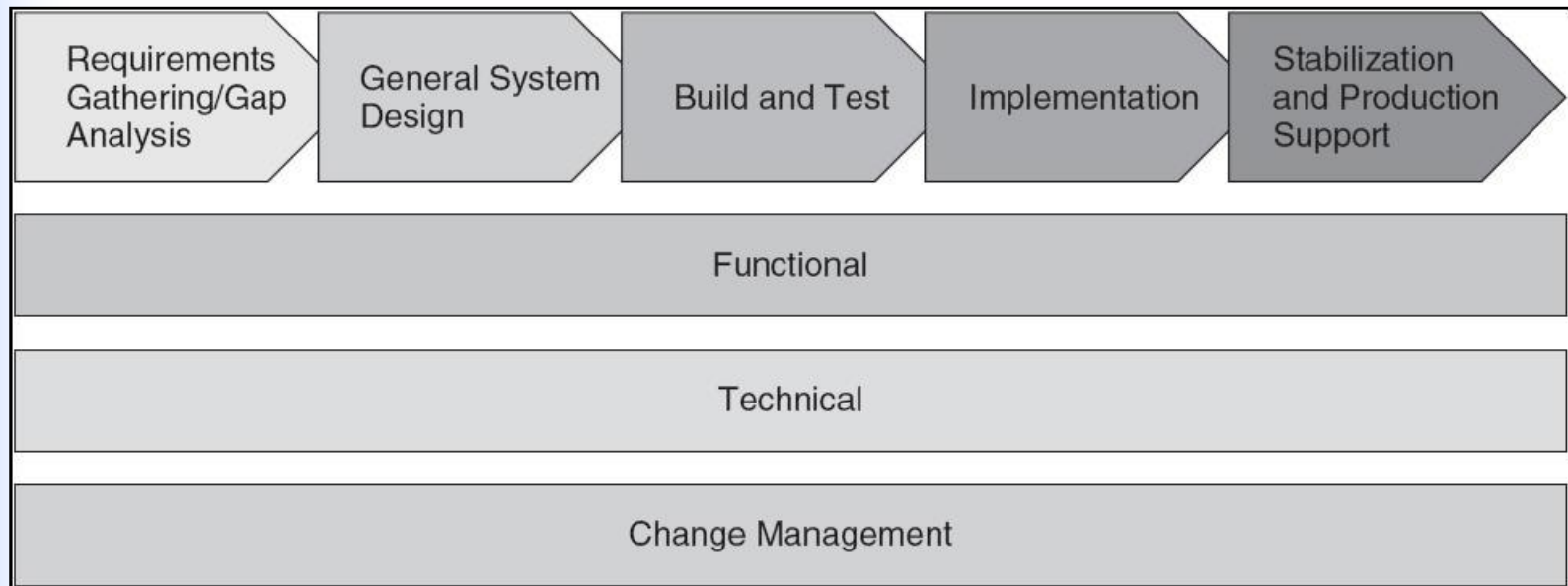
ERP Life Cycle



Product Life Cycle



ERP Implementation Methodology



Software and Vendor Selection

- It is best for an organization that does not have the experience in developing ERP systems to purchase one on the market.
- Before selecting a vendor, the organization must carefully evaluate its current and future needs in enterprise management systems.
- Review the organization's existing hardware, network, and software infrastructure, and the resources available for the implementation.

Top ERP software vendors

sage

ORACLE®

SAP®

IRIS

pegasus

UNIT4
AGRESSO

EPICOR®

blackbaud®



infor

northgate
INFORMATION SOLUTIONS

Advanced
Business Solutions

Vendor Evaluation

- Total cost of ownership.
- IT infrastructure requirements.
- Third-party software integration.
- Legacy systems support and integration.
- Consulting and training services.
- Future goals and plans for the short and long term.

Hidden Costs of ERP

- Training
- Integration and testing
- Data conversion
- Data analysis
- Consultants
- Replacing best and brightest staff after implementation
- Implementation teams can never stop
- Waiting for ROI
- Post-ERP depression

Risks with ERP Implementation

- Expensive (can costs 100 thousands to millions of dollars)
- Time-consuming (can take months to years)
- Great risk for the organization
- Transfer of Knowledge
- Acceptance with the company

Review Questions

1. How is the role of ERP system different from traditional TPS, MIS, DSS, and others? Can an ERP system support all levels of management?
2. Among all the ERP components listed in the chapter, which component is most critical in the implementation process and why?
3. Discuss the role of ERP in organizations. Are ERP tools used for business process reengineering (BPR) or does BPR occur due to ERP implementation?

END OF THE SESSION