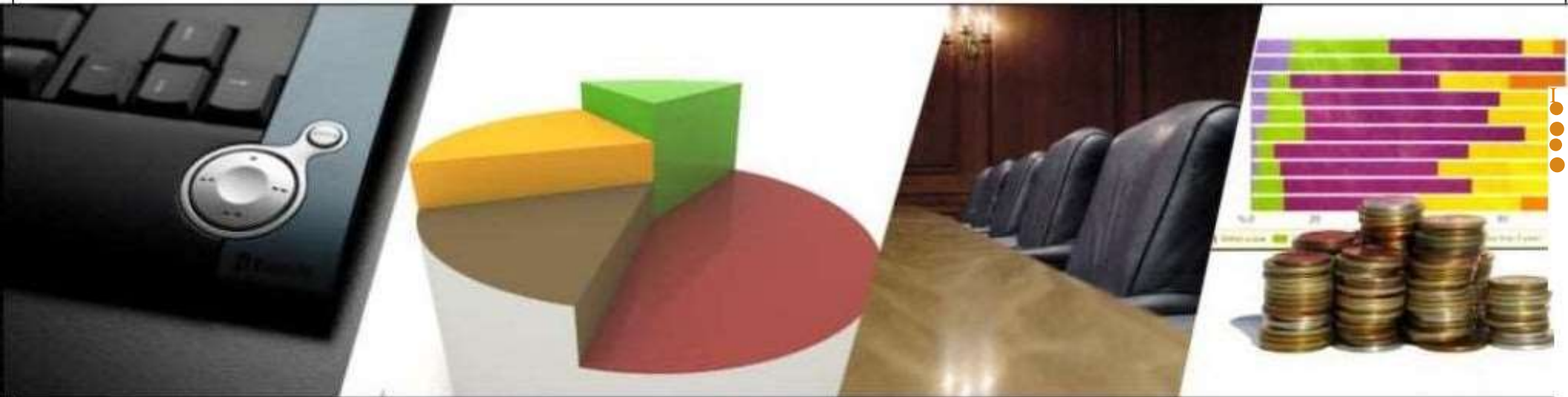


MODERN ERP



SELECT, IMPLEMENT & USE TODAY'S
ADVANCED
BUSINESS SYSTEMS

Chapter 1: Introduction to Enterprise Resource Planning Systems

ERP Background

- Introduction of PC led to narrowly focused information systems
- Duplicate data across the enterprise not shared between departments
- Mid - late 1990's many large companies implemented Enterprise Resource Planning (ERP) which would integrate the data across the enterprise and replace outdated systems (legacy systems).

Legacy Systems:

The case for not changing

- The system works fine and the company sees no reason for changing it.
- The costs of redesigning or replacing the system are prohibitive because it is large and/or complex.
- Retraining on a new system would be costly in lost time and money, compared to the anticipated appreciable benefits of replacing it (which may be zero).
- The system requires near-constant availability, so it cannot be taken out of service, and the cost of designing a new system with a similar availability level is high. Examples include systems to handle customers' accounts in banks, computer reservation systems, air traffic control, military defense installations, etc.

What is ERP?

- An ERP system is an integrated suite of information technology applications that support the operations of an enterprise from a process perspective.
 - Cross-Functional - serves many functions
 - Process-Centered - organized around processes
- Built upon relational database systems
 - There is one data store, one source of the truth
- Sold in modules
 - Don't need to purchase/implement all modules
 - More modules implemented leads to more integration and ROI
- Can cost millions of dollars

ERP-Supported Business Processes



* Core ERP Processes

Typical Modules in an ERP System

Operations (Core)		
Engineering	• Bills of Material	• Scheduling
Capacity	• Process Manu.	• Quality Control
Cost Management	• Discrete Manu.	• Shop Floor Mgmt.
Inventory	• Order Entry	• Purchasing
Product Configuration	• Supply Chain Planning	• Supplier Scheduling
Quality Control	• Demand Management	• Sourcing
Financials (Core)		
General Ledger	• Cash Management	• Accounts Payable
Accounts Receivable	• Fixed Assets	• Controlling
Projects		
Project Costing	• Project Billing	• Time and Expense
Activity Management	• Resource Availability	• Project Contracts
Human Resources (Core)		
Human Resources	• Payroll	• Training
Time & Attendance	• Benefits	• Recruiting
Customer Relationship Management		
Sales and Marketing	• Commissions	• Service
Customer Contact	• Call Center Support	• Analytics
Plus: Various, Self-service interfaces for Customers, Suppliers, and Employees		

Who Uses/Needs to know about ERP?

- **End User**

- Purchasing

- Manufacturing

- Sales

- Accounting/Finance

- Human Resources

- etc

- **Auditor**

- Verify that the ERP system is secure and maintains privacy over individuals.

- **Consultant**

- Assist in implementation and or maintenance of ERP systems

- **Developers**

- Customize the system

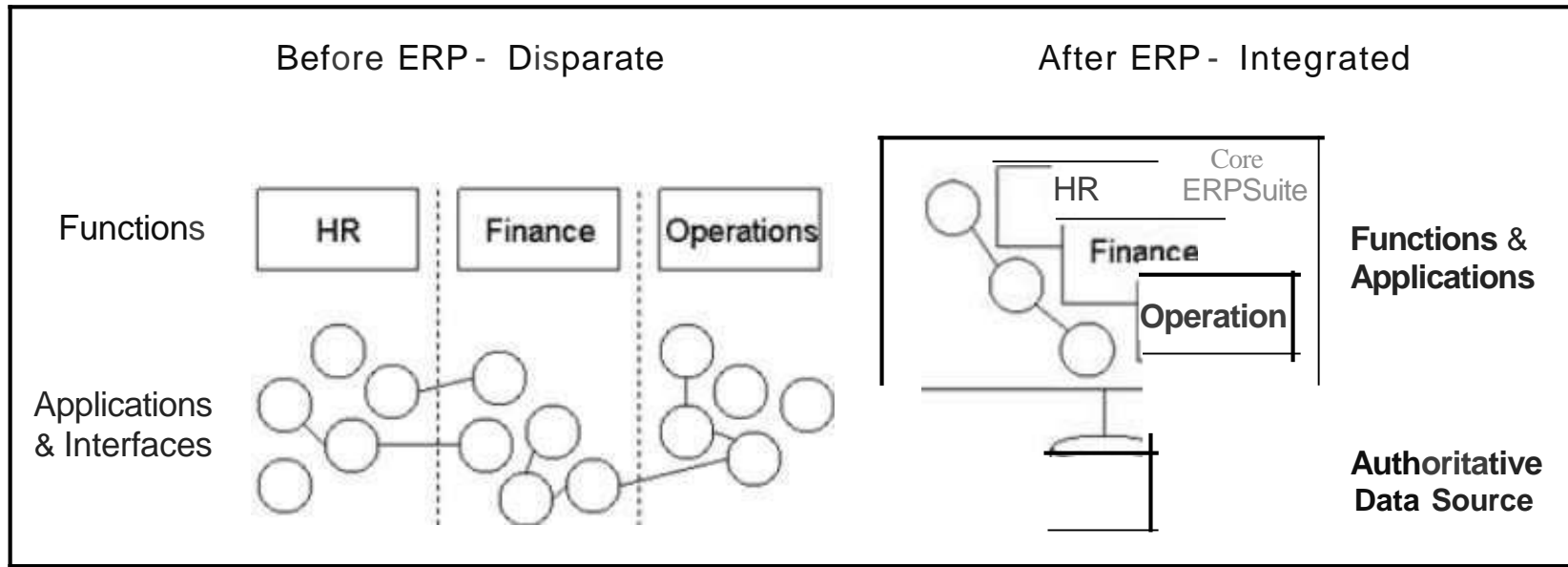
When Does a Company Need an ERP System?

Reasons for Implementing ERP

- To improve business performance
- Desire for growth
- To better service the customer
- To make employees' jobs easier
- Too many business systems supporting processes
- Lack of regulatory compliance

Before and After ERP

Figure 1 - Before and After ERP



• **Legacy systems** (islands of automation) may be connected with **enterprise application integration (EAI)** - the process of linking such applications within a single organization together in order to simplify and automate business processes to the greatest extent possible, while at the same time avoiding having to make sweeping changes to the existing applications or data structures. Not as optimal as having an integrated system, common database, and common technical infrastructure.

Advantages of ERP Systems-1. Integration

- The value of ERP is the opportunity to **integrate** an entire organization by having a single point of entry and sharing of data across the enterprise.
- ERP becomes the **authoritative data source**: a recognized or official data production source with a designated mission statement to publish reliable and accurate data for subsequent use by users.
- Creates less need to reconcile data and rekey which causes inefficiencies and delays
- Inefficient business processes that were disjointed become much more efficient.

Advantages of ERP Systems-2. Diffuses Best Practices

- ERP systems are based on **best practices**
- **Best practices:** is process that is generally recognized as more effective and efficient than others in a particular industry.
- For instance, SAP has thousands of best practices embedded in their applications.
 - This means that any firm that installs has access to a wide range of best practices.
- Further, business practices are being added all of the time. As new best practices are found and embedded in particular applications, they can become available for inclusion in new versions of software.

Technical ERP System Benefits

- Integrated processes and information systems
- More effective and efficient business processes
- Enables organizational standardization
- Eliminates information asymmetries
- Provides on-line and real-time information
- Facilitates intra- and inter-organization communication and collaboration
- Can reduce complexity of application and technology portfolios

ERP System Disadvantages

- Standardized way of conducting business can be a disadvantage too because levels the playing field somewhat between companies.
- Lack of employee/user acceptance
- Complex solution
- Maintenance of hardware and software
- Costly and time consuming implementations

implementation Issues

- Employee resistance
 - They develop "workarounds"
 - Sabotage implementation process
 - Caused by lack of training ("how") or understanding of organization's motivation for adoption ("why")
 - Need Change Management to lower resistance
- Technical Issues
 - Complex system to implement - configuration issues and possible customization issues

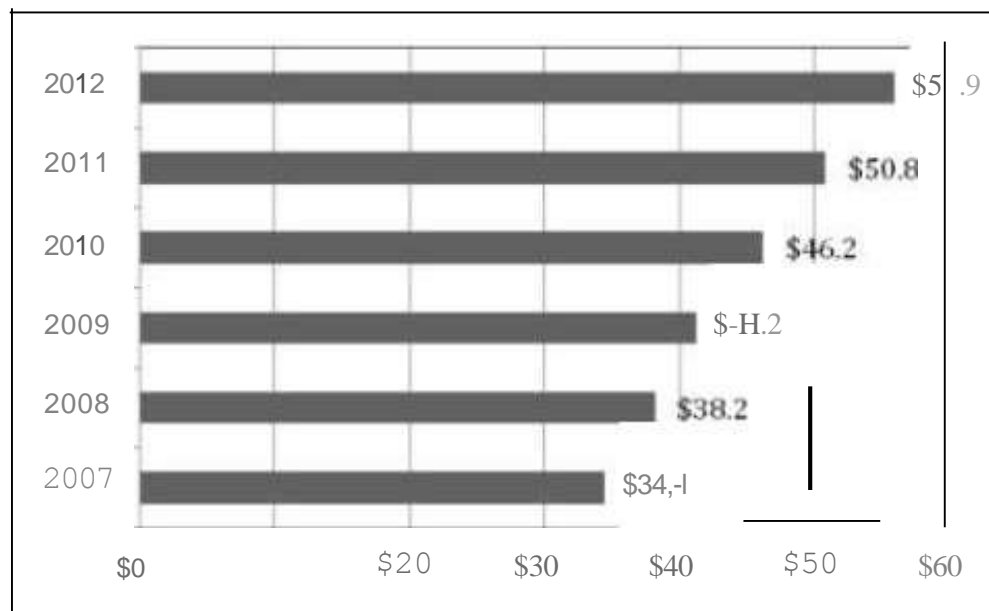
ERP Evolution

- Roots are in Manufacturing Requirements Planning {MRP} & Manufacturing Resource Planning {MRP II}
 - Addressed needs of just the manufacturing environment - ERP manages resources for entire enterprise
- With Y2K looming, companies began implemented new state of the art systems {ERP} that ran on client server technology
- Now many companies outsource called Software as a Service {SaaS}
- Open Source ERP systems are evolving.

ERP Market

- Billion dollar industry and growing
 - 10% growth rate through 2012
- Growth drivers
 - Globalization
 - Centralization
 - Competition
 - Best practices etc

Figure 1-2: ERP Application Revenue Estimate 2007-2012 in Billions



Source: AMR research

ERP Tiers

- Tier 1 Vendor- "Enterprise Space" - sell ERP solutions to large, multinational corporations with more than 1,000 employees and revenues greater than \$1 billion

#1 SAP

- Stands for Systems, Applications and Products in Data processing
- Formed by 5 former IBM engineers in 1972 in Walldorf Germany
- Nearly 200,000 customers, over 50,000 employees
- Service over 20 different industries

#2 Oracle

- More than 380,000 customers-including 100 of the Fortune 100-and with deployments across a wide variety of industries in more than 145 countries around the globe,
- In 2003 acquired PeopleSoft, Hyperion and Siebel

ERP Tiers

- Tier 2 Vendors
 - Sell ERP solutions that are designed for mid-market companies, which usually range in size from \$50 million up to \$1 billion in annual revenues and have between 250 and 1,000 employees.
 - Their systems also come with a lower price tag than a Tier 1 ERP system because their software license costs and maintenance fees are lower. Generally these solutions are easier to implement and support than a Tier 1.
 - Some vendors -abas and CDC Software
- Tier 3 Vendors
 - Sell products that are designed for smaller companies that range in annual revenues from \$10 million to \$50 million and have fewer than 250 employees
 - Vendors - Consona, exact Americas, and SAP Business All in One

Figure 1-5: Characteristics of ERP Vendor Tiers

Tier 1	Tier 2	Tier 3
High complexity	Medium complexity	Limited functionality
Highest cost of ownership	Medium cost of ownership	Lowest cost of ownership
Many industry solutions	Fewer industry solutions	Fewest industry solutions
Large companies	Mid-market companies	Small to mid-sized companies
Global functionality	Global functionality	Few locations
<i>Source: Ultra Consultants</i>		

Figure 1-6: Sample ERP Vendors

Tier 1		Tier 2	Tier 3
Oracle	abas		Consona
SAP	CDC Software		exact Americas
Microsoft AX	Epicor		Expandable
	Fujitsu		SYSPRO
	Infor		Microsoft NAV
	NetSuite		SAP Business All-in-One
<i>Source: Ultra Consultants</i>			

Summary

- An ERP system is an integrated business system that comprises modules that can be used to manage all business processes and data within an organization.
- Business professionals interact with ERP systems in various roles, including as end user, consultant, and auditor.
- Benefits of ERP systems include data integration, real-time access to information, standard business processes and interfaces, a shared data model, industry best practices, and reduced costs and increased revenue.
- Disadvantages of ERP systems include their high cost, time-consuming implementation, employee resistance, and the burden of constant maintenance and upgrades.
- Companies interested in purchasing an ERP system should be aware of the many solutions available and pick one appropriate for their company size and industry as well as one that fits their business requirements.