Overview

What role do Enterprise Information Systems (EIS) serve?
What are common types of EIS in contemporary organizations?
What value and potential pain points are associated with ERP systems?
How has ERP evolved since its inception?
In the beginning...

Technology came to business tied to functional areas.

Accounting, Human Resources, Finance, Production, Information Technology, Payroll, Sales, Marketing, etc.

...there were silos and isolation

Software applications supporting business focused on data processing within a functional area. Applications were independent and tightly coupled to a given functional area.
Structure not reflective of business needs

**Business processes**—activities by an organization to achieve corporate goals that *cut across functional areas*. Involve

Enterprise Information Systems needed to support this environment of collaboration.

Cross-functional Business Processes

- Supply Chain Management
- Purchasing
- Production
- Inventory Management
- Marketing
- Sales

*Essentials of Business Processes and Information Systems* by Magal and Word
Sales Order Process (Order-to-Cash)

Sales Order Entry → Check Availability → Sales Order Process → Pick Materials → Post Goods Issue → Receipt of Payment → Invoice Customer → Payment to Vendor

Process Integration

Sales Order Entry → Check Availability → Pick Materials → Purchase Requisition → Procurement Process → Goods Receipt → Invoice Receipt → Post Goods Issue → Payment to Vendor → Invoice Customer → Receipt of Payment

Based on material in Intro to ERP, SAP University Alliances Curriculum
Process Integration w/ manufacturing

Information Silos

Historically, functional areas maintained independent information systems.
Supporting Business Processes

**Enterprise Resource Planning (ERP) programs**: Core software used by companies to coordinate information throughout business processes. Uses common database and shared reporting tools. Promotes efficiency, accuracy, and manageability.

What is Enterprise Resource Planning (ERP)?
Potential Value of ERP

Potential Value of ERP, cont.
Challenges of Implementing ERP

The two-edged sword of ERP
Other types of Enterprise Applications

BI--Business Intelligence Systems

CRM--Customer Relationship Management Systems

SCA--Supply Chain Analytics

SCE--Supply Chain Execution

Other types of Enterprise Applications

SCM--Supply Chain Manufacturing

SCP--Supply Chain Planning

APS--Advanced Planning and Scheduling

SEM--Strategic Enterprise Management
## Other types of Enterprise Applications

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>TMS</td>
<td>Transportation Management Systems</td>
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<tr>
<td>WMS</td>
<td>Warehouse Management Systems</td>
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### ERP Evolution

Like most inventions, ERP systems have advanced in complexity, architecture, utility, and penetration over time. From a software-development perspective, ERP systems mirror the state-of-the-art application of technology and software architecture of their time.
ERP History and Development

SAP pioneered the ERP software market. Five former IBM employees in Manhheim, Germany founded SAP in 1972.

**Systemanalyse und Programmentwicklung**
Systems Applications and Products (now), System Analysis Program Development (then)

Goals:

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SAP Software Timeline

1973 "System R" "R/1" (real-time data processing) released to market. Featured monolithic architecture.

1978 "R/2"

[Image: http://www.sapdesignguild.org/resources/r3_history.asp]
1992/93 SAP R/3--3 tiered architecture
- Database, application, user interface (client)
- Open architecture
- Improved user interface

SAP History

"I think the most profound effect R/3 has had is the general availability of real-time information. Within a company, somebody is fulfilling a task. The task ends. And all information that was affected by this task is available immediately in the new form.

That means you can improve workflow significantly. In conventional organizations, it's a sequential process. You have to pass the work forward. Something changed, and somebody else has to react to that. From the beginning, it was our idea that everyone could do everything at once. You would have access to current information wherever you were and could get everything that you wanted to know. We had to struggle for years on end. People debated this and said that is not the right way of looking at things.

Now that has changed because of the Internet."

Hasso Plattner, CEO, co-chairman, and co-founder of SAP AG
Anticipating Change: Secrets Behind the SAP Empire
Client-server system

Database and Application Server

Within SAP GUI nothing important is saved on your PC. Only things saved on the server are saved, and they are saved for good.

SAP ERP Product Evolution

Graphic copyright SAP
SAP Software Timeline

1998 SAP R/3 4.0 (minor increments in number for next 5 years)
2003 SAP R/3 Enterprise 4.7
   In early 2000s mySAP, mySAP ERP, and mySAP.com names begin to appear as marketing names.
2004 SAP ERP ECC 5.0 (Enterprise Core/Central Component)
2005 SAP ERP ECC 6.0
2009 SAP Business Suite 7, SAP ERP EhP strategies

SAP ERP Product Evolution

Graphic copyright SAP
**SAP ERP Modules**

- SAP NetWeaver
- SAP NetWeaver 7.0 / SAP NetWeaver 2004s (2005)
- SAP NetWeaver 7.2 (2009)
- SAP NetWeaver 7.3 (2011)

**SAP NetWeaver**

- SAP NetWeaver 7.0 / SAP NetWeaver 2004s (2005)
- SAP NetWeaver 7.2 (2009)
- SAP NetWeaver 7.3 (2011)
SAP NetWeaver

Set of cooperative technologies that underpin SAP ERP and related technology, and provide internal connectivity between SAP modules and external connectivity with other systems. *Composite Application Framework (CAF)* allows services and systems to be abstracted and joined together into a customized process.

<table>
<thead>
<tr>
<th>Other SAP ERP Applications</th>
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<tbody>
<tr>
<td><strong>Small &amp; Medium Size Solutions:</strong></td>
</tr>
<tr>
<td><strong>Business One</strong> link</td>
</tr>
<tr>
<td>1-50 employees. SE (Small Enterprise) focus. Bought (not made) by SAP. Not sold by SAP directly.</td>
</tr>
<tr>
<td><strong>Business by Design</strong> video</td>
</tr>
<tr>
<td>50-100/500 employees. SME (Small, Medium Enterprise) focus. Based on Service Oriented Architecture (SOA). Cloud-Based</td>
</tr>
<tr>
<td><strong>SAP All-in-One</strong> video</td>
</tr>
<tr>
<td>100/500-1000 employees. ME (Medium Enterprise) focus.</td>
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</tbody>
</table>
Who is SAP today?

SAP AG

World’s Largest Business Software Company
World’s Third-largest Independent Software Provider
Annual revenues exceeding $10 billion.

Company Statistics

53,000+ employees in more than 75 countries
(12,500 in North America)
1,500 Business Partners
75,000 customers in more than 120 countries
12 million users
109,000+ installations

Source: SAP AG website

SAP Industry Solutions—Best Practices

- Aerospace & Defense
- Automotive
- Banking
- Chemicals
- Consumer Products
- Defense & Security
- Engineering, Construction
- Healthcare
- High Tech
- Higher Education
- Industrial Machinery
- Insurance
- Life Sciences
- Logistics Service
- Media
- Mill Products
- Mining
- Oil & Gas
- Pharmaceuticals
- Postal Services
- Professional Services
- Public Sector
- Railways
- Retail
- Telecommunications
- Utilities
- Wholesale Distribution
Other ERP software vendors

Oracle Applications
  Oracle, JD Edwards, PeopleSoft, Siebel, Retek
Microsoft Business Solutions
  Dynamics (GP aka Great Plains), Navision, Axapta, Solomon
Niche and legacy:
The Sage Group
  Sage Software – Accpac ERP, PeachTree
SSA Global Technologies (now Infor)
  BAAN

Summary

Rationale
History
Utility

Are Enterprise Information Systems necessary?
If so, why?
Is it universally necessary?
References and Links

http://www.sapdesignguild.org/resources/r3_history.asp
http://www.sap.com/smallbusiness/solutions/overview/index.epx
http://www.sap.com/solutions/sme/businessbydesign/overview/index.epx
http://www.oracle.com/applications/jdedwards-enterprise-one.html
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http://www.microsoft.com/dynamics/gp/product/default.mspx
http://www.microsoft.com/dynamics/nav/default.mspx
http://www.microsoft.com/dynamics/ax/default.mspx
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