Rationale for ERP System Introduction

Historically, functional areas maintained independent information systems.

- Systems not designed to interface with one another.
- Information exchange often paper based.
- Unified system for data handling *should* provide efficiencies and permit more effective management.
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

Reasons for Implementing ERP System—2000 study

<table>
<thead>
<tr>
<th>Reason</th>
<th>Importance</th>
</tr>
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<tbody>
<tr>
<td>Replace legacy systems</td>
<td>4.06</td>
</tr>
<tr>
<td>Simplify and standardize systems</td>
<td>3.85</td>
</tr>
<tr>
<td>Improve interactions with suppliers and customers</td>
<td>3.55</td>
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<tr>
<td>Gain strategic advantage</td>
<td>3.46</td>
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<tr>
<td>Link to global activities</td>
<td>3.17</td>
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<tr>
<td>Solve the Y2K problem</td>
<td>3.08</td>
</tr>
<tr>
<td>Pressure to keep up with competitors</td>
<td>2.99</td>
</tr>
<tr>
<td>Ease of upgrading systems</td>
<td>2.91</td>
</tr>
<tr>
<td>Restructure organizations</td>
<td>2.58</td>
</tr>
</tbody>
</table>

1 = Not Important   5 = Very Important

Discussion

Premise:
- ERP software allows a company to unite its information handling.
- United information handling mechanisms improve operating efficiency and decision making.

Why aren't all companies using ERP systems?

Work with neighbor(s) and come up with a list of 5 reasons. Make your list as specific as you can.

Why aren't all companies using ERP systems?
Key Risk Areas in ERP Implementation

- Organizational fit
- Skill mix
- Management structure and strategy
- Software systems and design
- User involvement and training
- Project management

Critical success factors

- Top management support
- Implementation team competence
- Interdepartmental cooperation and communication
- Clear goals and objectives
- Effective project management
- Reasonable, clear expectations
Critical success factors

- Project champion
- Vendor support
- Careful data handling focus (specification, conversion, etc.)
- Adequate resources
- User training
- Business process reengineering
- Customization minimization (Configuration, not customization)

ERP System Return on Investment (ROI)

Cost of ERP implementation highly dependent on company size, number of users, modules selected, and other factors.

Almost always more spent on system installation, implementation, data migration, and training than on software acquisition/licensing.


Wide distribution from $500,000 to $300 million.

Will ROI justify investment?
How can an investment in ERP software pay for itself?

Improved decision making yielding competitive advantage in market.
Improved production efficiency--greater yield with fewer resources.
Improved management of labor cost--dominant manageable business cost.
Reduced inventory risk (obsolescence, spoilage, etc.)
Improved reporting and compliance (reduction of manpower required, improved accuracy and currency)

To understand why we are where we are, it is helpful to study the recent past.
Early history of business computing

1960s  Focus on inventory management and control in production environments

LEO I (Lyons Electronic Office) debuted in 1951. First computer specifically focused on business computing.
Early history of business computing

1970s  MRP software debuts to assist in production scheduling and inventory mgmt.

(More) contemporary history of business computing

1980s  MRPII expands focus of previous systems into management of entire production process

1990s  ERP systems apply same data collection and handling mechanisms organization-wide
Evolution of Business Computing

**MRP**--Materials Requirement Planning (1970s)
Focuses on resources needed to accomplish scheduled production and *when* they are needed.

**MRP**II--Manufacturing Requirements Planning (1980s)
Expanded approach to production planning, incorporating non-production data such as from marketing and finance. (*What* should be made?)

**ERP**--Enterprise Resource Planning (1990s)
Expansion of MRP**II concepts to all business functions, not just production related. Integrated planning focus. (*How* can we best operate?)

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Functional model of business

[Diagram showing information flow and material/product flow in a functional business model]
Process model of business

How do they differ?
Enter SAP

SAP pioneered the ERP software market.

Five former IBM employees in Manheim, Germany founded SAP in 1972.

Systemanalyse und Programmwicklung

Systems Applications and Products (now), System Analysis Program Development (then)

Goals:

Create software that would integrate business processes.

Make data available interactively and in real time.

Users work with computer screen, not printed output.

SAP Software Timeline

1973 "System R" (real-time data processing) released to market. (Later came to be called "R/1")

1978 "R/2"

http://www.sapdesignguild.org/resources/r3_history.asp
SAP Software Timeline

1992/93 SAP R/3 -- 3 tiered architecture
- Database, application, user interface (client)
- Open architecture
- Improved user interface

1994 and beyond
- Enhancements and additional modules to R/3
- Various "marketing names": SAP ECC, SAP Business Suite, mySAP, mySAP Business Suite, mySAP.com.
- SAP ERP, SAP Business Suite (preferred current names)

SAP ERP 3-tiered Client-server architecture
Client-server system

Database and Application Server

Nothing important is saved on your PC. Only things saved on the server are saved, and they are saved for good.

http://sap.uwm.edu/UWMDefault.htm

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
51,400 employees in more than 50 countries
1,500 Business Partners
75,000 customers in more than 120 countries
12 million users
100,600 installations

Source: SAP AG website
SAP Software Applications

Small & Medium Size Solutions:

**Business One**
1-50 employees. SE (Small Enterprise) focus.
Bought (not made) by SAP. Not sold by SAP directly.

**Business by Design**
50-100/500 employees. SME (Small, Medium Enterprise) focus.
Based on Service Oriented Architecture (SOA).

**SAP All-in-One**
100/500-1000 employees. ME (Medium Enterprise) focus.


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SAP Business Suite

Old Diagram  New Diagram
SAP Business Suite

Set of cooperative technologies that provide internal connectivity between SAP modules and external connectivity with other systems.

- NetWeaver Exchange Infrastructure (NetWeaver XI)
- NetWeaver Portal
- NetWeaver Web Application Server
- NetWeaver Business Intelligence (NetWeaver BI)

Composite Application Framework (CAF) allows services to be abstracted and joined together into a customized process.
SAP R/3 ERP Modules

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
SAP Duet

Microsoft, SAP partnership to add SAP functionality directly to Microsoft Office products

ERP System Functional Details

ERP Systems are large-scale applications that run on top of database systems for storage and data management.

SAP typically used with Oracle, DB2, or MS SQL.
Basic SAP installation--over 28,000 tables.

ERP Systems are not "install and go." Configuration required.

Configuration: making the standard software fit your business processes.
SAP: over 8,000 configuration decisions.
ERP Configuration Management--full time job
ERP System Functional Details

Systems are large-scale distributed applications that need system level administration and control.

Performance tuning, network and equipment management, redundancy and backup, development and test systems, transport.

SAP "Basis Administration", "NetWeaver Administration" non-trivial for large company with significant infrastructure.

SAP Configuration, Development

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