Enterprise Resource Planning
Concepts & Approaches

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Agenda

- **Introduction**
  - Definition
  - Business Integration Challenges
- **ERP Modules**
  - Sales and Marketing
  - Production and Materials Management
  - Human Resources
  - Accounting and Finance
- **Business Process (Re-) Engineering vs. Customizing**
- **Conclusion**
  - Benefits
  - Risks

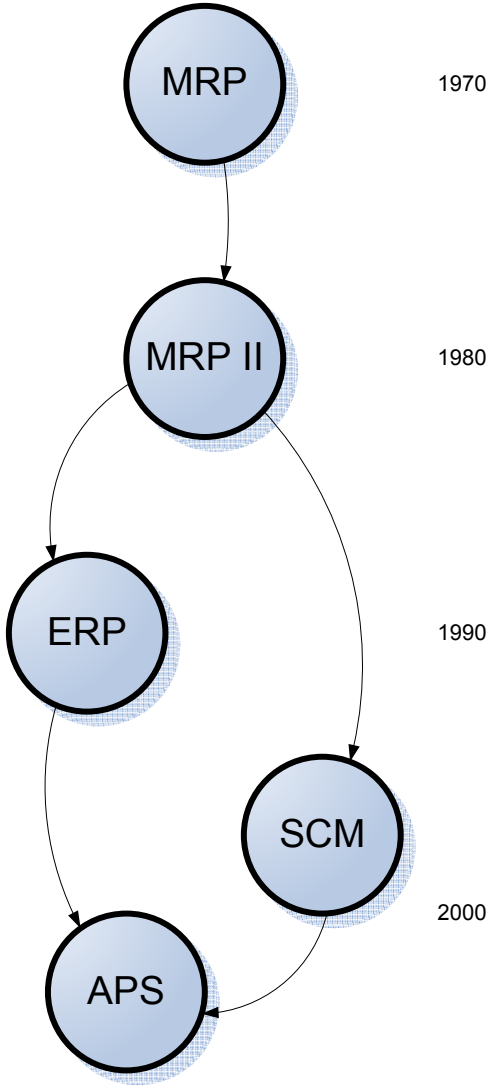
Definition

- An ERP system is a packaged business software system that allows a company to “automate and integrate the majority of its business processes; share common data and practices across the enterprise; and produce an access information in a real-time environment” – Deloitte Consulting

- An ERP system provides an enterprise database where all business transactions are entered, processed, monitored, and reported

History

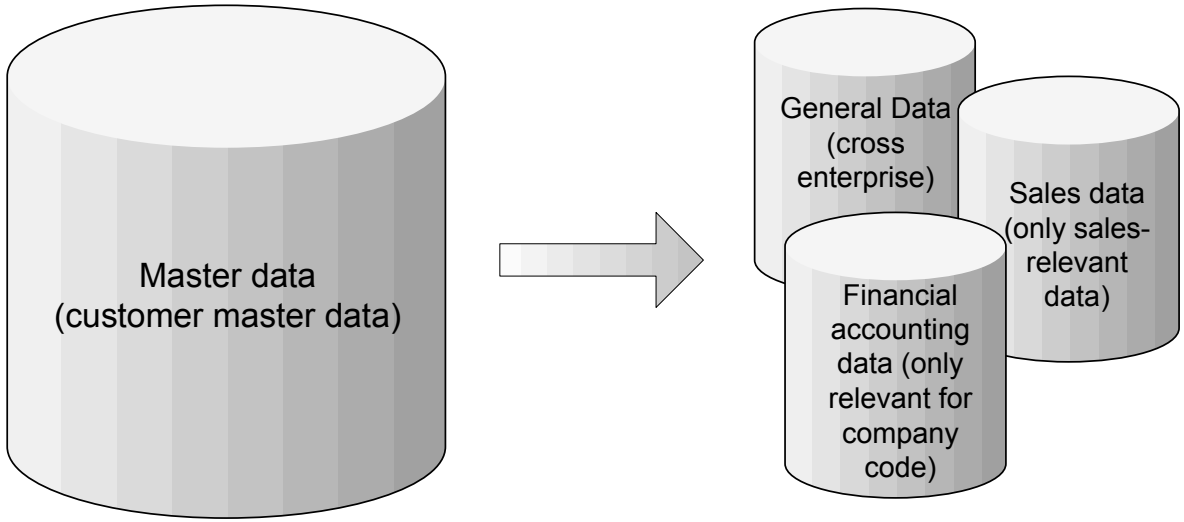
- **70's**
  - Materials Requirements Planning (MRP)
- **80's**
  - Manufacturing Resource Planning (MRP II)
- **90's**
  - Enterprise Resource Planning (ERP)
- **2000**
  - Supply Chain Management (SCM)
  - Advanced Production Planning & Scheduling (APS)



Business Integration Challenges

- **Redundancy**
- **Inconsistency**
- **Missing integrity**

- **Integration objects:**
  - Data
  - Function
  - Process
  - Methods
  - Programs



ERP vs. Enterprise Application Integration

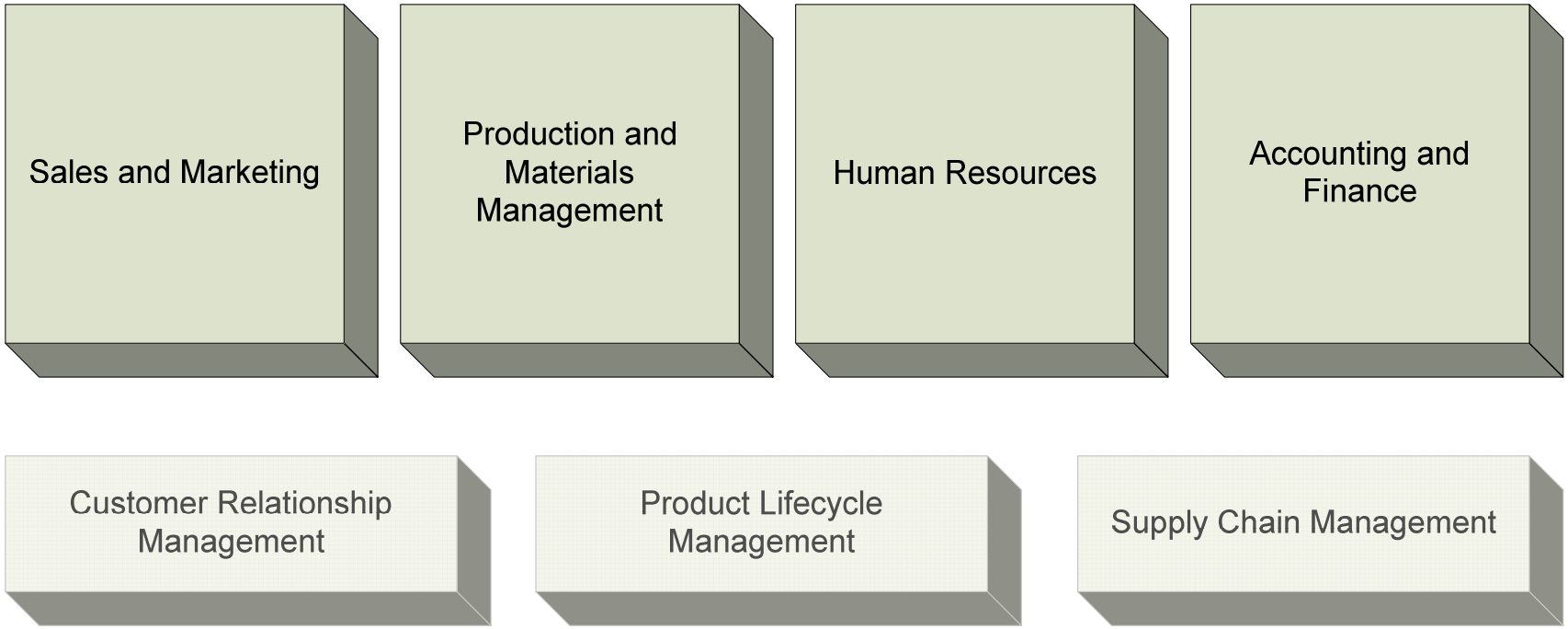
		ERP	EAI
Technical	Degree of BPR	High/Medium	Medium/Low
	Integration Method	Process Integration	Process Mapping
	Implementation Method	Long	Medium
Behavioral	Degree of Resistance	High	Low
	Business Process	Centralized	Decentralized
	Internalization Period	Long	Short

Jinyoul Lee, Keng Siau, Soongoo Hong, Enterprise Integration with ERP and EAI, Communication of the ACM, February 2003 / Vol. 4 No. 2

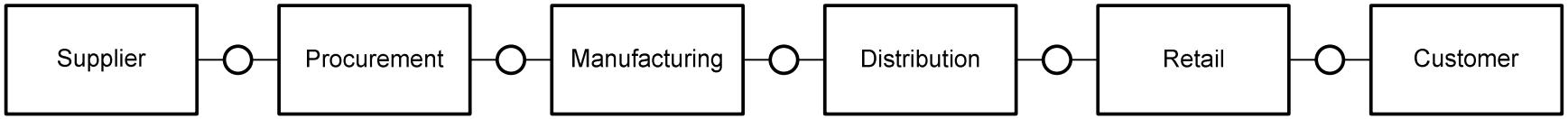
Modules

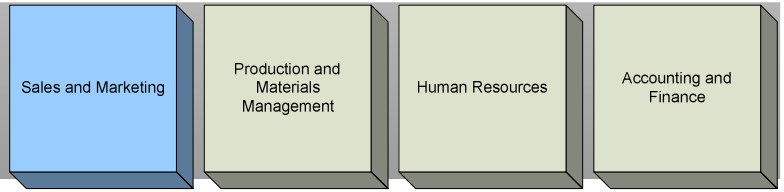
Functionality

- Sales Order Processing
- Purchasing
- Production Planning
- Human Resources
- Financial Accounting
- Management Accounting



Example: Supply Chain



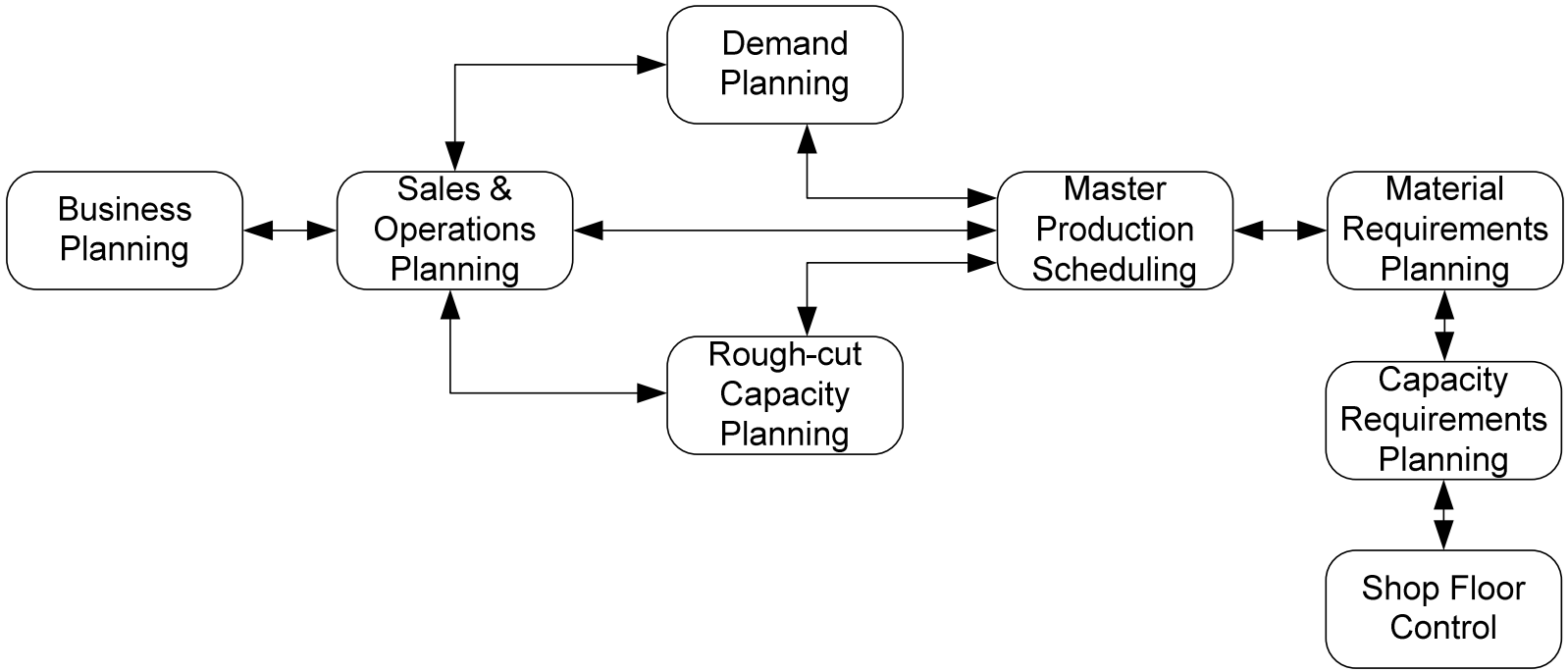


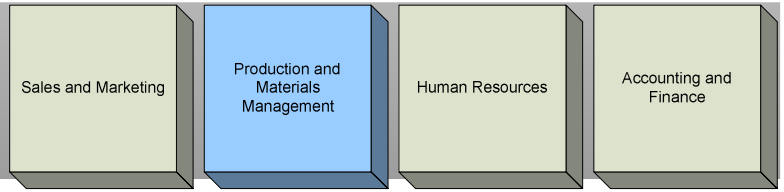
ERP: Sales and Marketing

- **Operational processes**
  - Daily activities (prospecting, contact management, telemarketing, direct mail)
  - Contact management (tracks customer preferences, sales history, history of sales calls, closely connected with CRM)

- **Management control processes**
  - Sales management
    - E.g. How should territories be shaped?
    - E.g. How can we allocate salesperson time to call on the highest potential accounts?
  - Sales forecasting
  - Advertising and promotion
  - Product pricing

ERP: Production and Materials Management

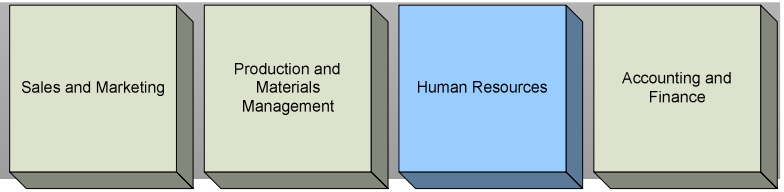




ERP: Production and Materials Management

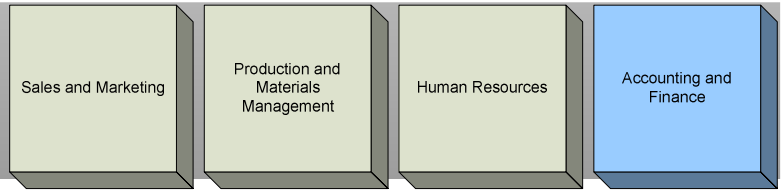
- **Operational processes**
  - Purchasing
  - Receiving
  - Quality Control (QC)
  - Inventory management/control

- **Management control processes**
  - Material requirements planning
  - Just-in-time (JIT) manufacturing
  - Capacity planning
  - Production scheduling
  - Product design



ERP: Human Resources

- **Operational processes**
  - Creating and maintaining employee information
  - Position information
  - Job application screening
  - Placement process
  - Government reporting
  - Payroll administration
  - Performance management
- **Management control processes**
  - Design job specifications
  - Recruit and retain highly qualified individuals
  - Design compensation packages
  - Employee training
  - Improve productivity
  - Maintain loyalty and moral



ERP: Accounting and Finance

- **Operational processes**
  - General ledger
  - Fixed asset
  - Sales order
  - Account receivable
  - Accounts payable
  - Inventory control
  - Purchase order
  - Payroll
- **Management control processes**
  - Cash Management
  - Capital budgeting

Business Process (Re-) Engineering
vs.
Customizing

Business Process (Re-) Engineering

- **Definition:**
  - “the fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in critical, contemporary measures of performance, such as cost, quality, service and speed” (Hammer and Champy, 2003)

- **Motivations for re-engineering**
  - Customer sophistication
  - Deregulation
  - Increasing competition on global level

ERP Customizing

- Adjustment of an information system to customers needs

- Standard software solutions does not fit at all
- Enterprises are too different
- Individual adjustments are necessary

- Support of unique business processes are possible
- May results in a competitive advantage

- Very expensive

Re-engineering vs. Customizing

- **Select commercial ERP and re-engineer business processes to fit the software**
  - Take advantages of generic business processes (best-practices)
  - May disrupt the organization
  - Does not support unique business processes
- **Select commercial ERP and customize ERP software to fit the business processes**
  - Unique business processes are possible
  - Expensive & difficult customization
  - Upgrade to newer versions difficult

Conclusion

Benefits of ERP

- Inventory cost reductions
- IT cost reductions
- Personnel cost reductions
- Increased profitability
- Productivity improvement
- Better cash management

- Return of Investment (ROI)

Risks

- **Technology risks**
  - How consistent is the current corporate infrastructure with the new technology?
  - Inconsistencies such as different databases, operating systems and network management structures increase the risk
- **Organizational risks**
  - Business process redesign to fit the package decrease the risk of excessive time and cost investments
  - Customization increase project cost and risk
- **People factors**
  - If the current skill mix of the IT staff does not include knowledge of application specific ERP packages the organization will incur costs in re-skilling the workforce
- **Project size**
  - ERP can be the largest single investment
  - The sheer size of these projects (measured in time, staff commitment, budget, scope) poses considerable risk

Outlook

- **Mobile ERP**
  - Online access on ERP system
- **Service-orientated architecture**
  - Bases for integration
  - Support supply chain management strategies
- **Automatic identification and processing**
  - Closely connected with RFID technology
  - Automatic logistics

Summary

- **A lot of benefits**
  - An ERP system enable enterprises to optimize their supply chain
  - Save costs by reduce the inventory
  - Calculate the possibilities for a product launch
  - Time and cost reduction of business processes
  - Integrated data across multiple functions
- **System implementation is connected with high risks and costs**
- **Today:**
  - ERP system is needed to be competitive
  - Basis for supply chain management

ERP provider

- **SAP**
- **Oracle**
- **Microsoft Dynamics**
- **The Sage Group**

- **Open Source**
  - Compiere
  - GNU Enterprise

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Thanks for your attention.