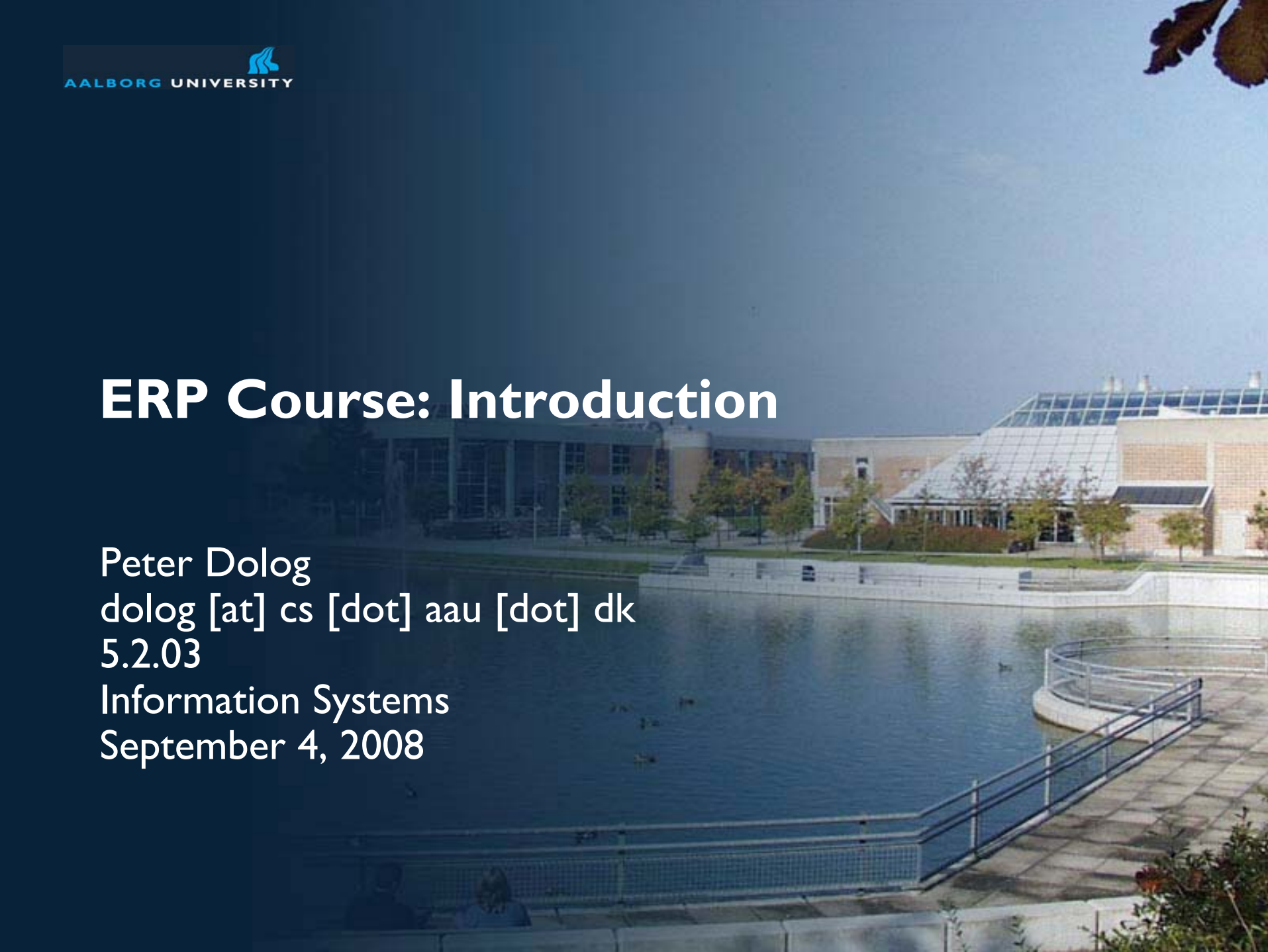# ERP Course: Introduction

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5.2.03
Information Systems
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ERP Course Organization

2 hours lecture (Tuesday, Thursday – 10:15 – 12:00 or 14:30 – 16:15)

2 hours lab (Tuesday, Thursday – 8:15 – 10:00 or 12:30 – 14:15)

0.2.11

Lectures in 3 themes:

- ERP domains
- ERP architectures and deployment
- Advanced Topics: SOA, WMF, WS-C

6 Labs

Time to consult: Labs, Lectures

Lectures

1	Introduction and Course Organization + ERP Package Technology
2	Production and Material Module
3	Sales and Marketing Module + ERP Package Technology
4	Accounting and Finances Module
5	Supply Chain Management Module
6	Human Resources Module
7	Analysis Patterns I
8	Analysis Patterns II
9	ERP Systems Development
10	Re-Engineering
11	Management of ERP Projects
12	Workflow Management Systems
13	Enterprise Application Integration
14	Service Coordination Protocols
15	KMD Presentation

Labs

1	4 – 7 Oct. 2008	Installing and customizing an ERP package OpenERP
2	9 – 23 Oct. 2008	Production and Material Management
3	28 – 30 Oct. 2008	Sales and Marketing Module
4	4 – 6 Nov 2008	Acounting and Finance Module
5	11 – 13 Nov 2008	Human Resources
6	18 – 20 Nov 2008	Supply Chain Management and Integration

Overview of the ERP Course

http://www.youtube.com/watch?v=KTvJttQ0M0s
http://www.youtube.com/watch?v=YSsV2UfrpJ0&feature=related
http://www.abassoftware.com/en/video/awb/pflitsch150.htm
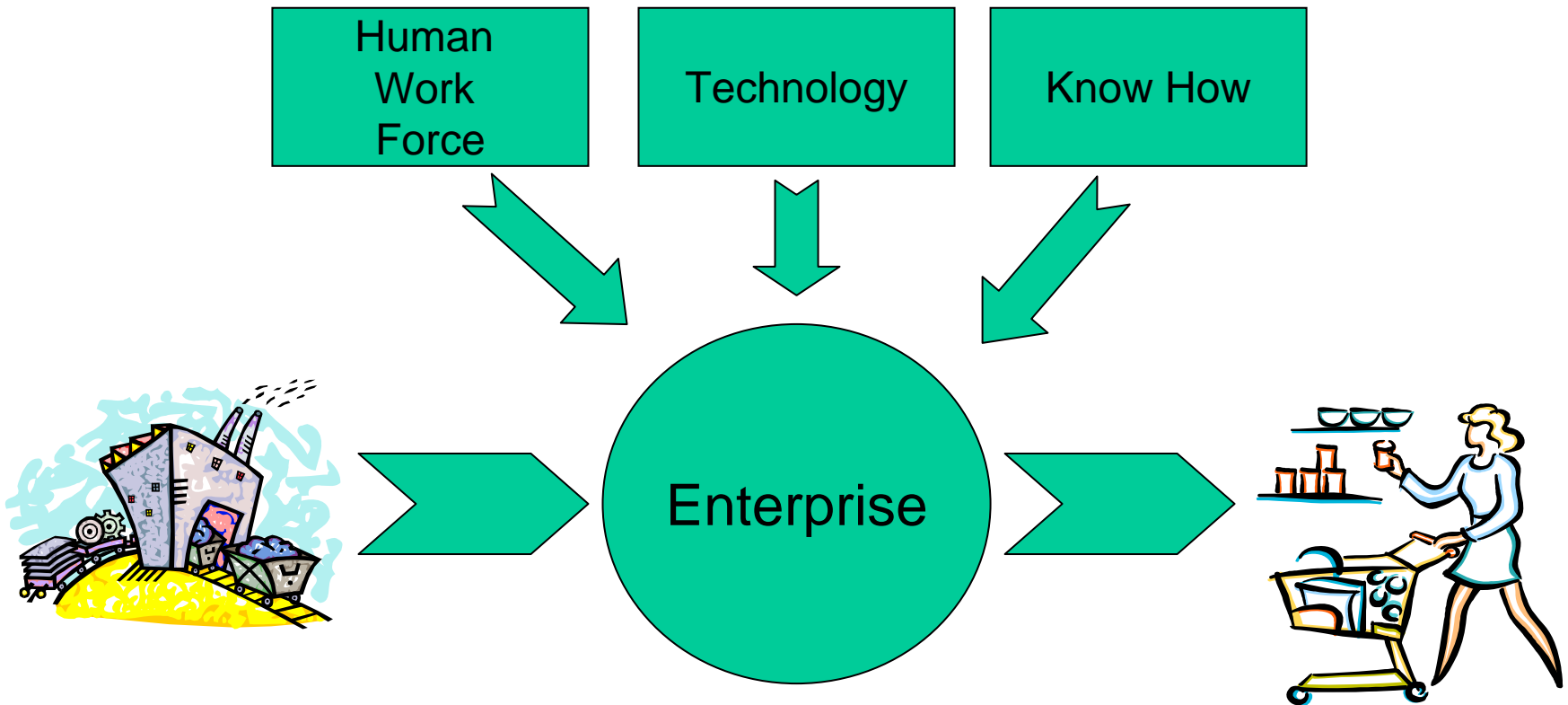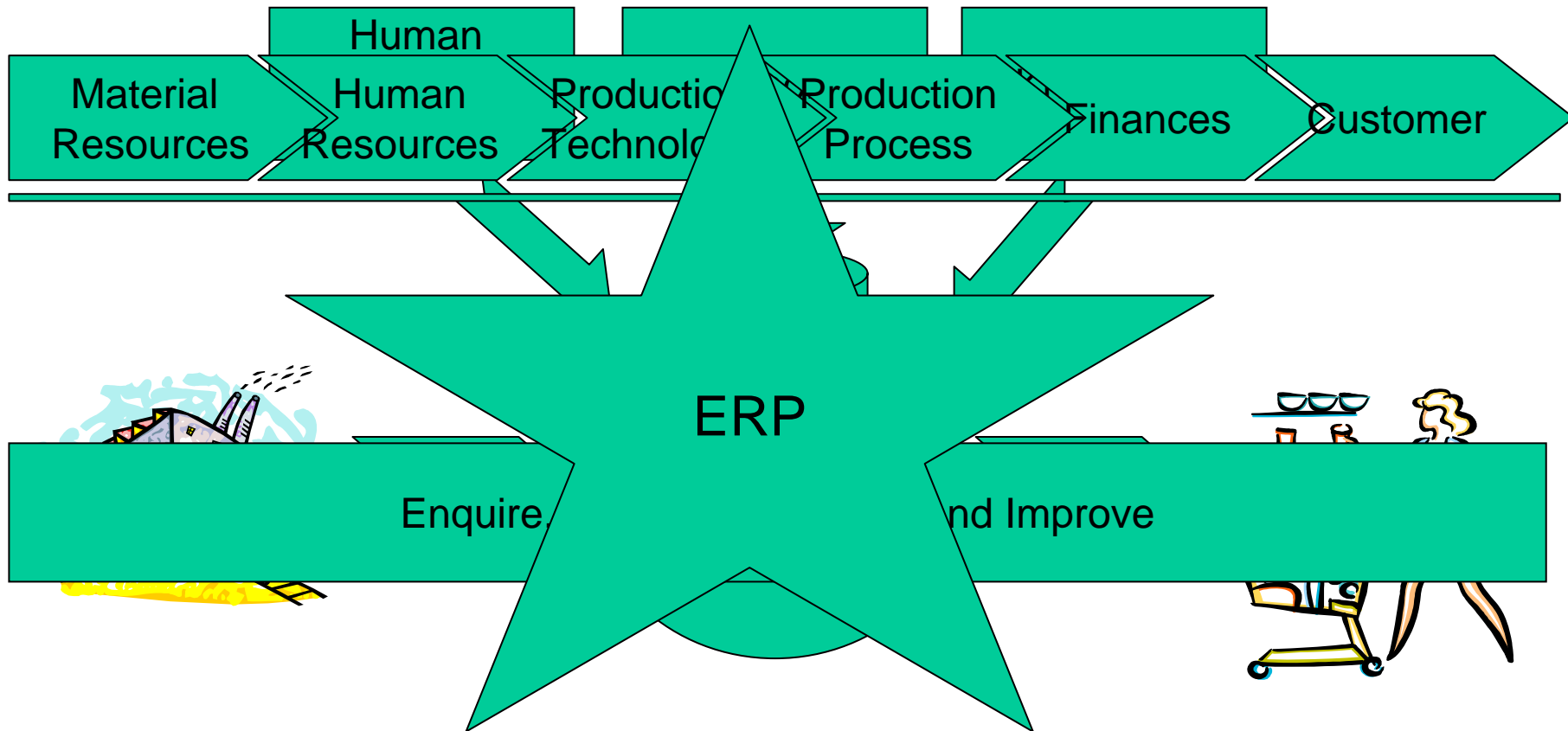
A Company

What is ERP Sytem

A system of software tools to manage enterprise data
A packaged business software system to

- automate and integrate majority of business processes
- share common data and practices
- produce and access information real time

A Company

Material Resources | Human Resources | Human | Production Technology | Production Process | Finances | Customer

ERP

Enquire ... nd Improve

Integrated processes

Supply Chain
Receiving
Inventory Management
Customer Order Management
Production Planning
Shipping
Accounting
Human Resource Management
…

Production and Material

Resources

Machines

Production Run

Machine Planning

Warehousing

Product Configurations

Analysing Performance of Production and Material

…

Sales and Marketing

Sales,
Contacts,
Accounts,
Business opportunities
Meetings with contacts
Campaigns
Analysing Sales and Marketing Performance

Accounting and Finances

Main Book
Accounts
Transactions
Invoices
Payments
Analysing Financial Performance

Human Resources

Requirements for Human Resources

Compensations and Payrolls

Hiring

Further Education

…

Supply Chain

Managing Data Across Organizational Boundaries
Managing Suppliers
Analysing Performance of Suppliers

Analysis Patterns

Group of concepts representing common construction in business modeling [Martin Fowler: Analysis Patterns]

May be domain related or spanning across several domains

Conceptual models linked to interfaces rather than implementations

Represent a good starting point for any project

Used for communication in project team

Analysis Patterns and ERP

Patterns in account modeling – accounting and financies

Patterns in organizational hierarchies – human resources,

Observation and measurements in corporate finance

Inventories and acounting – accounting and finance

Planning – in production planning

Trading, contracts – customers and supliers

…

ERP Systems Development

Combination of packaged deployment and customization

Business process change vs. product customization

Integration with other software which exists and is used on place

Focus on proper analysis of organizational structures and work processes

Deploying the whole package or just one module to be integrated with the existing systems

OpenERP

Re-Engineering

Re-engineering from business point of view and from technical point of view

Understanding and optimizing the primary activities behind the modules (value chain) and how they interact with secondary (supporting) activities

Primary activities

Flow of orders and invoices
Process for approving an investment or a purchase
Approval of a new production plan
Credit authorization procedures
and so on

Secondary activities

How electronic mail communication is organized
Human resources organization/skills
Use of technology in the work processes
On-line links to suppliers databases

Workflow Management Systems

Systems that manage and execute work activities

Workflow automation

Business or workflow model as activity graph or event flows graphs

Usually used for workflow automation of administration processes

Binding the functionality of workflow management to functions in ERP system (sending a notification, mail, document to another unit, task for another person,…)

Principles and practices in using workflow management

Management of ERP Projects

Risk resulting from complexity
Technology
Lack of User Involvement
Lack of Management Involvement
Methodological issues
Communication
Management of the risks within the projects

Enterprise Application Integration

Client/Server
Three Tier Architecture
N-Tier Architecture
RPC
Messaging

Service Coordination Protocols

Automatic Conversations
Interaction
Coordination
Protocols
Coordination Architecture

Motivations for ERP

Mary Sumner: Enterprise Ressource Planning
Chapter 1

AALBORG UNIVERSITY

History

Types of Systems	Time	Purpose	Systems
Reorder point systems	1960	to forecast future inventory demand	to manage high-volume production of few products
Material Requirement Planning Systems (MRP)	1970	demand-based planning manufacture of products	focus on marketing, grater production integration and planning
MRP-II	1980	MRP + capacity planning	quality and process control
MRP-II + manufacturing execution planning (MES)	1990	adaptations of production schedules to meet customer needs	focus on the ability to create and adapt new products to customer needs
ERP	late 1990	integrated business process support throughout the enterprise	integrates supplier, manufacturing, and customer data throughout the supply chain

ERP as Integrated System

The goal is to provide quick and effective access to information
From standalone systems to integrated system to support
business processes
Common information model
Standardized interfaces

Systems Attributes

Information Systems – integrated
Coordination – accross business functions
Databases – same meaning across multiple functions
Maintanance – uniform, changes affect multiple systems
Interfaces – standardized
Information – consistent real time information
System Architecture – client/server
Processes – consistent business processes based upon an
    information model
Applications – single applications to support certain business
    function

Business Attributes

Cycle time (time and cost reduction of business processes)
Transactions processing (reduced costs of multiple updates)
Financial Management
Business Processes (conforms best practices)
Productivity (improvement in financial management and
    customer service)
Supply Chain Management (linkages with suppliers and
    customers)
eBusiness (web interface to integrated system)
Information (cross functional data accessed uniformly for
    planning and control)
Communication (facilitates organizational communications with
    customer and supplier)

Some Examples of Benefits

Responses to customer billing inquiries in real time at IBM
Storage Product Company (before 15-20min)
Simplification of processes at Boeing, real time access to data
across the organization at Diebold
90% reduction on cycle time for quitations at Fujitsu
and so on

Business Benefits from ERP

ERP Performance Outcomes	Sweeden Average	U.S. Average
Quickend information response time	3.81	3.51
Increased interaction acrosss the enterprise	3.55	3.49
Improved order management/order cycle	3.37	3.25
Decreased financial close cycle	3.36	3.17
Improved interaction with customers	2.87	2.92
Improved on-time delivery	2.82	2.83
Improved interaction with suppliers	2.78	2.81
Reduced direct operation costs	2.74	2.32
Lowered inventory levels	2.6	2.7

Scale from 1 - 5

Motivations to Implement ERP

Replace legacy systems
Simplify and standardize systems
Gain strategic advantage
Improve interactions with supliers, customers
Ease of upgrading systems
Link to global activities
Restructure company organization

Tangible benefits of ERP implementation

Inventory reduction 32%
Personnel reduction 27%
Productivity improvement 26%
Order management improvement 20%
Financial close cycle reduction 19%
IT cost reduction 14%
Cash management improvement 11%
Revenue/profit increase 11%
Transportation/logistics cost reduction 9%
Maintanance reduction 7%
On-line delivery improvement 6%

Intangible benefits of ERP implementation

Information/visibility 55%
New/improved processes 24%
Customer responsiveness 22%
Integration 13%
Standardization 12%
Flexibility 9%
Globalization 9%
Y2K 8%
Business performance 7%
Supply/demand chain 5%

Cost-Benefit Analysis

ERP implementation is an investment decision

It must create measurable benefits

To compare costs of software, services and internal costs to tangible and intangible benefits

Recurring and non-recurring costs

ERP costs components

Software 24.2% – 30.2%
Hardware 17-8% – 18.5%
Consulting 24.1% – 30.1%
Training 10.9% – 13.8%
Implementation team 12.0% – 13.6%

Lab 1

OpenERP

- Understand the installation process of OpenERP and its technological platform
- Install the OpenERP
- Understand OpenERP architecture
- Understand customization strategy
- Design your own page/forms with own menu and different frames
- Implement your own design in OpenERP