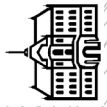


IT strategies

Contents

- Role of IT in organization (lecture 1)
- Business value of IT
- IT and organizational change
- How IT in an organization can be developed
- How to plan the change strategically



Business value of IS

COSTS & BENEFITS: COSTS

- HARDWARE
- SOFTWARE
- SERVICES
- PERSONNEL

COSTS & BENEFITS: ***Tangible benefits***

- INCREASED PRODUCTIVITY
- LOW OPERATING COSTS
- REDUCED WORK FORCE
- LOWER COMPUTER EXPENSES
- LOWER VENDOR COSTS
- LOWER CLERICAL/PROFESSIONAL COSTS
- REDUCED GROWTH OF EXPENSES
- REDUCED FACILITY COSTS

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COSTS & BENEFITS: ***Intangible benefit***

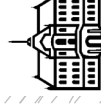
- IMPROVED ASSET USE; RESOURCE CONTROL;
PLANNING
- INCREASED FLEXIBILITY
- MORE TIMELY INFORMATION
- INCREASED LEARNING
- ATTAIN LEGAL REQUIREMENTS
- ENHANCED EMPLOYEE GOODWILL, JOB
SATISFACTION, DECISION MAKING,
OPERATIONS
- HIGHER CLIENT SATISFACTION
- BETTER CORPORATE IMAGE

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Summary

- There is more to the value of an information system than just the tangible, evident benefits
- These should be presented to the senior management as well

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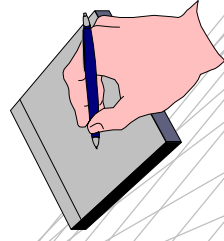


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Organisational change

LEARNING OBJECTIVES

- DEMONSTRATE HOW BUILDING NEW SYSTEMS CAN PRODUCE ORGANIZATIONAL CHANGE
- COMPARE ROLE OF COMPUTER IN TOTAL QUALITY MANAGEMENT, BUSINESS PROCESS REENGINEERING

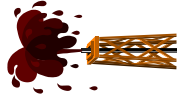


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CRITICAL SUCCESS FACTORS (CSFs)

- SMALL NUMBER, EASILY IDENTIFIABLE OPERATIONAL GOALS
- SHAPED BY INDUSTRY, MANAGER, ENVIRONMENT
- BELIEVED TO ASSURE FIRM'S SUCCESS.
- USED TO DETERMINE ORGANIZATION'S INFORMATION REQUIREMENTS



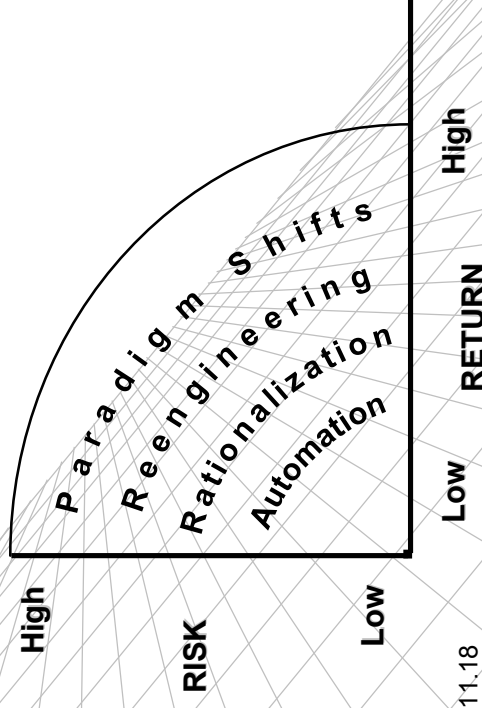
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SPECTRUM OF ORGANIZATIONAL CHANGE

- AUTOMATION: Using technology to perform tasks efficiently / effectively
- RATIONALIZATION OF PROCEDURES: Streamline SOPs; eliminate bottlenecks
- BUSINESS REENGINEERING: Radical redesign of processes to improve cost, quality, service; maximize benefits of technology
- PARADIGM SHIFT: A new perspective on things

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RISKS & REWARDS



11.18

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BUSINESS REENGINEERING STEPS:

- Develop business vision, process objectives
- Identify process to be redesigned
- Understand, measure performance of existing processes
- Identify opportunities for applying information technology
- Build **PROTOTYPE** of new process

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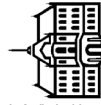
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PARADIGM SHIFT

- PARADIGM IS A COMPLETE MENTAL MODEL OF HOW A COMPLEX SYSTEM FUNCTIONS
- A PARADIGM SHIFT INVOLVES RETHINKING THE NATURE OF THE BUSINESS, THE ORGANIZATION; A COMPLETE RECONCEPTION OF HOW THE SYSTEM SHOULD FUNCTION

11.17

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Contents

- Definitions and goals
- Technologies, architectures, tools
- Strengths, weaknesses, opportunities, threats
- Example
- Lab

IT strategies

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IT-strategies by scope ...

- Single application development
- Company-specific
- Project team-specific
- Professional association level
- National strategy

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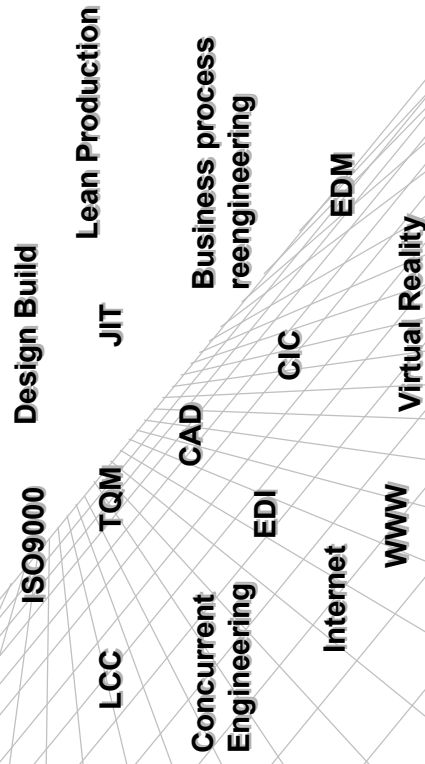
Company-specific IT-strategies

- Should be an integrated part of the general business strategy of the firm in question
- Involvement of top management is essential
- Several examples during this course



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The dilemma of senior management !?



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The elements of an IT strategy ...

- A vision of the future; construction and its subsectors
- A vision of the future; IT-tools
- The company's main business idea
- Setting specific aims
- A time-table to achieve these aims (incremental implementation)

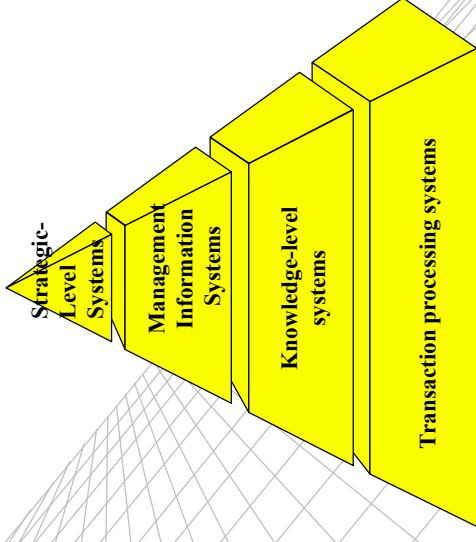
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The elements of an IT strategy ...

- Analysis of current business processes
- Re-engineering of business processes
- Development or purchase of the necessary technical solutions
- "Selling" the strategy to the employees, training
- Implementation

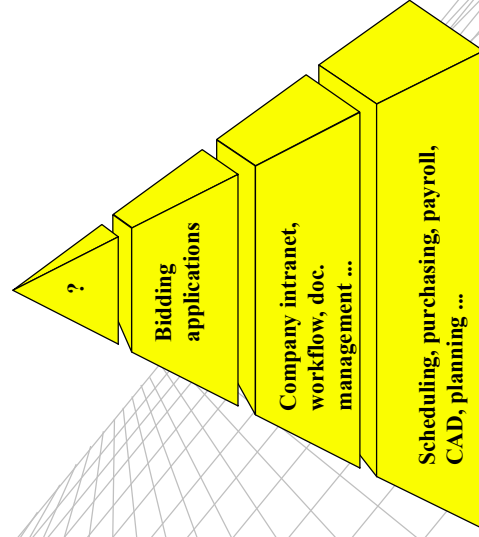
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Major types of information systems in enterprises



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Major types of information systems of building contractors



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Typical knowledge level IT-technologies of strategic importance today

- Data Base Technology
- Document management systems
- Internet and the World wide Web
- Mobile phones and computers

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Typical transaction level IT-technologies of strategic importance

- CAD systems
- Virtual Reality
- Product modelling
- Scheduling applications

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How to start moving the company to the new direction?

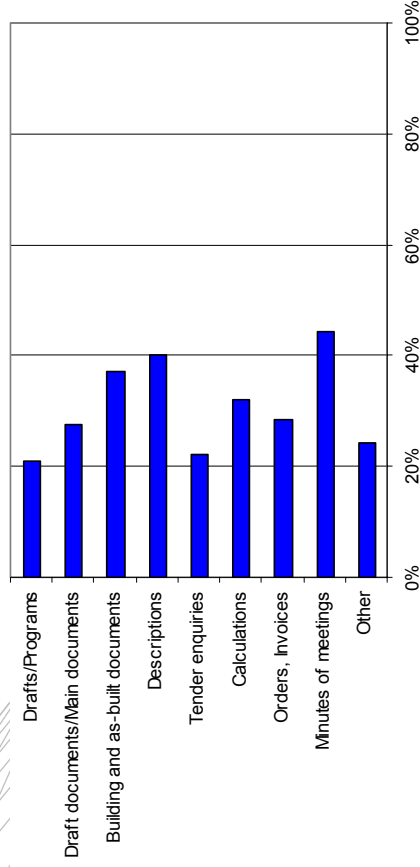
- To go somewhere, it generally helps to know where we currently are.
- Measuring the IT maturity of a company.

Examples:

- The IT barometer study (Sweden)
- Benchmarking (UK)
- The TIMI method (Finland)

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Sample IT-Barometer result: percentage of documents that are exchanged digitally



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Benchmarking methods

- Benchmarking is a general method for measuring the competitive situation of a specific firm, comparing its processes to the processes of other firms
- Benchmarking of IT in construction has been pioneered by the UK Construct IT centre

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Measuring the IT maturity of a company (TIM)

- Method developed by Tocoman Oy in Finland
- Includes a method for measuring the IT maturity of a construction company
- Also methods for measuring the overall potential for savings in the total construction process through IT

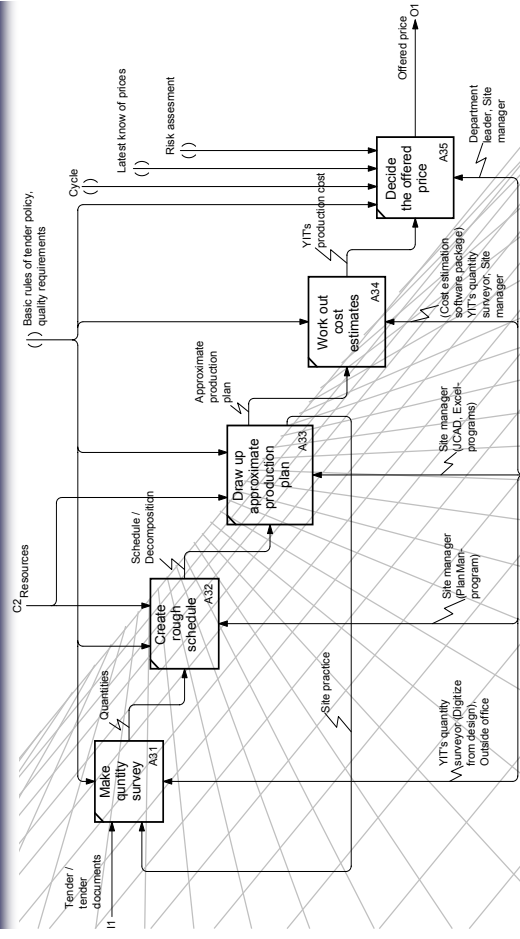
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The maturity of key factors

Levels	Enablers			Technologies		
	Manag. Commit.	Process	Personnel skills	Structured information	IT-Infra	Software
1. Level Museum	●					
2. Level Reactive		●	●			
3. Level Planned				●		
4. Level Re-engineered					●	
5. Level Integrated						●

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An example of the analysis of the current process



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Some examples

- Small
- Medium
- Big company

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Medium sized construction company (JM-Bygg)

- Aims: Reduction of construction cost and time
- Tools: Company specific internal document control systems. Stable partnership agreements with firms that can be integrated into this way of doing business.

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Medium sized HVAC design office (Incoord)

- Aims: Integration of the expertise and technical knowledge (past design solutions, feedback information etc) within the company
- Tools: A knowledge management system including scanning and free text search capabilities

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Big Finnish construction company (YIT)

- Aims: Expanding their services from construction based on bid-construction to design build and even further to the briefing stage
- Tools: Product model based information management throughout the process

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Giant Japanese construction company (Shimizu)

- Aims: Systems which reduce the need for manual labour and which minimise quality problems
- Tools: Extensive prefabrication, Computer supported logistics and robotics assembly on site

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Summary

- Information systems are of strategic importance of any company
- They are constantly developed, redesigned, modernised...
- This should be a controlled process
- ... managed by top management, deployed by those that know the technologies.
- IT specialists' opportunity to advance in a company

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Machiavelli on introduction of new systems

- "It must be remembered that there is nothing more difficult to plan, more doubtful of success, nor more dangerous to manage than the **creation of a new system**. For the initiator has the **enmity** of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who would gain by the new one"

Machiavelli, N. 1513: The Prince

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Credits

- Based on slides from Bjoerk and Laudon.

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THE END