

Session 4

World Med MBA

The Changing Environment



Triggers for Change (External)

- Markets, clients, customers
- Suppliers
- Government, regulatory bodies
- Trade unions
- Competitors
- Financial institutions
- Labour supply
- Levels of unemployment
- Economic climate
- Information systems
- e-commerce, internet
- Globalisation of trade
- Political ideology
- Family structure
- Distribution of wealth

Triggers for Change (Internal)

- Formation or disbandment of a union
- Appointment of a new CEO
- Change to admin structures
- Job redesign
- Factory or office redesign
- New IT equipment or new techniques
- New marketing strategy
- Outsourcing or layoffs
- Shift in resources

"Events dear boy, events"



The Right Honourable
Harold Macmillan,
The Earl of Stockton
(1894 – 1986)

The Knowledge Based Economy

- What has been termed the post-industrial society, the technological society or the information society has been predicted for at least 30 – 40 years, but now there is a general acceptance that the 'new economy' has finally arrived.
 - What are the key features of this new economy?

Change and Complexity

- There has been an unprecedented growth in technological complexity:
 - Number of users
 - Diversity of applications
 - Interdependence of systems
- There is a continuing and accelerating rate of technological change.
- There has been a dramatic increase in the amount of data and knowledge available.

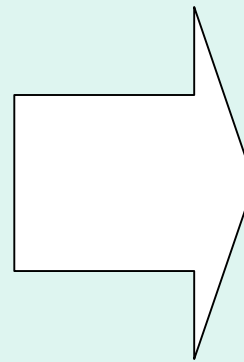
Change and Complexity

- There has been a rapid and increasing rate of social and cultural change:
 - Accessibility of information
 - Diversity of views
 - Individuality
- There is a continuing and accelerating increase in connectivity.
- There has been a dramatic shift in the pattern and nature of work.

Rate of change



One week
in 2007

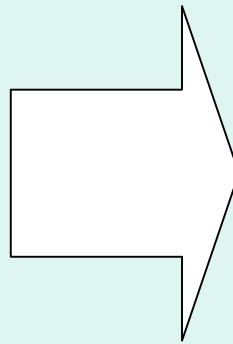


A person's lifetime
in 18th century

Rate of change



Start of technical-
based education



50%
knowledge
outdated

50%
knowledge
relevant

End of technical-
based education

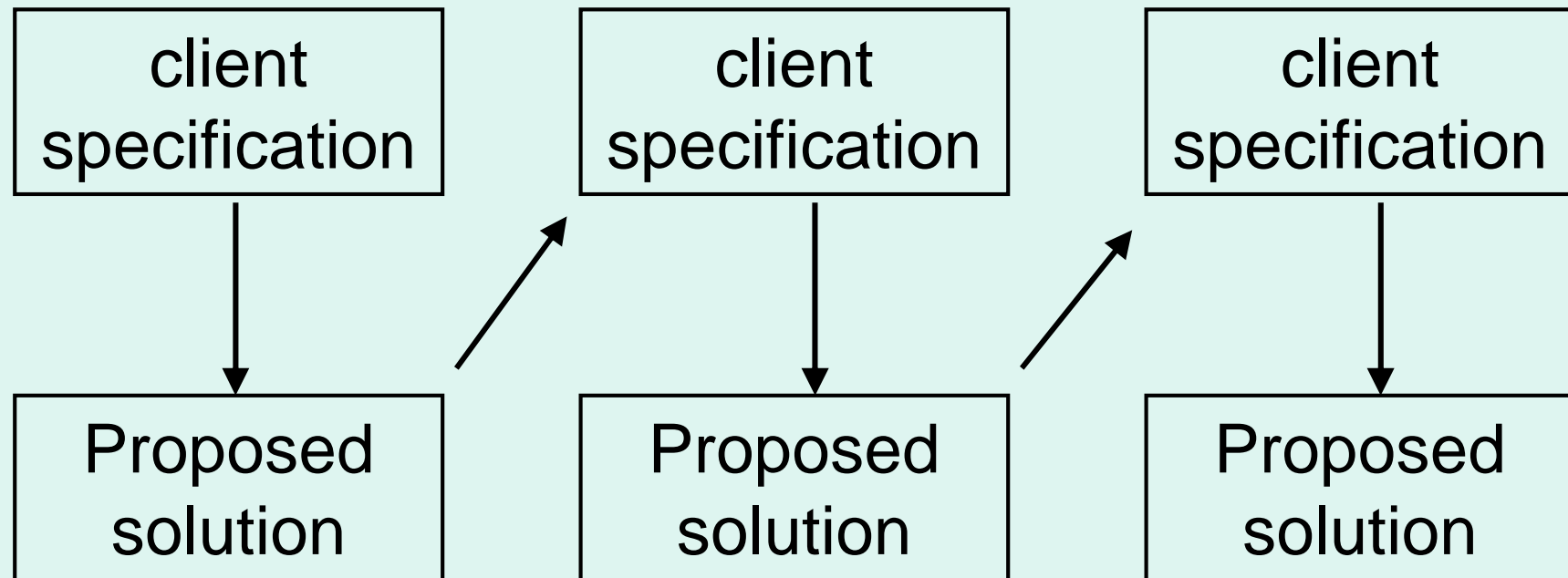
Rate of change

- How has your life changed from that of your parents?
 - How often do you / your parents travel abroad?
 - How many people from another country do you / your parents know?
 - How long do you expect to work in one job / how long did your parents work in one job?
 - How much contact do you have with your parents and how much contact do your parents have with their parents?

Complexity in products

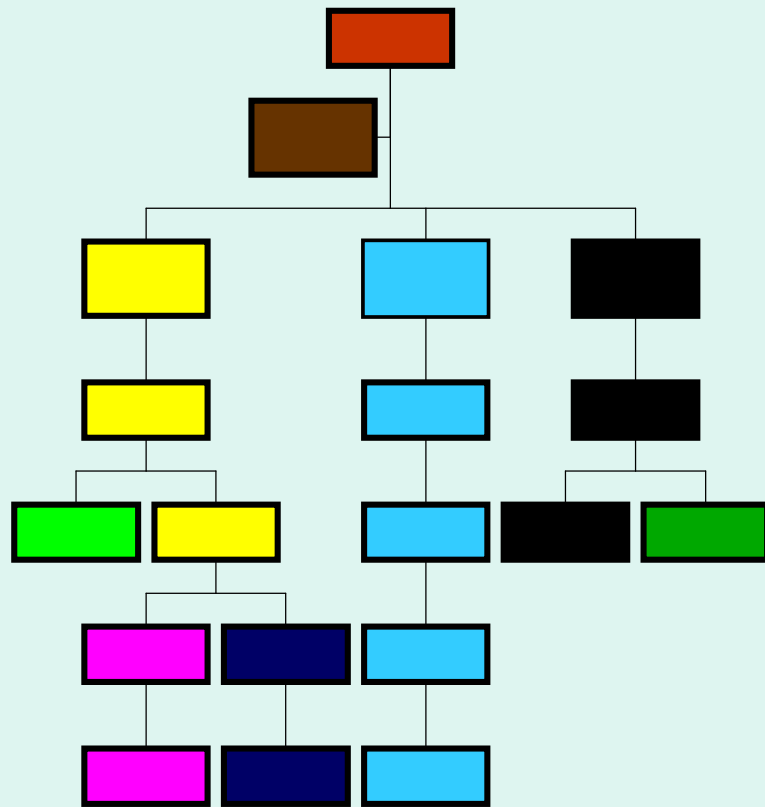
- Lifecycle complexity
 - cost benefit as a function of time
- Manufacturing complexity
 - Geometric shape
- Process complexity
 - Alignment and handling of parts
- Structural complexity
 - Number of subassemblies
- Sequence complexity
 - Number and order of operations

Complexity from evolution



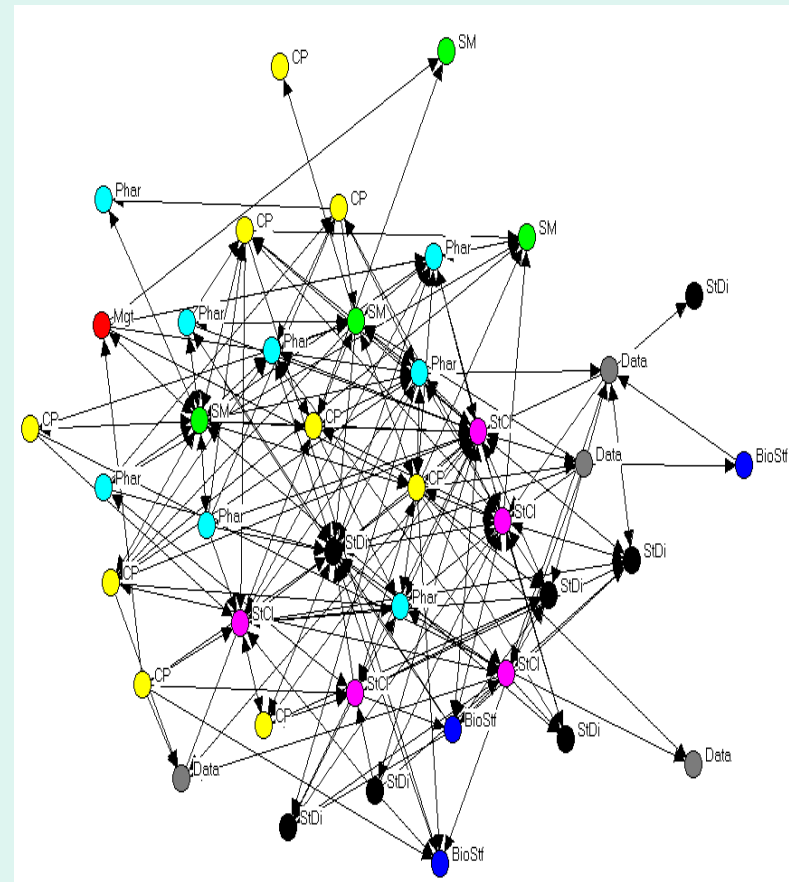
Complexity in organizations

- Formal



Chris Kimble

- Informal

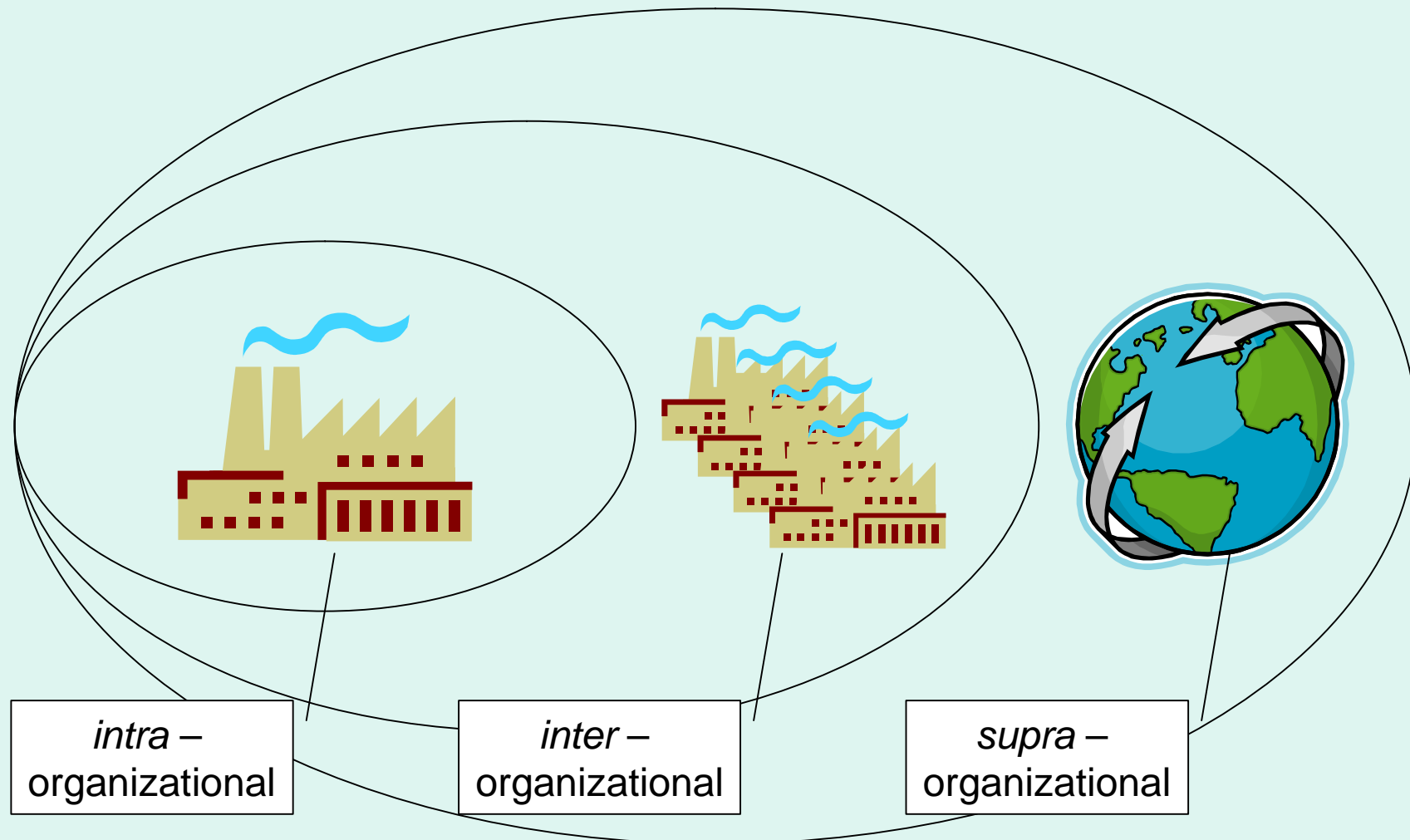


World Med MBA 2009 / 2010
IS and Business Strategy

Session 4, slide 14

Teigland et al. 2005

Organizational Boundaries



Organizational Boundaries

- Intra-organizational Strategies
 - The focus is on what happens inside an organization, e.g. the value chain
- Inter-organizational Strategies
 - The focus is on what happens inside a group of organizations, e.g. value systems
- Supra-organizational Strategies
 - The focus is on what happens between a organizations and their environment, e.g. value constellations

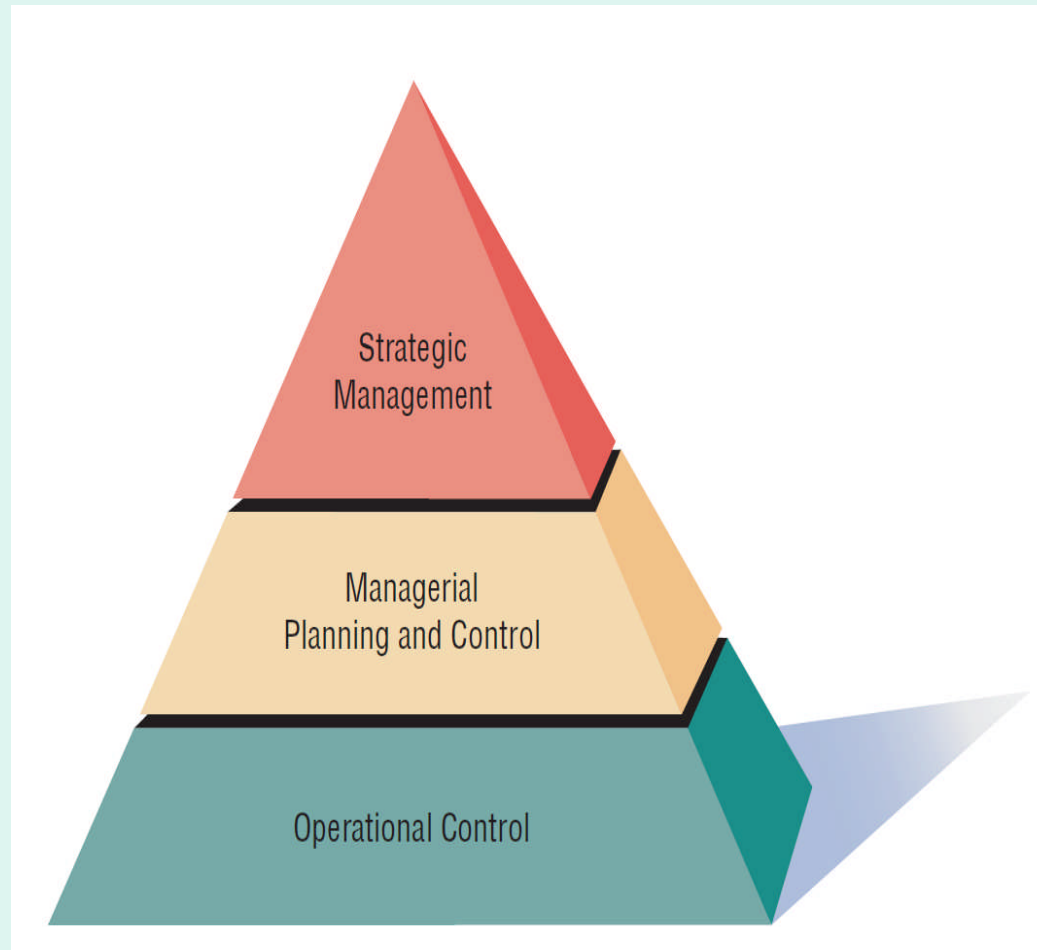
This session ...

- The focus of this session is on *intra* - organizational strategic alignment.
- Strategies that:
 - Act within the boundaries of a company
 - Are used to gain competitive advantage
 - Are part of the 'classic' view of IS

The 'classic' IS



The organization as a pyramid



IS as a pyramid

- Operational-level systems
 - support operational management by tracking the basic transactions such as sales, receipts and materials used.
- Management-level systems
 - help middle managers in monitoring, controlling and making decisions by comparing current output with previous outputs.
- Knowledge-level systems
 - enable the organization integrate new knowledge into the business and control the documentation of the business process.
- Strategic-level systems
 - help senior management in addressing strategic issues and long-term trends, within the firm and in the environment at large

The 'classic' IS

- Classification is the means by which objects are categorised or classified.
- Certain attributes or behaviours are used to deal with complexity by identifying commonality between objects.
- The classification of IS is a useful shorthand - not a definition to which any system must adhere.

The 'classic' IS



The 'classic' IS just as much an invention as the classic malts, but like the classic malts it does help to highlight the key features of how IS are used in organizations.

Updating the classics



Updating the classics

- The classic IS are helpful to identify the key roles that IS can play but do not reflect the complexity of real organizations
 - The organization as a single enterprise
 - The problem of functional 'silos'
 - The coordination of activities
 - IS as a medium for communication

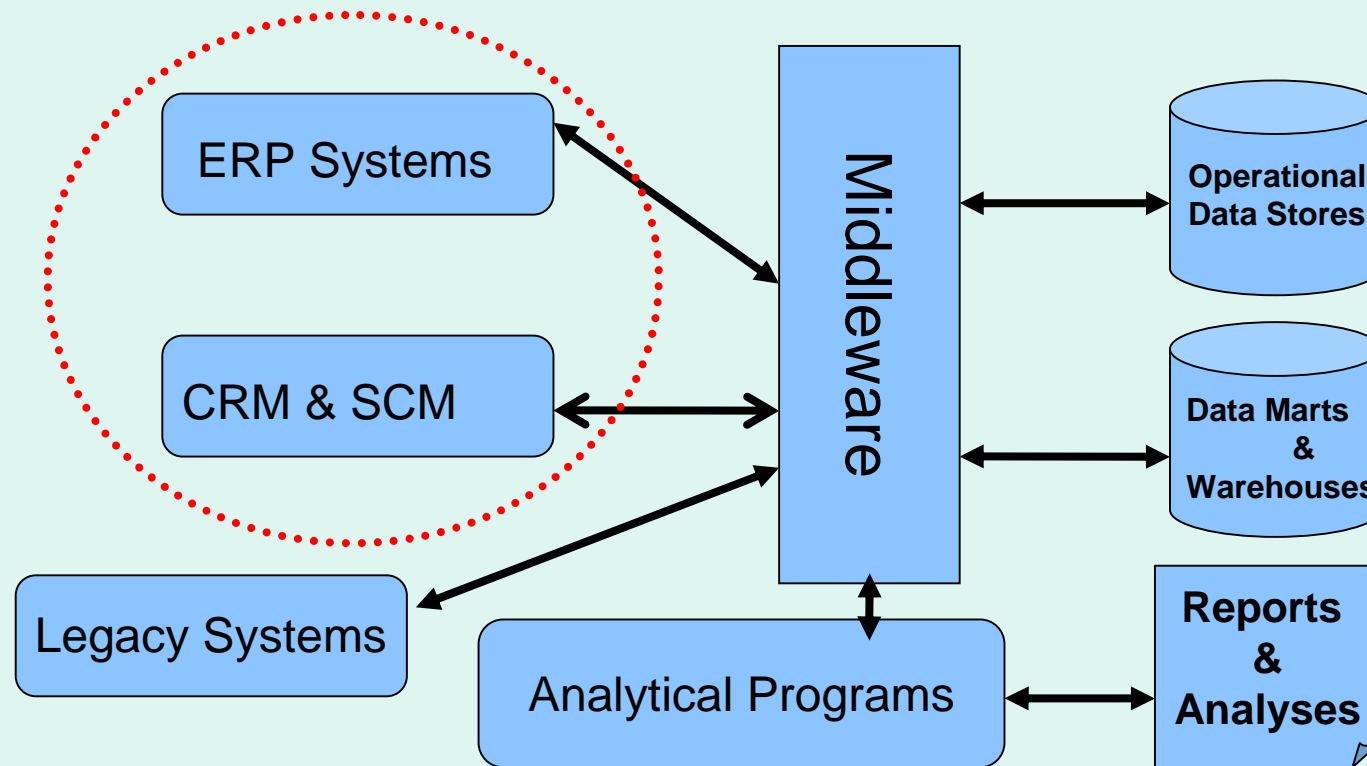
Updating the classics

- Enterprise Information Systems
 - A single platform that is capable of supporting a wide range of activities across an entire organization
- Features
 - Large systems with scalable architectures
 - Integration of many different types of system
 - Integration of many different views of the data

Enterprise Information Systems

- Enterprise Applications support business processes across the organisation
 - Enterprise Resource Planning (ERP) systems coordinate and standardise internal processes, and integrate information using a central database
 - Customer Relationship Management (CRM) systems consolidate information about customer interactions, enabling better customer selection, selection, retention and service
 - Supply Chain Management (SCM) systems facilitate the planning and execution of supply chain activities by exchanging information with partners

Enterprise Information Systems



New Systems

- Materials Requirements Planning (MRP)
 - Originally developed as a purchase order scheduling system focused on material inventories and purchasing
- Manufacturing Resources Planning (MRP II)
 - Database of parts, components, finished goods, Work In Progress, batch sizes and lead times

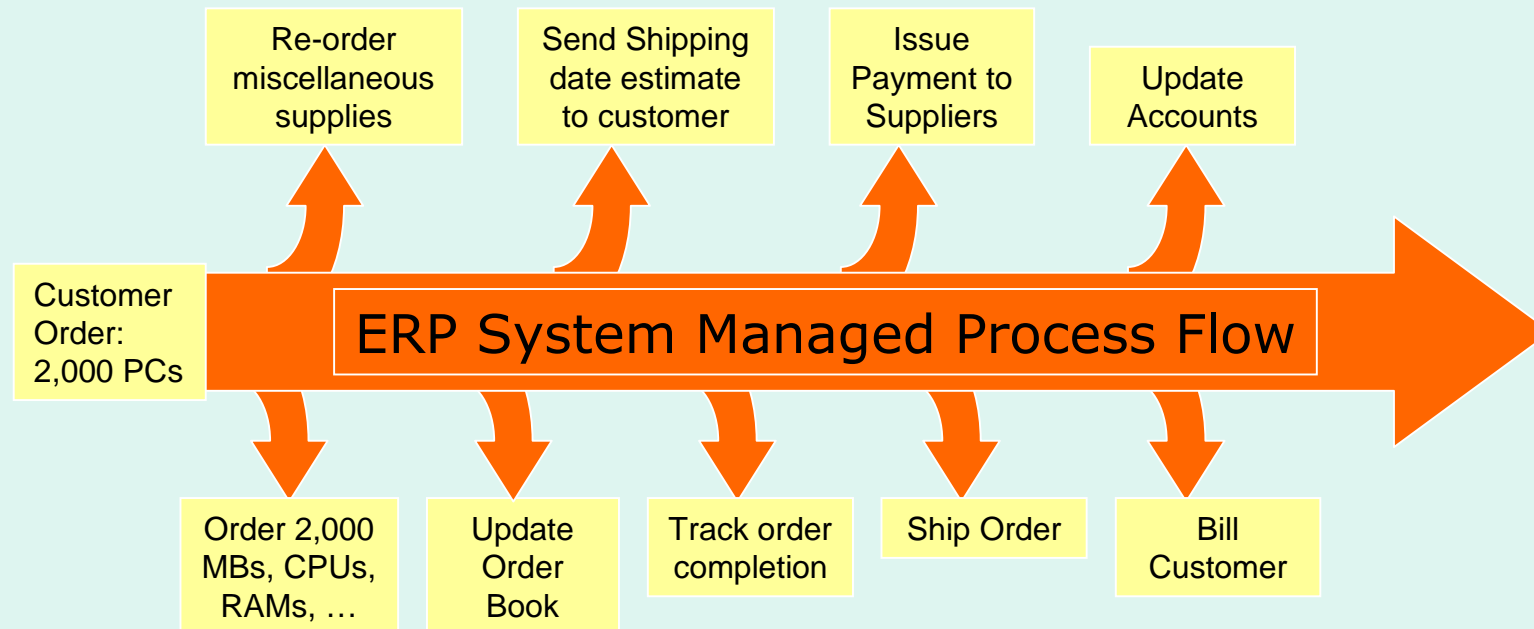
ERP

- Enterprise Resource Planning (ERP) Systems
 - A set of integrated programs that manage a company's business operations for an entire (multi-site) organization
 - Examples
 - SAP
 - Oracle

ERP

- Allows information to enter at a single point in the process (e.g., at the materials receiving stage of a manufacturing process)
- Updates a single, shared database in real time for all functions that directly or indirectly depend on this information.

ERP



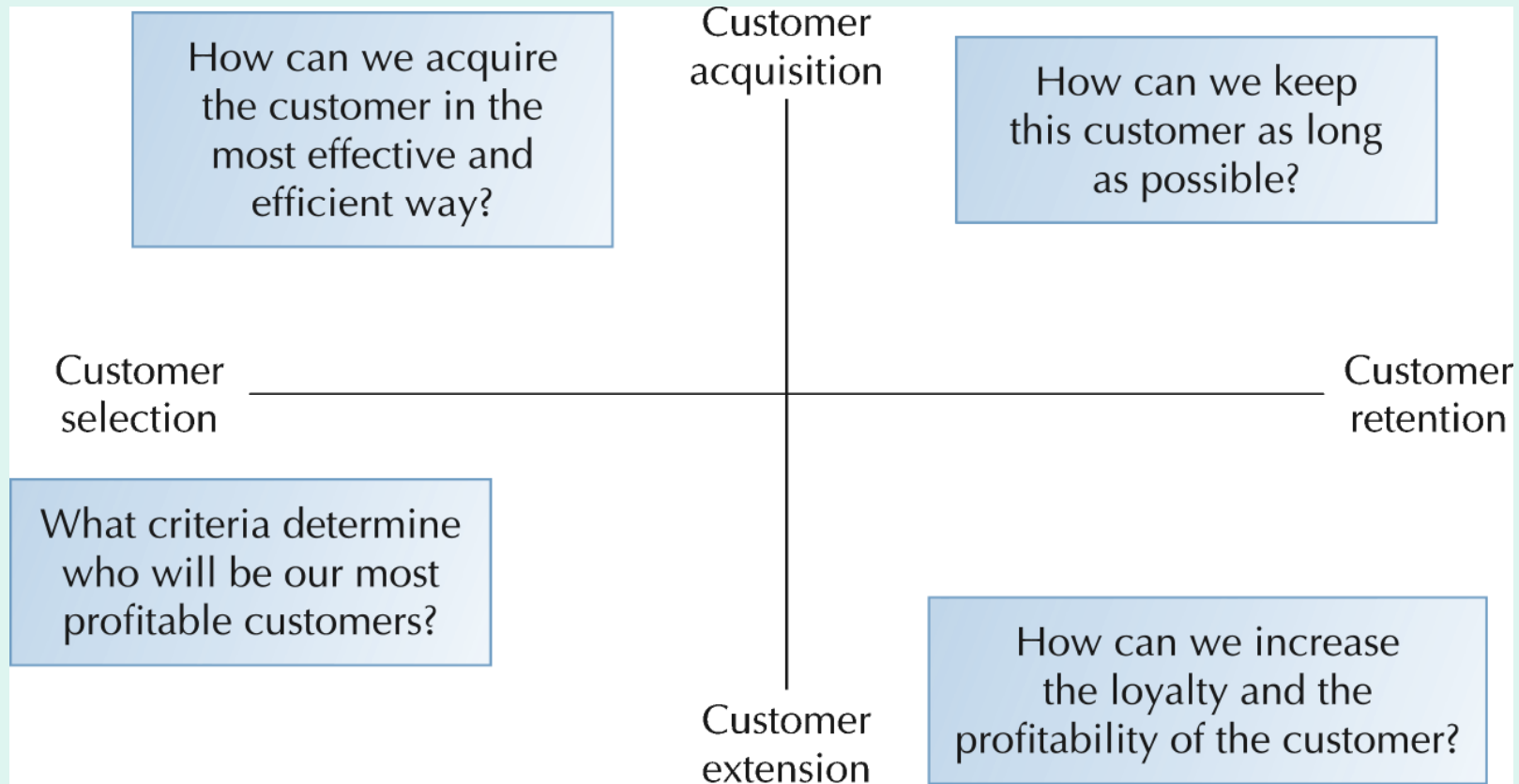
CRM

- Customer Relationship Management (CRM) systems
 - Coordinates all of the business processes that deal with customers to optimize revenue, customer satisfaction and customer retention.
 - Integrates the firm's customer-related processes and consolidates customer information
 - Based on concept of value chain

CRM

- Two main categories of CRM
 - Operational CRM
 - Customer-facing applications, e.g. tools for sales force automation, call center and customer service support, marketing automation
 - Analytical CRM
 - Applications that analyze (OLAP, data mining, etc.) customer data based on data warehouses
 - Consolidates data from operational CRM systems

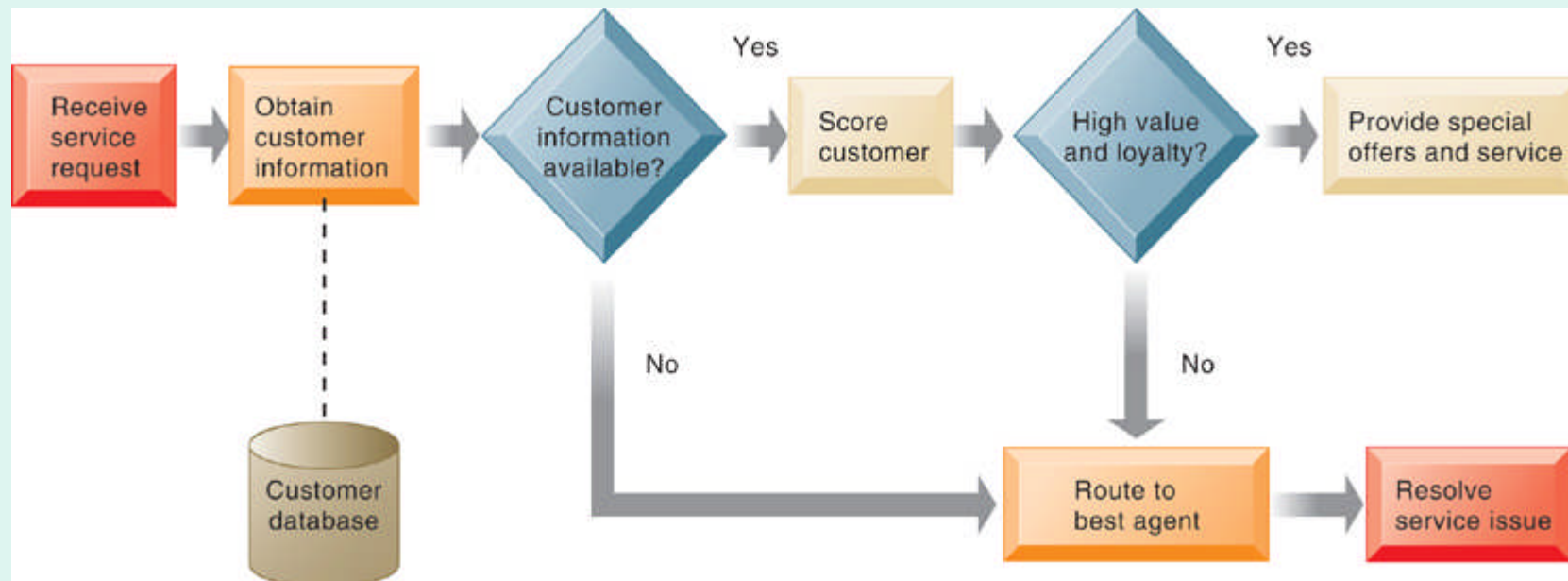
CRM



From: Boddy, Boonstra & Kennedy, *Managing Information Systems*

CRM

Customer Loyalty Management Process Map



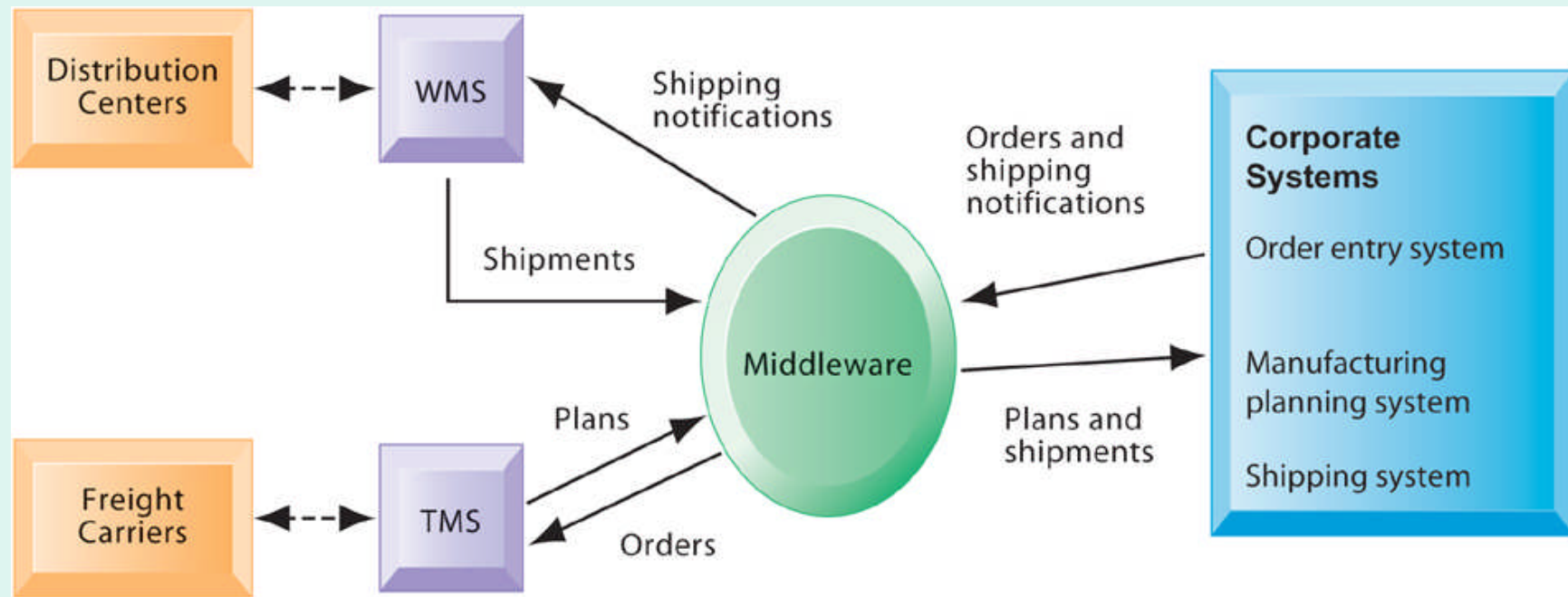
From Laudon and |Laudon

Supply Chain Management

- Supply Chain Management (SCM) Systems
 - Manage firm's relationships with suppliers
 - Goal: Right amount of products to destination with least amount of time and lowest cost
 - Share information about orders, production, inventory levels, delivery of products and services
 - Based on concept of value chain

Supply Chain Management

Supply Chain Management System



Business Process Re-engineering



The Origins of BPR

- The term BPR was originally coined by Michael Hammer in his article "*Re-engineering Work, Don't Automate, Obliterate*". (Hammer, 1990)
- It was further developed with Champy in "*Re-engineering The Corporation: A Manifesto for Business Revolution*". (Hammer & Champy, 1993)

Function oriented organizations

- No single person is responsible for the whole process. No one can tell a customer at what stage their order is at nor when it will arrive.
- The probability of errors occurring is greater due to the number of people involved who are acting independently to each other.
- As there are a number of separate areas of responsibility, the process as a whole is inflexible and unresponsive.

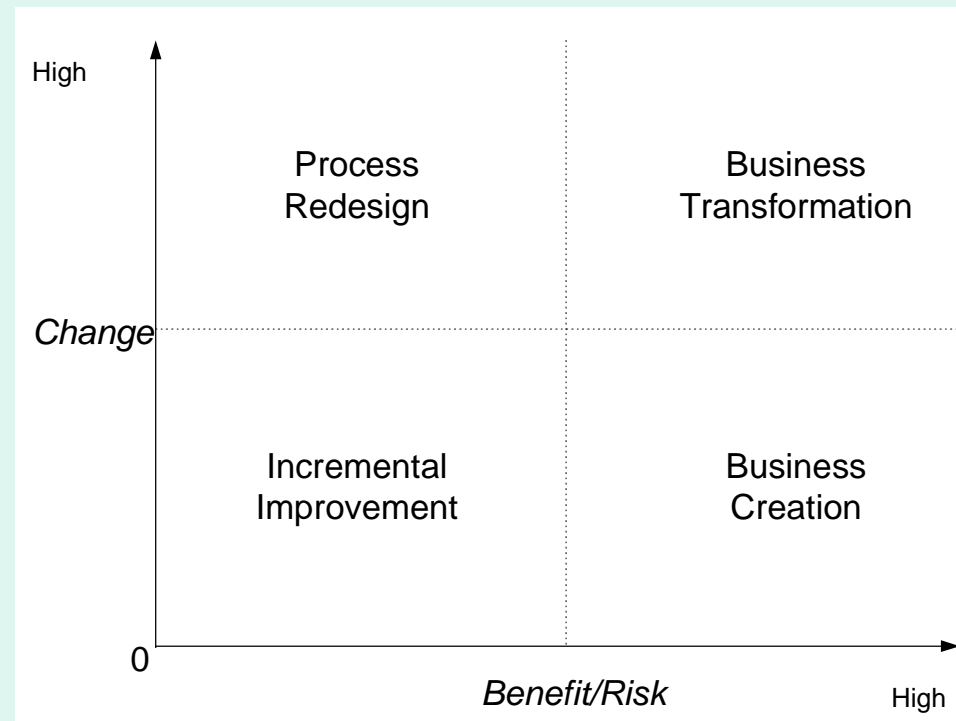
What is BPR?

- BPR aims to optimize the performance of interrelated activities within an organization rather than individual business functions.
- Uses IS / IT to coordinate processes across the organization to achieve a sustainable competitive advantage.

What is BPR?

- BPR is characterized by radical change and transformation in existing structures:
 - Redesigning a business around its processes rather than its functions.
 - Rejecting all conventions and challenging why things are done the way they are.
 - The innovative use of Information Systems and Information Technology.
 - Finding new approaches to deliver significant improvements in business output.

What is BPR?



The Spectrum of BPR exercises (CCTA, 1994)

What is BPR?

- "The fundamental rethinking of a business process, viewed as a total work system from procedural, social and structural perspectives, resulting in dramatic improvement in the process' ability to create and deliver *value* to a *customer*." (Maletz, 1994).

What is BPR?

- "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 & Champy, 1993).

What is BPR?

- "The use of evolutionary tools and techniques, combined with enabling technologies, to provide an explosive mix to make dramatic changes throughout the organization and to deliver what the customer requires." (Parker, 1993).

What is BPR supposed to achieve?

- Goals
 - To bring about radical changes in business processes
 - To combine existing stages in a process and eliminate any unnecessary tasks
 - To reorganize the flow of data throughout the organization
 - To achieve breakthrough improvements in products and services
 - To become more responsive to change

What are business processes?

- "A collection of activities that takes one or more kinds of input and creates an output that is of value to the customer".

(Hammer & Champy, 1993)

- "Any activity or group of activities that take an input, add value to it, and provide an output to an internal or external customer".

(Harrington, 1991)

- "A set of logically related tasks performed to achieve a defined business outcome".

(Davenport & Short, 1990)

What are business processes?

- The three key characteristics of business process are:
 - They have customers
 - They consist of a number of related tasks
 - They cross organization boundaries

What are business processes?

- Customers
 - The customers are the recipients of the defined business outcomes. A process begins and ends with a customer; it begins with the customer's requirements and ends with the satisfaction of those requirements.

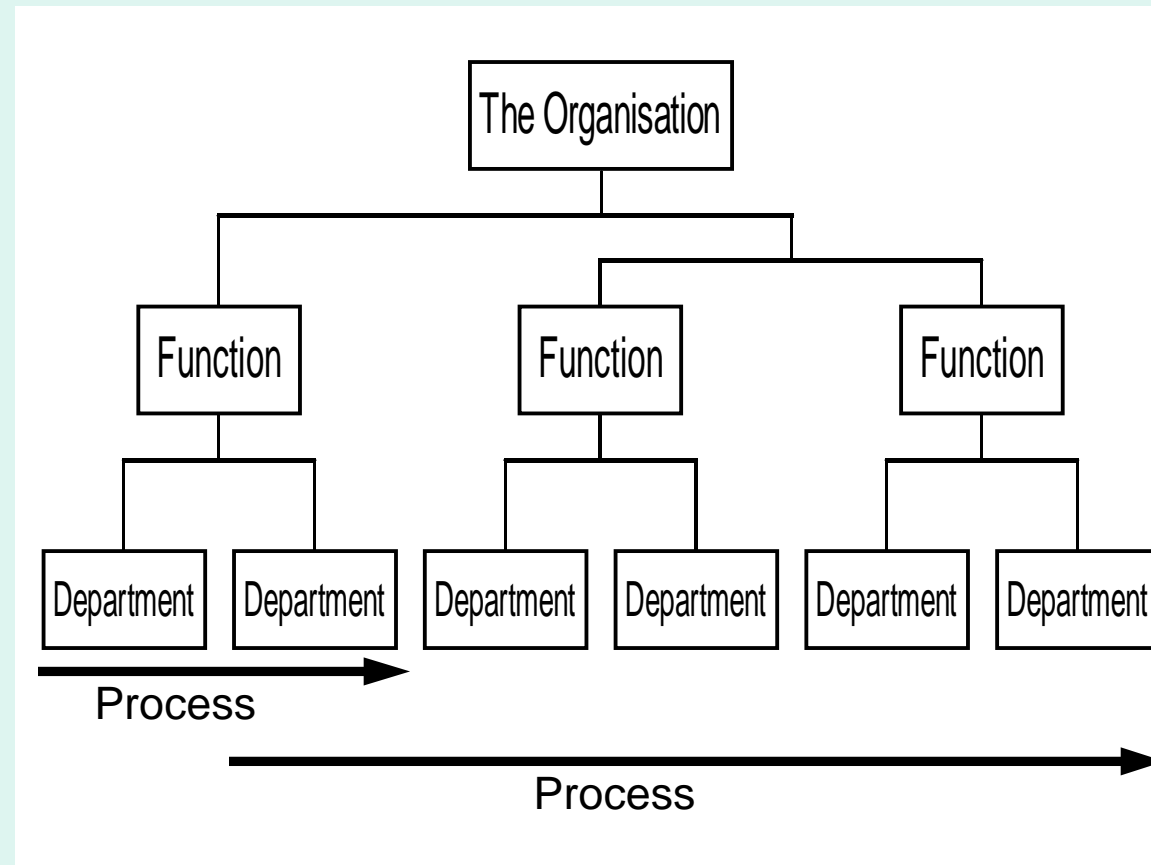
What are business processes?

- Related tasks
 - A collection of related activities that make up a process and facilitate a shift from task-based thinking to process-based thinking.

What are business processes?

- Organizational boundaries
 - Business processes normally occur at or between organization subunits and are generally independent of formal organizational structure.

What are business processes?



Key Steps in BPR

- Determine which business processes should be improved
 - Strategic analysis
 - Pain points
- Identify and describe existing process
 - Identify inputs and outputs, flow of products, network of activities and buffers, resources, information structure and flow, process owners, process actors and decision makers
- Understand how much process costs and how long to perform
 - Process cost, process time, process quality, process flexibility

Key Steps in BPR

- Determine which methods can improve process
 - Replace sequential steps with parallel
 - Enrich jobs by enhancing decision making and concentrating information
 - Enable information sharing throughout to all participants
 - Eliminate buffers (decision delays and inventories)
 - Transform batch processing and decision making into continuous flow processes
 - Automate decision tasks wherever possible

The role of Technology

- IS / IT is regarded as enablers, not drivers of change
- An exception?
 - Disruptive technologies = Technologies that disrupt long-held business rules and enable organizations to make radical changes

BPR and IS / IT

- Business Process Reengineering is almost always enabled by information technology
- IT models / reflects the way a business does business
- Innovation in IT opens new ways to do business
 - Manufacturing / Service processes
 - Strategy / Business Management

BPR and IS / IT

- Employees need information to make decisions about how to perform their jobs
- IT provides the information ...
 - at the right time and place
 - at the right quality
 - at the right cost
- IT provides tools to make decisions
- IT provides tools to monitor quality of their work

The benefits of BPR

- The benefits from a BPR are said to include:
 - Reduced operational costs.
 - Improved efficiency, for example reduction in delivery or response times.
 - Improved performance, for example in quality of service to customers.

The benefits of BPR

- Benefits (continued)
 - Increased flexibility of the organization to provide customer requirements.
 - Greater teamwork, leading to a better understanding of the roles of others.
 - An improved ability to keep ahead of competitors.

Four reasons to re-engineer

- Re-engineering is seen as an opportunity to take a lead over the competition
- Competitive forces will present a problem unless the organisation re-aligns its business processes with its strategy
- Publicity about BPR has prompted an organisation to follow the lead of others.
- A company faces ruin and has no choice
(Avison and Fitzgerald, 2003)

The risks of BPR

- A high failure rate among BPR projects (up to 70%) due to poor implementation and management practices

(Hammer & Champy, 1993)

- Employee's concerns about change
- Resistance by key managers
- Change in job functions, career paths, recruitment practices

A critique of BPR

- "The fastest way to show financial results was to reduce headcount ... headcount reduction gave re-engineering a strategic rationale and a financial justification".

Davenport (1996)

- "The stars were in alignment and re-engineering exploded. Suddenly everything was re-engineering and everybody could do it ... A modest idea had become a monster".

Davenport (1996)

Learning Organizations



Learning Organizations

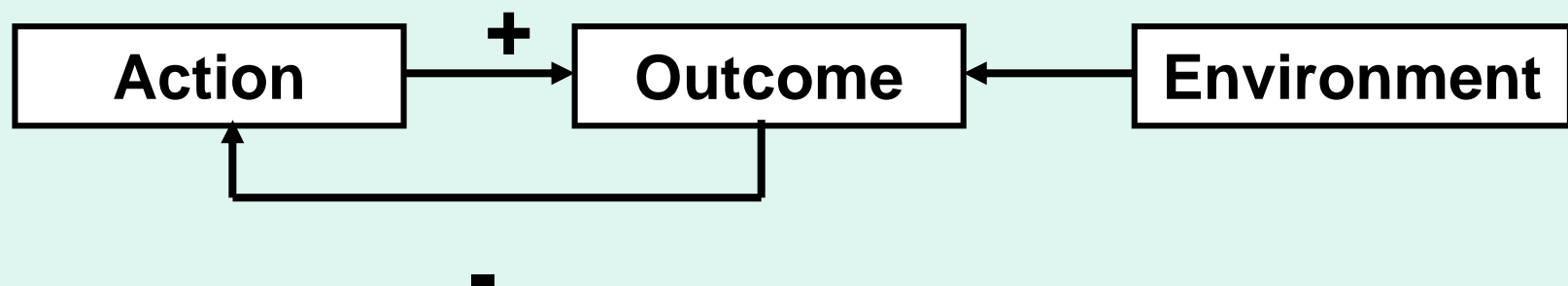
- "...organizations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning how to learn together."
 - Peter Senge, The Fifth Discipline, 1990

Organizational learning

- Process in which organizations learn through collection of data, measurement, trial and error and feedback
 - Adjust behaviour to reflect experience
 - Change business processes
 - Change patterns of management decision making

Organizational learning

- A feedback loop
 - Positive outcomes reinforce action
 - Negative outcomes trigger search for alternative actions



Single and Double Loop Learning

- Single Loop Learning:
 - learning from experience, solving conflicts on surface level, with small changes
 - focuses on solving problems in the present without examining the appropriateness of current learning behaviours
- Double Loop Learning:
 - Problems are solved by changing the deep level; re-allocation of resources, re-defining values, changing the total processes
 - emphasizes continuous experimentation and feedback in an ongoing examination of the very way organizations go about defining and solving problems

Knowledge Management



Knowledge Management

- The availability of data and information does not necessarily alter an organization's behavior or its competitiveness. The knowledge needed to interpret the information and to act upon it is the key to organizational success. For this reason, it has to be managed."
 - Boersma and Stegwee (1996)

Knowledge Management

(courtesy of Dilbert)



Knowledge Management

Example one

- I am the senior partner of a global consulting firm. Most of our knowledge resources are in the heads of our consultants. Each time a consultant leaves, the knowledge they have leaves with them. What can I do to manage our knowledge resources better?

Knowledge Management

Example two

- I am a consultant in a hospital. We deal with 10,000 different diseases and syndromes, dispense 3,000 different medications and perform 1,100 different laboratory tests. How can I be sure I know all of the relevant facts before making a diagnosis?

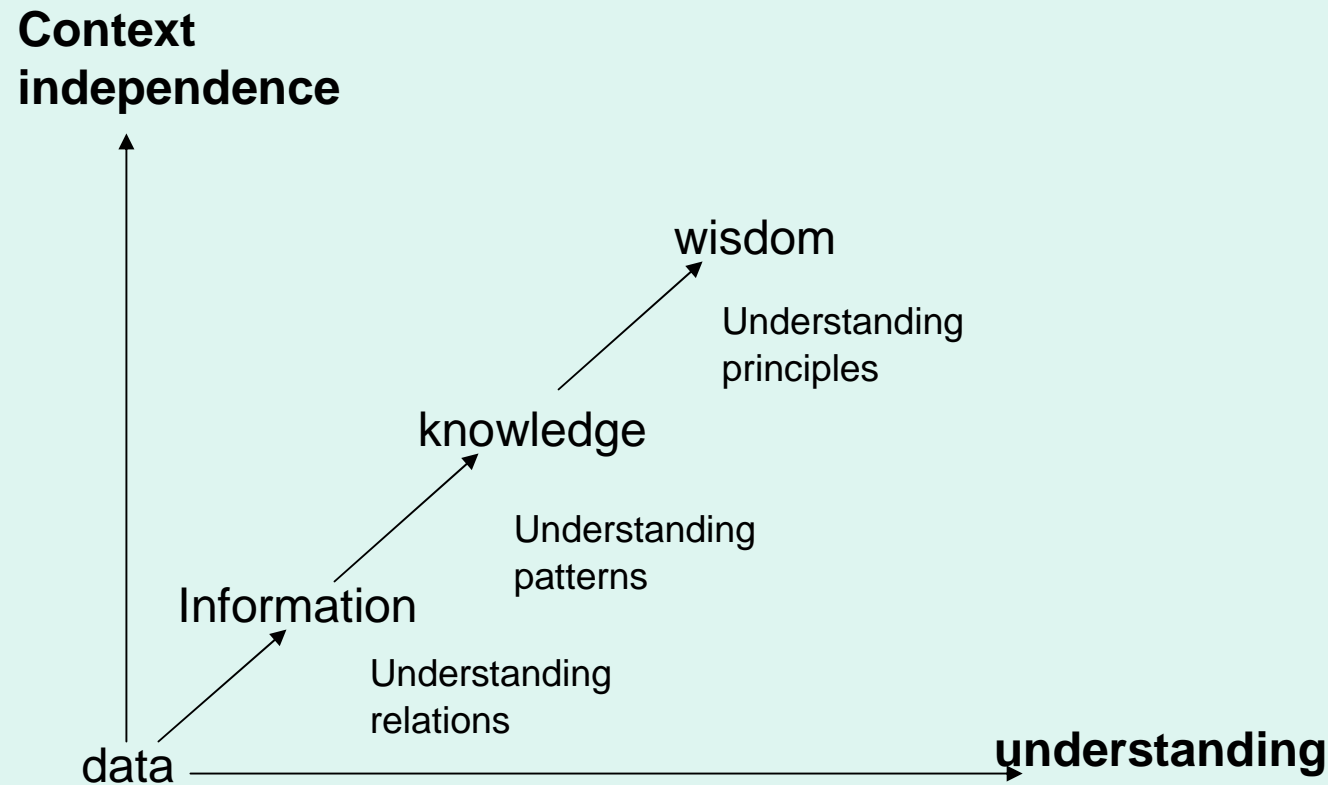
What is Knowledge?

- At the start of the course we talked about the information revolution and the knowledge based economy, but what exactly do we mean by this?
 - Data
 - Information
 - Knowledge
- What is the difference?

What is Knowledge?

- Data
 - Facts (measurements) without context (e.g. 20)
- Information
 - Facts (measurements) in a context (e.g. the temperature in the room is 20°C)
- Knowledge
 - ?

Data – Info – Knowledge - Wisdom



Ackoff (1989)

Types of Knowledge

- Soft
 - "Soft knowledge is embedded in the day-to-day working practices [examples are] experience; work knowledge that has been internalised; tacit knowledge"
- Hard
 - "The view of knowledge as being 'hard', that is codifiable [examples are] knowledge that can be easily articulated and captured"

Examples of different types of KM

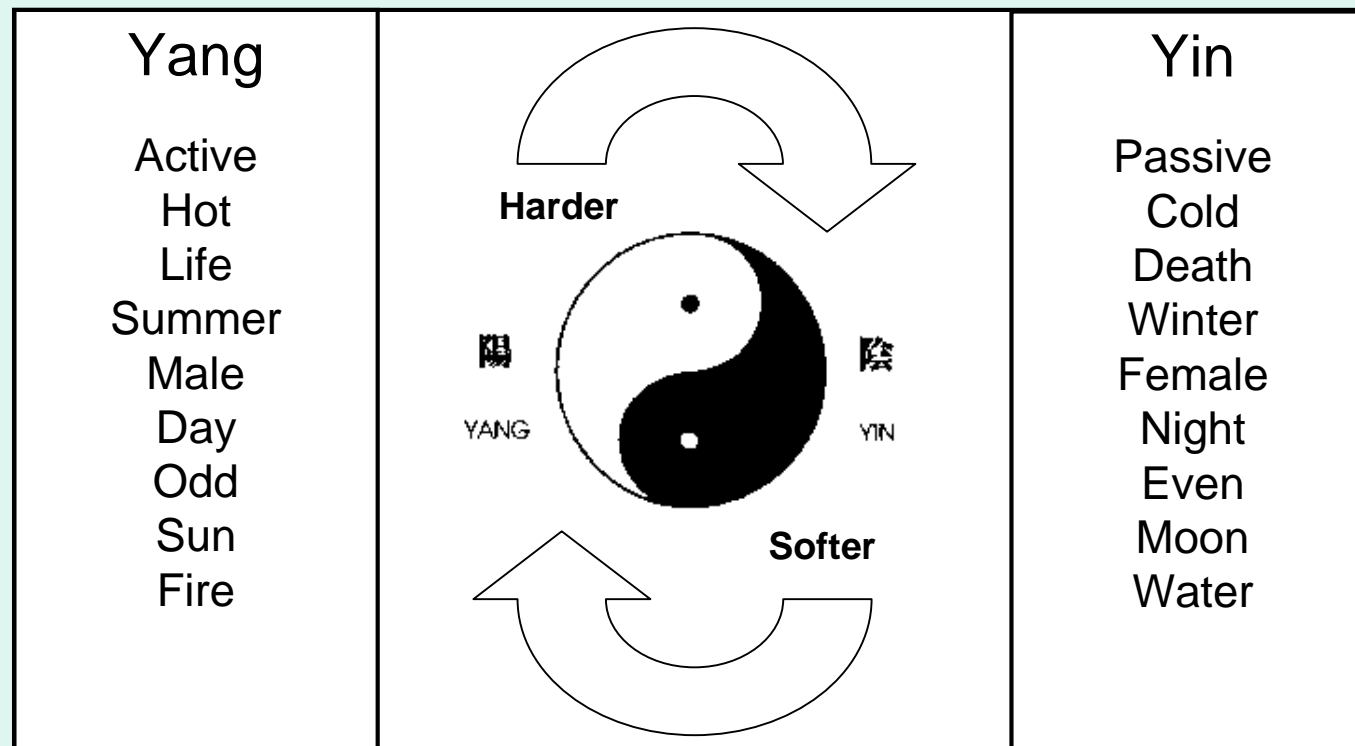
Hard

- Data Mining
- Procedures, Rules and Regulations
- Structured transactions
- Formal/informal rules, custom and practice

Soft

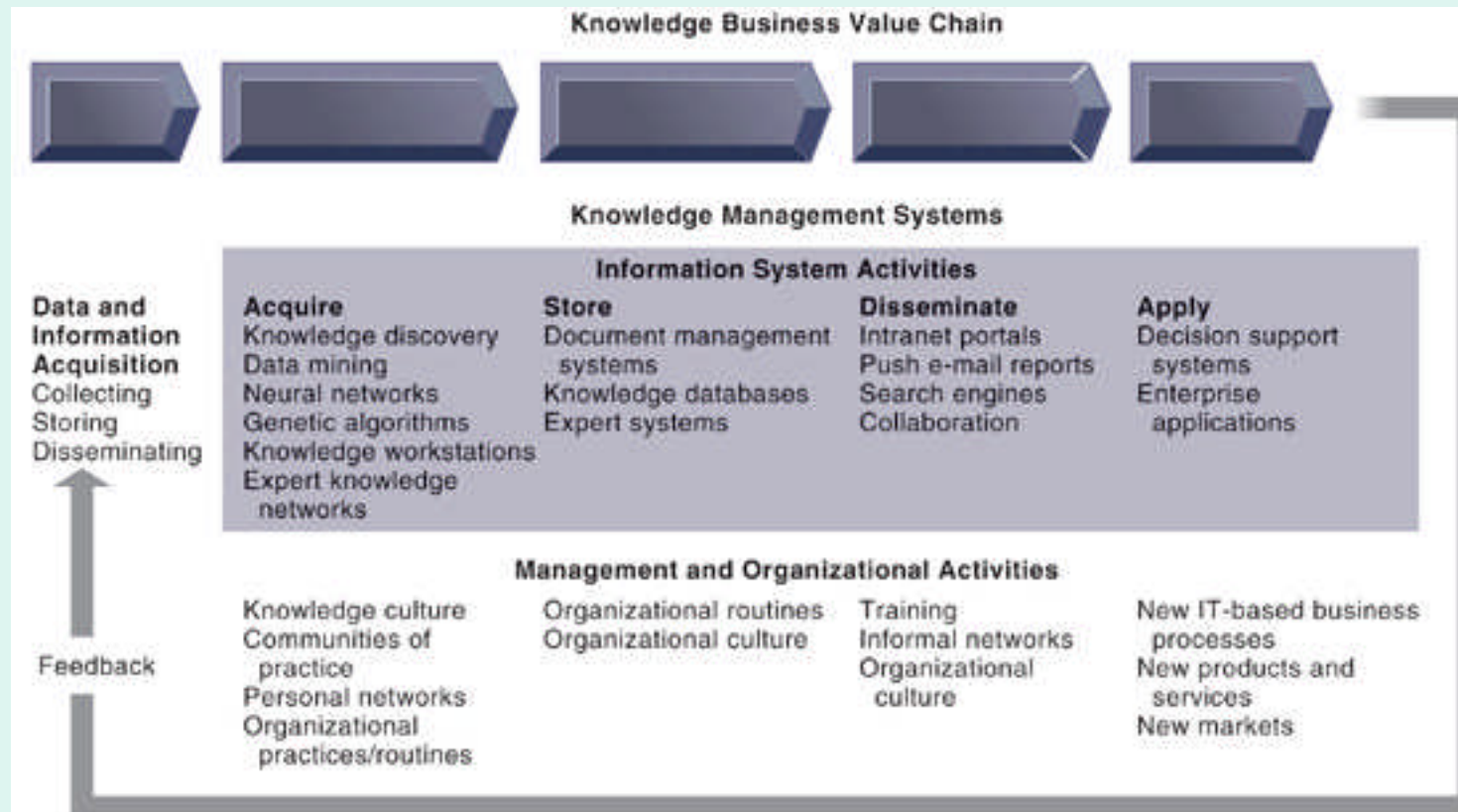
- Communications network
- Knowing through doing
- Social norms
- Working cooperatively in groups and communities

Knowledge as a Duality



Adapted from (Hildreth and Kimble 2002)

The KM 'Value Chain'



(From Laudon and Laudon)

Knowledge Management Systems

- Historically, KMS grew from developments in Artificial Intelligence and Expert Systems
- The main focus was on 'hard' (codified) knowledge
- Interest in KMS peaked around 2000 as it became clear that KMS did not live up to their promise.

KMS and 'hard' knowledge

- 'Hard' knowledge is more than data
 - Cost in terms of time and resources in
 - 'harvesting' the knowledge
 - keeping the knowledge up to date
 - Problems of complexity and scalability
 - maintaining value and relevance
 - more knowledge = more links
 - Problems of politics and motivation
 - see companies A and G from the previous session

KMS and 'soft' knowledge

- Hard support for 'soft' knowledge
 - Requires a different mindset
 - *believe* "people are our greatest asset"
 - understand the nature of 'soft' knowledge
 - Problems of management and control
 - knowledge relates to people rather than processes
 - knowledge is difficult to 'own'
 - Problems of politics and motivation
 - see in class readings

Some issues for KM(S)

- The role of KM in an organization
 - KMS are thought of in the same way as IS; the focus is on efficiency rather than innovation and effectiveness
- Focus on 'hard' knowledge
 - The knowledge that can create a strategic breakthrough and bring sustained competitive advantage, is often 'soft' knowledge
(Contrast Dell and Google from the previous session)

Additional reading

- Two Articles
 - From Harvard Business Review
 - Relate to the intra-organizational use of IS / IT
 - Relevant, practical and easy to read
 - Available on-line
- See web page for detail of how to get access and a summary of the articles