Chapter 5
Information Technology and Changing Business Processes

Managing and Using Information Systems: A Strategic Approach
by Keri Pearlson & Carol Saunders
Learning Objectives

• List how IT enables business change
• Identify ways in which IT can impede business change
• Understand the problems that are caused by the functional (siloh) perspective of a business
• Identify how the process perspective keeps the big picture in view and how IT can be used to facilitate this perspective
• Define TQM and BPR and explain how they are used to transform a business
• Explain an enterprise system and how they are used to implement organizational change
Real World Examples

• Cemex, a concrete company located in Mexico, needed to “transform” the way they did business.
  – After 16 years they changed their customer key processes.
  – The CEO did this by challenging management to address the processes that caused late shipments and unforeseeable demand.
  – Cemexnet was built to link all of the plants together and to keep them up to date on supply and demand issues.
  – GPS system was implemented to help manage their fleet of trucks.
  – They also created a set of global processes that enabled customers, suppliers, and distributors to manage their orders.

• Dramatic results occurred due to this transformation.
  – Delivery windows went from 3 hours to 20 minutes with a 98% rate.
  – Sales increased 19% in the first quarter.
  – Their reputation was greatly enhanced.

• Cemex reset the bar for all others in the industry with their customer-orientation, use of technology and process redesign
SILO PERSPECTIVE

VERSES

BUSINESS PROCESS

PERSPECTIVE
Silo (Functional) Perspective

• The silo perspective views the business as discrete functions (accounting, sales, production, etc.).
  – Figure 5.1 shows a traditional organizational chart which is how a functional business is organized.

• Each functional area determines its core competencies and focuses on what it does best.

• Advantages:
  – Allows optimization of expertise.
  – Group like functions together for learning.

• Disadvantages:
  – Significant sub-optimization.
  – Tend to lose sight of overall organizational objectives.
Typical Hierarchical Organization Structure

Executive Offices
CEO
President

Operations
Marketing
Accounting
Finance
Administration

Figure 5.1 Hierarchical Structure
Process Perspective

• Keeps the big picture in view.
• Focuses on work being done to create optimal value for the business.

• **Process** is defined as an interrelated, sequential set of activities and tasks that turns inputs into outputs, and includes the following:
  – A beginning and an end
  – Inputs and outputs
  – A set of tasks (subprocesses) that transform the inputs into outputs
  – A set of metrics for measuring effectiveness
Process Perspective

• Examples of business processes include:
  – customer order fulfillment
  – manufacturing, planning and execution
  – payroll
  – financial reporting
  – procurement (see figure 5.2)
Figure 5.2 – Sample business process
Process Perspective

• Advantages:
  – Helps avoid or reduce duplicate work.
  – Facilitate cross-functional communication.
  – Optimize business processes.

• Figure 5.3 shows the cross-functional view of processes as they cross departments (functions).
Figure 5.3 Cross-functional nature of business processes
Process Perspective

• When managers gain the process perspective they begin to lead their organizations to change.
  – Question status quo.
  – Don’t accept “because we have always done it that way” as an answer to why business is done in a particular way.
  – Allows managers to analyze business’s processes in light of larger goals.

• Zara is a good example of a process perspective business (see chapter 2).
<table>
<thead>
<tr>
<th></th>
<th>Silo Perspective</th>
<th>Business Process Perspective</th>
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<tbody>
<tr>
<td><strong>Definition</strong></td>
<td>Self-contained functional units such as marketing, operations, finance, and so on</td>
<td>Interrelated, sequential set of activities and tasks that turns inputs into outputs</td>
</tr>
<tr>
<td><strong>Focus</strong></td>
<td>Functional</td>
<td>Cross-functional</td>
</tr>
<tr>
<td><strong>Goal Accomplishment</strong></td>
<td>Optimizes on functional goals, which might be a suboptimal organizational goal.</td>
<td>Optimizes on organizational goals, or “big picture”</td>
</tr>
<tr>
<td><strong>Benefits</strong></td>
<td>Highlighting and developing core competencies; Functional efficiencies</td>
<td>Avoiding work duplication and cross-functional communication gaps; organizational effectiveness</td>
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**Figure 5.4** Comparison of Silo Perspective and Business Process Perspective
THE TOOLS FOR CHANGE
Incremental Change

- Total Quality Management (TQM) is a tool for change that uses small incremental changes.
- Personnel often react favorably to TQM.
- Greater personnel control and ownership.
- Change is viewed as less of a threat.
- Six-Sigma is one popular approach to TQM.
Six Sigma

• Six Sigma asserts that –
  – Continuous efforts to achieve stable and predictable process results are of vital importance to business success.
  – Manufacturing and business processes have characteristics that can be measured, analyzed, improved and controlled.
  – Achieving sustained quality improvement requires commitment from the entire organization, particularly from top-level management.

• It seeks to eliminate defects from any process.
Radical Change

• Business Process Reengineering (BPR) is a more “radical” change management tool.
• Attain aggressive improvement goals.
• Goal is to make a rapid, breakthrough impact on key metrics.
• Figure 5.6 shows the difference over time of the radical (BPR) and incremental (TQM) approaches to change.
• Greater resistance by personnel.
• Use only when major change is needed.
Figure 5.5 Comparison of radical and incremental improvement
The Process for Radical Redesign

• The different approaches for radical redesign all include:
  – Begin with a vision of which performance metrics best reflect the success of overall business strategy.
  – Make changes to the existing process.
  – Measure the results using the predetermined metrics.

• Figure 5.6 illustrates a general view of radical design.

• Figure 5.7 illustrates a method for redesigning a business process.

• Tool used to understand a business process is a workflow diagram.
Figure 5.6 – Conceptual flow of process design
Figure 5.7 – Method for redesigning a business process
Risks of Radical Redesign

- Lack of senior management support.
- Lack of a coherent communications program.
- Introducing unnecessary complexity into the new process design.
- Introducing unnecessary complexity into the new process design.
- Combining reengineering with downsizing.
- Lack of training.
AGILITY AND CONSTANTLY REDITIGNING PROCESSES
Agile Processes

• *Agile* processes are processes that iterate through a constant renewal cycle of design, deliver, evaluate, redesign, and so on.

• Ultimate goal for some are agile processes that reconfigure themselves as they ‘learn.

• For a process to be agile necessitates a high degree of use of IT.

• Processes that run entirely on the Internet are candidates for becoming agile processes.
Shared Services

• **Horizontal integration** - term for looking beyond individual business processes and considering the bigger, cross functional picture of the corporation.
  – Integrated databases, web 2.0 technologies and services, and common infrastructure are the tools IT brings to the implementation of horizontal integration.

• Many organizations have restructured their common business processes into a **shared services** model.
  – This model consolidates all individuals from all business units into a single organization, run centrally, and utilized by each business unit.
Business Process Management (BPM) Systems
BPM

• In the 1990s, a class of systems emerged to help manage workflows in the business.
• They primarily helped track document-based processes where people executed the steps of the workflow.
• They go way beyond the document-management capabilities, including features that manage person-to-person process steps, system-to-system steps, and those processes that include a combination.
  – Systems include process modeling, simulation, code generation, process execution, monitoring, and integration capabilities for both company-based and web-based systems.
  – The tools allow an organization to actively manage and improve its processes from beginning to end.
FIGURE 5.8 Sample BPM Architecture: Appian Enterprise
ENTERPRISE SYSTEMS
Enterprise Systems

• A set of information systems tools used to enable information flow within and between processes.
• Enterprise systems are comprehensive software packages.
• ERP (Enterprise Resource Planning) software packages are the most frequently discussed type of enterprise system.
• Designed to manage the potentially hundreds of systems throughout a large organization.
• SAP is the most widely used ERP software package.
Characteristics of Enterprise Systems

• Integration – seamlessly integrate information flows throughout the company.
• Packages – they are commercial packages purchased from software vendors (like SAP, Oracle, Peoplesoft, etc.).
• Best practices – reflect industry best practices.
• Some assembly required – the systems need to be integrated with the existing hardware, OS’s, databases, and telecommunications.
• Evolving – the systems continue to change to fit the needs of the diverse marketplace.
Benefits and Disadvantages of Enterprise Systems

• Benefits:
  – All modules easily communicate together.
  – Useful tools for centralizing operations and decision making.
  – Can reinforce the use of standard procedures.

• Disadvantages:
  – Implementation is an enormous amount of work.
  – Most require some level of redesigning business processes.
  – Hefty price tag (sold as a suite).
  – They are risky.
The Adoption Decision

• Sometimes it is appropriate to let the enterprise system drive business process redesign.
  – When just starting out.
  – When organizational processes not relied upon for strategic advantage.
  – When current systems are in crisis.

• Sometimes it is inappropriate to let the enterprise system drive business process redesign.
  – When changing an organizations processes that are relied upon for strategic advantage.
  – When the package does not fit the organization.
  – When there is a lack of top management support.
Integrated Supply Chains

• Processes linked across companies.
• Supply chain begins with raw materials and ends with a product/service.
• Globalization of business and ubiquity of communication networks permits use of suppliers from anywhere.
• Requires coordination among partners of the integrated supply chain.
Integrated Supply Chain

• Challenges include:
  – Information integration.
  – Synchronized planning.
  – Workflow coordination.

• Leads to new business models.
  – For example when banks link up to businesses new financial services are offered such as on-line payments.
  – Companies list needs and vendors electronically bid to be the supplier.
FOOD FOR THOUGHT: IS ERP A UNIVERSAL SOLUTION?: CROSS-CULTURAL BUSINESS PROCESSES
Cross-Cultural Business Processes

• Major vendors, SAP and Oracle, show a western bias in reporting best practices.
• Due to problems encountered, businesses in non-western companies/locations are turning to local vendors.
• If the system is based on a cultural model that conflicts with the local customs and which can not easily be accommodated by the ERP it should NOT be implemented.
SUMMARY
Summary

• IS can enable or impede business change.
• You must look at business process to understand the role IS plays in business transformation.
• TQM or BRP are normally used to make changes to business processes.
• ERP systems can be used to affect organizational transformation.
• Information systems are useful tools to both enable and manage business transformation.