Chapter 5
Information Systems for Managing Business Processes

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Information Systems — Theory and Practices

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 (silo) 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 it is used to implement organizational change.

Introduction

• How can IT enable business change?
• How can IT impede business change?
• What problems are caused by the functional (silo) perspective of a business?
• The process perspective keeps the big picture in view. How can IT help with this management style?
• How are TQM and BPR used to transform a business?

Silo (Functional) Perspective

• The silo perspective views the business as discrete functions (accounting, sales, production, etc.). Figure 5.1 shows a traditional org 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 ______-optimization.
  – Tend to lose sight of overall organizational objectives.

Business Process and Work Flow

• Process is defined as an ________, 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
• Keeps the big picture in view.
• Focuses on work being done to create optimal value for the business.
• A ___________ is a sequence of activities that take place in a process.
• Metrics help to focus managers on the critical dimensions of the process.
  – Throughput, outputs, customer satisfaction, revenue per output, profit per output, and quality of the output.
• Examples of business processes include customer order fulfillment, manufacturing, planning and execution, payroll, financial reporting, and procurement (Figure 5.2).
• Advantages:
  – Helps avoid or reduce duplicate work.
  – Facilitate cross-functional _________.
  – Optimize business processes.
• Figure 5.3 shows the cross-functional view of processes as they cross departments.
### Sigma levels – further information

Short-term sigma levels correspond to the following long-term DPMO values (one-sided):

<table>
<thead>
<tr>
<th>Sigma Level</th>
<th>DPMO</th>
<th>Efficiency</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Sigma</td>
<td>308,000</td>
<td>69.2%</td>
</tr>
<tr>
<td>Two Sigma</td>
<td>6,210</td>
<td>99.379%</td>
</tr>
<tr>
<td>Three Sigma</td>
<td>66,800</td>
<td>93.32%</td>
</tr>
<tr>
<td>Four Sigma</td>
<td>3.4 DPMO</td>
<td>99.977%</td>
</tr>
<tr>
<td>Five Sigma</td>
<td>230 DPMO</td>
<td>99.97%</td>
</tr>
<tr>
<td>Six Sigma</td>
<td>3.4 DPMO</td>
<td>99.977%</td>
</tr>
</tbody>
</table>

### Key Aspects of Radical Change Approaches

- Thinking from a ______-functional process perspective.
- Challenging old assumptions.
- Networked (cross-functional) organizing.
- ______ of individuals in the process.
- Measurement of success via metrics tied directly to business goals and the effectiveness of new processes (e.g., production cost, cycle time, scrap and rework rates, customer satisfaction, revenues, and quality).
**Risks of Radical Redesign**

- Research shows some of the common reasons why companies fail to reach their goals:
  - Lack of senior management support.
  - Lack of coherent communications.
  - Introducing unnecessary complexity.
  - Underestimating the amount of effort needed.
  - Combining reengineering with downsizing.

*Source: Managing and Using Information Systems, Pearlson and Saunders, p. 144*

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**Enterprise Systems**

- Enterprise systems:
  - Are a set of IS tools used to enable information flow within and between processes across an organization.
  - Ensure ___________ and coordination across functions such as accounting, production, customer management, and supplier management.
  - Include:
    - Enterprise Resource Planning (ERP),
    - Supply Chain Management (SCM),
    - Customer Relationship Management (CRM), and
    - Product Lifecycle Management (PLM) systems (Figure 5.8).
  - ____________
    - Enterprise have found ways to use a social IT platform to solicit, discuss, and prioritize new ideas.
    - Anyone in the community can add an idea, then the entire community can discuss, comment, and rate the idea.
    - Managers then have a wealth of ideas along with community input, to use as input into the innovation process.

*Source: Managing and Using Information Systems, Pearlson and Saunders, p. 144*

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**Disadvantages of Enterprise Systems**

- Implementation requires an enormous amount of work.
- Requires ___________ business processes to achieve optimal performance of the integrated modules.
- Organizations are expected to conform to the approach used in the enterprise system (e.g., change organization structure, tasks).
- A hefty price tag: additional costs for project management, user training, and IT support.
- Sold as a suite rather than individual modules.
- Enterprise systems are ___________.

*Source: Managing and Using Information Systems, Pearlson and Saunders, p. 144*

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**Process Integration vs. Standardization**

**Processes are the way organizations deliver goods and services to customers. Designing, building and executing processes is one of the roles of management.**

Companies make two important choices in the design of their operations: 1) how standardized their BP should be across operational units (business units, region, function, market segment), and 2) how standardized their BP should be across those units.

The level of process integration and standardization defines the necessary IS capabilities and ultimately the investment the firm will need to make in IS.

### Business Process Standardization

<table>
<thead>
<tr>
<th>Low</th>
<th>High</th>
</tr>
</thead>
<tbody>
<tr>
<td>The business is focused on process ____________, usually creating a single face to customers and suppliers, but doesn’t usually impose process standards (e.g., standardized technology platforms), on operating units.</td>
<td>The business has a ____________. design, with high needs for reliability, predictability, and sharing data across business units creating a single view of the process.</td>
</tr>
</tbody>
</table>

*Source: Managing and Using Information Systems, Pearlson and Saunders, p. 144*

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**Benefits of Enterprise Systems**

- All modules easily communicate together with ____________.
- Useful tools for effectively centralizing operations and decision making.
- Reinforce the use of standard procedures across different locations.
- Redundant data entry and duplicate data may be eliminated.
- Standards for numbering, naming, and coding enforced.
- Data and records can be cleaned up through standardization.

*Source: Managing and Using Information Systems, Pearlson and Saunders, p. 144*

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**Customer Relationship Management (CRM)**

- CRM
  - Suite of applications, a database, and a set of inherent processes
  - Intended to support customer-centric organization
  - Integrates all primary activities of value chain
- Manage all interactions with customer though four phases of customer life cycle:
  1. Marketing - marketing sends messages to target market
  2. Customer ____________, - customer prospects order and need to be supported
  3. ____________, Management - support and resale processes increase value to existing customers
  4. Loss/churn - win-back processes categorize customers according to value and attempt to win back high-value customers

*Source: Managing and Using Information Systems, Pearlson and Saunders, p. 144*
Four Phases of Customer Life Cycle

- Figure below depicts the four phases of the customer life cycle and shows how a CRM system integrates them into three major processes: solicitation, lead-tracking, and relationship management.

Deconstruction of the newspaper industry: BPR

Old newspaper industry value chain

New newspaper industry value chain

What is a Supply Chain (network)?

- A supply chain is a network of organizations that are involved, through linkages, in the different processes and activities that produce value in the form of products and services delivered to the ultimate consumer.
- A supply chain has three flows:
  - Information,
  - Goods/materials, and
  - Payment (money)
- Today’s supply chain is a complex web of suppliers, assemblers, logistic firms, sales/marketing channels, and other business partners linked primarily through information networks and contractual relationships.

Challenges for Integrating Enterprise Systems Between Companies

- Deciding to share, to share it, and what to do with it the sharing takes place.
- Agreeing on security and encryption or other measures to protect data integrity and ensure that only authorized parties have access.
- The complexity of the integration can be reduced by insisting on standards—either at the industry level or at the system level.
- The increasing use of cloud-based systems with standard interfaces makes the integration easier.
Summary on Processes

• To improve process quality and organization’s productivity processes should be organized and linked _______ the entire enterprise and _______ with a centralized _______.

THE CONNECTED CORPORATION: THE FUTURE OF ERP

• Data points where SCM, CRM, and ERP integrate.
• Lines between SCM, CRM, and ERP will continue to blur
  - Internet – continue to help organizations integrate data and process across functional departments
  - Interface – customizable employee browsers
  - Wireless technology – support a mobile workforce

RE-ENGINEERING CHANGE MANAGEMENT

- Re-engineering vision
- Process redesign
- Process simulation
- Process implementation

IT PROCESS MANAGEMENT

- Strategy
- Design
- Prototype
- Implementation