MIT 3103 ADVANCED MANAGEMENT INFORMATION SYSTEMS

CHAPTER 3: Business Process Re-engineering (BPR)

Learning Outcomes

- By the end of the lesson, the chapter should be able to:
  - Define Business Process reengineering.
  - Describe steps in Business Process Reengineering.
  - Discuss the roles that IT play in Business Process Reengineering.

Introduction

- Organizations may view and use information technology in many ways.
- For example, companies may choose to use information systems strategically, or they may be content to use IT to support efficient everyday operations.

Introduction

- If a company emphasized strategic business uses of information technology, its management would view IT as a major competitive differentiator.

Introduction

- They would then devise business strategies that use IT to develop products, services, and capabilities that give the company major advantages in the markets in which it competes.

Introduction

- IT can enable or impede business change.
- The wrong business process design or the wrong technology, however, can force a company into oblivion.

IT and Change

- To a manager in the Information Age, an understanding of how IT enables business change is essential.
- To manage effectively means to manage change effectively.
- As IT becomes ever more prevalent and more powerful, the speed and magnitude of the changes that organizations must address to remain competitive will continue to increase.

IT and Change

- To be a successful manager, one must understand how IT enables change in a business, one must gain a process perspective of business, and one must understand how to transform business processes effectively.

Process Perspective

- A process perspective keeps the big picture in view and allows the manager to concentrate on the work that must be done to ensure the optimal creation of value.

Process Perspective

- A process perspective helps the manager:
  - Avoid or reduce duplicate work,
  - Facilitate cross-functional communication.
  - Optimize business processes, and, ultimately,
  - Best serve the customers and stakeholders.

Process Perspective

- In business, a 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 (sub-processes) that transform the inputs into outputs
  - A set of metrics for measuring effectiveness

Process Perspective

- Metrics are important because they focus managers on the critical dimensions of the process.
- Metrics for a business process are things like:
  - Throughput, which is how many outputs can be produced per unit time; or
  - Cycle time, which is how long it takes for the entire process to execute

Process Perspective

- Examples of business processes include customer order fulfillment, manufacturing planning and execution, payroll, financial reporting, and procurement.

Tools for Change

- Two techniques are used to transform a business:
  - Radical process, which is sometimes called business process reengineering (BPR) or simply reengineering, and
  - Incremental, continuous process improvement, sometimes referred to using the term total quality management (TQM).

Tools for Change

- Although some believe these concepts are obsolete, most companies are either involved with one or both of these methods of improvement.
- In fact, some businesses have made radical process reconfiguration a core competency so that they can better serve customers whose demands are constantly changing.

Tools for Change

- Both concepts are important; they continue to be two different tools a manager can use to effect change in the way his or her organization does business.
- The basis of both approaches is viewing the business as a set of business processes.

Total Quality Management (TQM)

- At one end of the continuum, managers use TQM to improve business processes through small, incremental changes.
- This improvement process generally involves the following activities:
  - Choosing a business process to improve
  - Choosing a metric by which to measure the business process.
  - Enabling personnel involved with the process to find ways to improve it according to the metric.

Total Quality Management (TQM)

- Personnel often react favorably to TQM because it gives them control and ownership of improvements and, therefore, renders change less threatening.
- The improvements grow from their grassroots efforts.

Total Quality Management (TQM)

- One popular management approach to TQM is called six-sigma.
- This approach uses TQM within a larger structure of tools and processes to continually improve processes.

Business Process Reengineering (BPR)

- One of the most important implementations of competitive strategies is Business Process Reengineering (BPR), often simply called reengineering .

Business Process Reengineering (BPR)

- Reengineering is a fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in cost, quality, speed, and service.

Business Process Reengineering (BPR)

- BPR combines a strategy of promoting business innovation with a strategy of making major improvements to business processes so that a company can become a much stronger and more successful competitor in the marketplace.

Business Process Reengineering (BPR)

- Although the potential payback of reengineering is high, so too is its risk of failure and level of disruption to the organizational environment.
- Making radical changes to business processes to dramatically improve efficiency and effectiveness is not an easy task.

Business Process Reengineering (BPR)

- For example, many companies have used cross-functional enterprise resource planning (ERP) software to reengineer, automate, and integrate their manufacturing, distribution, finance, and human resource business processes.

Business Process Reengineering (BPR)

- Although many companies have reported impressive gains with such ERP reengineering projects, many others either have experienced dramatic failures or did not achieve the improvements they sought.

Business Process Reengineering (BPR)

- Many companies have found that organizational redesign approaches are an important enabler of reengineering, along with the use of information technology.

Business Process Reengineering (BPR)

- For example, one common approach is the use of self-directed cross-functional or multidisciplinary process teams .

Business Process Reengineering (BPR)

- Employees from several departments or specialties, including engineering, marketing, customer service, and manufacturing, may work as a team on the product development process.

Business Process Reengineering (BPR)

- Another example is the use of case managers ,who handle almost all tasks in a business process instead of splitting tasks among many different specialists.

BPR

- BPR typically faces greater internal resistance than does TQM.
- For this reason, managers should use BPR instead of TQM only when they require radical change: for instance, when the company is in trouble, when it imminently faces a major change in the operating environment, or when it must change significantly in order to outpace its competition.

Key aspects of BPR

- The need for radical change.
- Thinking from a cross-functional process perspective (or, as consultants like to say, “thinking outside the box”).
- Challenging old assumptions.
- Networked (cross-functional) organizing.
- Empowerment of individuals in the process.
- Measurement of success via metrics tied directly to business goals.

Spectrum of Organizational Change

- Automation:
- Rationalization:
- Paradigm shift:
- Business process reengineering:

Automation

- Using the computer to speed up the performance of existing tasks.

Rationalization

- The streamlining of standard operating procedures, eliminating obvious bottlenecks, so that automation makes operating procedures more efficient.

Paradigm Shift

- Radical re-conceptualization of the nature of the business and the nature of the organization.

Business process reengineering

- The radical redesign of business processes, combining steps to cut waste and eliminating repetitive, paper-intensive tasks in order to improve cost, quality, and service, and to maximize the benefits of information Technology.

BPR and Process Improvement

- Many firms are focusing on building new information systems that will improve their business processes.
- Some of these system projects represent radical restructuring of business processes, whereas others entail more incremental change.

BPR and Process Improvement

- If firms rethink and radically redesign their business processes before applying computing power, they can potentially obtain very large payoffs from their investments in Information Technology.

Steps in effective Reengineering

1. Identify a few core business processes to be redesigned.
2. Identify change levers
3. Develop the process vision
4. Understand the existing processes
5. Design and prototype the new process

Step 1: Identify a few core business processes to be redesigned

- Focusing on those with the greatest potential payback and strategic value.
- Look at the business operations, the people and their work, and the customer network.

Step 2: Identify change levers

- The information and information systems are major enablers in the business process changes and each has unique contribution to the process identification, those that have what potential and those without.
- Information systems places organization at a competitive potential to management success

Steps 3: Develop the process vision

- Generate the view of how the process should be.
- The concept of strategic fit strategic, structure, style, systems, skills, staff, etc.

Step 4: Understand the existing processes

- Understanding the problems inherent in the current business process avoids them being repeated.
- Knowing the present state may provide better hop to a new state.

Step 5 Design and prototype the new process

- Having established a vision of what processes are to be transformed and into what, the mechanics of it all have to be defined.

Steps in Effective BPR

- Following these steps does not automatically guarantee that reengineering will always be successful.
- The organization's IT infrastructure should have the capabilities to support business process changes that span boundaries between functions, business units, or firms.

BPR and Role of Information Systems

- For effective BPR, the Information Systems must show a number of organizational characteristics that contribute skills and thus become:
  - A provider of cross-functional perspectives
  - A facilitator of ownership of BPR initiatives by others.
  - A communicator.
  - A provider of skills
  - Provider of speedy software

The Role of Information Technology in BPR

- Information technology plays a major role in reengineering most business processes.
- The speed, information-processing capabilities, and connectivity of computers and Internet technologies can substantially increase the efficiency of business processes, as well as communications and collaboration among the people responsible for their operation and management.

The Role of Information Technology in BPR

- For example, the order management process is vital to the success of most companies.
- Many of them are reengineering this process with ERP software and Web-enabled e-business and e-commerce systems.

BPR and Role of Information Systems

- A provider of cross-functional perspectives that encourage a wide vision and mitigate against obstacles.

BPR and Role of Information Systems

- A facilitator of ownership of BPR initiatives by others.
- A communicator of business opportunities and potentials in a language that can be understood.

BPR and Role of IS

- A provider of skills in management of large and complex projects.
- Provider of speedy software systems that embody the new process vision by significant alterations to systems delivery paradigms.

BPR of Computer Based IS

- Business process reengineering might involve:
  - Reworking systems
  - Good system features retained
  - Becoming development methodology of choice

BPR of Computer Based Information Systems (CBIS)

- The strategy of replacing outdated processes with newer ones can be called BPR.
- Information Systems can apply BPR to the redesign of CBS that can no longer be kept running by normal means.

BPR of Computer Based Information Systems (CBIS)

- Legacy Systems are systems which are too valuable to discard although their existence represents a drain in the IS resources.
- An old or outdated system that an organisation may have implemented many years ago.

Legacy Systems

- An application in which a company has already invested considerable time and money but which is now old and does not meet the current information requirements of the organisation.

BPR of Computer-Based Information Systems

- When a firm applies BPR to its major operations, the operation invariably has a ripple effect that result in the redesign of CBS.

BPR of Computer-Based Information Systems

- However, that system is now left in the organisation and although it may not be up-to-date, it is still being used.
- The system is literally a legacy to past decision making.

BPR of Computer-Based Information Systems

- The techniques devised for applying BPR to CBS are:
  - Reverse Engineering.
  - Restructuring.
  - Reengineering.

Reverse Engineering

- The process of analyzing a system to identify its elements and their relationships, and to create documentation in higher level of abstraction than currently exists.

Reverse Engineering

- It is applied to a system when little or no documentation is in place and when there is need to prepare one.

Reverse Engineering

- It does not change the functionality but to better understand a system so as to make changes by other means.

Restructuring

- This is the transformation of a system from one form into another form without changing its functionality.
- E.g. from structured programming language to object oriented programming language.

Reengineering

- Also called forward engineering.
- This is the complete redesign of a system with an objective of changing its functionality.
- It consists of reverse engineering to understand the existing system and forward engineering to construct a new one.

Reengineering

- Reengineering aims at functional and technical qualities.
- Reengineering is done when functionality is poor but technical quality is good.

How Information Systems supports quality Improvements

1. Simplifying the product or the production process.
2. Benchmarking
3. Use customer demands as guide to improving products and services
4. Reduce cycle time
5. Improve the quality and precision of the design
6. Increase the precision of production.

Simplifying the product or the production process

- The fewer steps in a process, the less time and opportunity for an error to occur.
- Orders will more accurate and arrive at the customers within appropriate time.
- Manual processes increases the chances of human error, and the whole process takes long.

Benchmarking

- Benchmarking is the process of setting of strict standards for products, services, or activities, and then measuring performance against those standards.

Benchmarking

- Firms can use:
  - External industry standards.
  - Standards set by other companies.
  - Internally developed high standards, or
  - Some combination of the three.

Benchmarking

- E.g. a firm carefully redesigning its order fulfillment process and information systems so that orders could be processed as soon as they are received and shipped out within 24 hours.

Reduce Cycle Time

- Reducing the amount of time from the beginning of a process its end (cycle time) usually results in fewer steps.
- Shorter cycles means that errors are often caught earlier in production(or logistics, or design or any other function), often before the process is complete, eliminating hidden costs.
- E.g reducing the cycle time by a day and a half of a process reduces the problems.

Improve the quality and precision of the design

- Computer-Aided Design (CAD) software makes dramatic quality improvements possible in a wide range of business fronts.
- Using the software allows for interactive designs and test until satisfaction is got from the results.

Improve the quality and precision of the design

- Because of speed and accuracy of CAD software, the product is of much higher quality than would have been possible through manual design and testing.

Increase the precision of production

- Making a production process precise decreases the amount of variation from one part to another.

Becoming an Agile Company

- We are changing from a competitive environment in which mass-market products and services were standardized, long-lived, information-poor, and exchanged in one-time transactions, to an environment in which companies compete globally with niche market products and services that are individualized, short-lived, information-rich, and exchanged on an ongoing basis with customers

Becoming an Agile Company

- To be an agile company, a business must use four basic strategies.
  - First, the business must ensure that customers perceive the products or services of an agile company as solutions to their individual problems. Thus, it can price products on the basis of their value as solutions, rather than their cost to produce.

Becoming an Agile Company

- Second, an agile company cooperates with customers, suppliers, other companies, and even with its competitors.
- This cooperation allows a business to bring products to market as rapidly and cost-effectively as possible, no matter where resources are located or who owns them.

Becoming an Agile Company

- Third, an agile company organizes so that it thrives on change and uncertainty.
- It uses flexible organizational structures keyed to the requirements of different and constantly changing customer opportunities.

Becoming an Agile Company

- Fourth, an agile company leverages the impact of its people and the knowledge they possess.
- By nurturing an entrepreneurial spirit, an agile company provides powerful incentives for employee responsibility, adaptability, and innovation.

Virtual Company

- In today's dynamic global business environment, forming a virtual company can be one of the most important strategic uses of information technology.
- A virtual company (also called a virtual corporation or virtual organization) is an organization that uses information technology to link people, organizations, assets, and ideas.

Why form Virtual Companies

- It is the best way to implement key business strategies and alliances that promise to ensure success in today's turbulent business climate.
- Several major reasons for virtual companies.

Why form Virtual Companies

- For example, a business may not have the time or resources to develop the necessary manufacturing and distribution infrastructure, personnel competencies, and information technologies to take full advantage of a new market opportunity in a timely manner.

Why form Virtual Companies

- It can assemble the components it needs to provide a world-class solution for customers and capture the market opportunity only by quickly forming a virtual company through a strategic alliance of all-star partners.

Why form Virtual Companies

- Today, of course, the Internet, intranets, extranets, and a variety of other Internet technologies are vital components in creating such successful solutions.

End Of Chapter 3