IST 301: Business Processes
Section II-D: Business Process Reengineering, Redesign, and Improvement

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Learning Objectives

- Understanding and applying fundamental principles of business process reengineering/redesign.
- Learn principles and tools of business process improvement.
- Understand the relationship between IT and business process reengineering.

What is Business Process Reengineering?

- Hammer and Champy (1993): “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”

Historical Trigger of BPR

Disappointment with return on investment in IT in late 1980s by US corporations
Increased global competition with intensified pressure for speed and customer responsiveness
Realization that existing organizational structures, process designs were not “work-friendly”

Business Process Reengineering (BPR)

- Hammer and Champy (1993):
  - The most business processes are antiquated and need to be completely redesigned.
  - Many existing processes have been designed within the confines of individual functions and do not make use of modern technology for information processing.
- Hammer (1990):
  - Use IT to redesign—not just automate-existing business processes.
  - Recognizing and breaking away from the outdated rules and fundamental assumptions that underline operations.

B-P-R Focus

- P
  - a primary focus on essential processes that deliver value
- B
  - coordination of activities from end-to-end
- R
  - large improvements in cycle time, cost, and quality
  - ideas are revolutionary rather than evolutionary
  - information technology is the enabler
  - eliminating waste, and increasing value content
  - job tasks, responsibility assignments and information flows all change
BPR Results

- "Order of magnitude" improvements
  Survey by CSC Index Inc. found an average improvement of:
  - 48% in cost,
  - 80% in cycle time, and
  - 60% in quality (reduced defects).
- Reengineered work, which involves more variety and responsibility, is more satisfying to workers.

Case: IBM Credit Processing

A loan deal at the IBM Credit Corporation is processed as follows:

Step 1: A salesperson calls in with a proposed deal. The call is taken by one of a half dozen receptionists sitting around a conference table. Whoever receives the call logs it and writes the details on a piece of paper. A clerk then carries the paper to a second person, who initiates the next step in the process.

Step 2: The computer specialist enters the data into a computer system and checks the client’s credit history. This person then writes the details on a piece of paper and carries the paper, along with the original documentation, to a loan officer.

Step 3: The loan officer modifies the standard IBM loan agreement for the customer. Details of the modified loan agreement, along with the other documentation, are then sent to an interest expert.

Step 4: The interest expert determines the appropriate interest rate for the loan using an information system. Then, the interest expert writes a quote letter and sends it back to the salesperson via overnight mail.

IBM Credit: Existing Process

The entire process consumed six days on average, although it sometimes took as long as two weeks (Hammer and Champy pg 40)

Reengineered IBM Credit Process

IBM Credit accomplished 90% reduction in processing time and a hundredfold improvement in productivity.

Lessons From IBM Credit Case

- IBM DID NOT ASK these questions
  - How to improve checking credit worthiness?
  - How to improve creating quote letter?
- IBM ASKED this question
  - How to improve overall loan processing process?
- Lessons Learned:
  - For dramatic improvements, make a radical change to the process as a whole (end-to-end).

Ford Case
Enabling Role of Information Technology

- A company that cannot changes the way it thinks about information technology cannot reengineer.
- A company that equates technology with automation cannot reengineer.

![Diagram of Existing Process Flow](IT) ![Diagram of New Process Flow](IT)

Deductive vs Inductive Thinking of IT

**Deductive Thinking**
- Problem
- Alternative Solutions
- Technology Solution

**Inductive Thinking**
- New Technology
- Alternative Implementation
- Problems

Hall of Shame

- "This 'telephone' has too many shortcomings to be seriously considered as a means of communication." — Western Union memo, 1876
- "While theoretically and technically television may be feasible, commercially and financially it is an impossibility." — Lee DeForest, inventor
- Marconi viewed the radio as a wireless telegraph.
- "The value of the phonograph is to allow ‘dying gentlemen’ to record their last wishes." — Thomas Edison
- "I think there is a world market for maybe fifty computers." — Thomas Watson, chairman of IBM, 1943
- "Mainframes are enough for everything, why we need small machines?" — ten years later
- "There is no reason anyone would want a computer in their home." — Ken Olson, president of DEC, 1977
- "640K ought to be enough for anybody" — Bill Gates, 1981

Disruptive power of Technology

- New Technology
- New Rules

Rule 1:

**Old Rule:** Information can appear in only one place at one time.
**Disruptive Technology:** Distributed Databases
**New Rule:** Information can appear simultaneously in as many places as it can be.

Rule 2:

**Old Rule:** Only experts can perform complex work
**Disruptive Technology:** Expert systems and artificial intelligence
**New Rule:** A generalist can do the work of an expert.
Rule 3:
- **Old Rule**: Business must choose between centralization and decentralization
- **Disruptive Technology**: Telecommunication networks
- **New Rule**: Business can simultaneously reap the benefits of centralization and decentralization.

Rule 4:
- **Old Rule**: Managers make all decisions
- **Disruptive Technology**: Decision support tools.
- **New Rule**: Decision making is a part of everybody's job.

Rule 5:
- **Old Rule**: Field personnel need offices where they can receive, store, and transmit information
- **Disruptive Technology**: Wireless data communication and notebooks.
- **New Rule**: Field personal can send and receive information wherever they are.

Rule 6:
- **Old Rule**: The best contact with a potential buyer is personal contact
- **Disruptive Technology**: Interactive videodisk or web pages.
- **New Rule**: The best contact with a potential buyer is effective contact wherever possible.

Rule 7:
- **Old Rule**: You have to find out where the things are
- **Disruptive Technology**: Automatic identification and tracking technology.
- **New Rule**: Things tell you where they are.

Rule 8:
- **Old Rule**: Plans get revised periodically
- **Disruptive Technology**: High performance computing.
- **New Rule**: Plans get revised instantaneously.
Business Process Redesign

Business process redesign is to streamline a business process to minimize waste, remove valueless complexities, obliterate unnecessary obsolete activities, and consolidate activities.

- Reduced Cost
- Reduced Cycle Time
- Increased Customer Satisfaction

E-Business

- E-business refers to the replacement of physical processes with electronic ones.

The Reality of the New Economy in 21st Century

E-Business OR No-Business

Strategic Capabilities for e-Business

- Execute business processes faster
- Learn faster through processes
- Reconfigure business processes faster

Process Redesign Principles and Tactics for E-Business

- Principle #0: STREAMLINE
  Remove waste, simplify, consolidate similar activities.

- Process Redesign Tactics
  - Restructure it
    - Change structure and configuration of processes
  - Inforlame it
    - Change information flow around processes
  - Mind it
    - Change knowledge management around processes

#1: LOSE WAIT (Restructure it)

- Reduce (Eliminate) waiting time in process flow using such tactics:
  - Case management (close-loop teams) & reducing hand-offs
  - Concurrent execution
  - Do not allow support or management activities gate to value-added activities
  - Continuous flow rather than batches
  - Modify upstream practice to relieve downstream bottlenecks

#2 ORCHESTRATE

- Let the most swiftest and most able enterprise execute.
  - Partner a process with another enterprise.
  - Outsource a process to another enterprise.
  - Insorce a process back into the enterprise.
Case Study:

- Restructuring L.L. Bean’s Order Fulfillment Process

#3: MASS-CUSTOMIZE

- Flex the process for any time, any place, any way.
  - Flex access by expanding the time window for the process.
  - Flex access by migrating the physical place in which process happens.
  - Create modular process platforms.
  - Push customization to closest to the customer and enable dynamic customization.

#4 SYNCHRONIZE

- Synchronize the physical and virtual parts of the process
  - Match the offering of the physical and virtual part of the channel.
  - Track the movement of physical products electronically.

#5: DIGITILIZE AND PROPAGATE (informate it)

- Capture information digitally at the source and propagate it throughout the process.
  - Shift the data entry to data source and digitalize it.
  - Make the process as paperless as possible as early as you can.
  - Make information more easily accessible upstream and downstream to those who need it.
  - Shrink the distance between the information and the decision.

Case: Reengineering Ford’s Accounts Payable Process

- Read the case study and find examples for examples of tactics
  - Shift the data entry to customers and digitalize it.
  - Make the process as paperless as possible as early as you can.
  - Make information more easily accessible upstream and downstream to those who need it.
  - Shrink the distance between the information and the decision.

Ford Case
#6: VITRIFY
- Provide glass-like visibility through fresher and richer information about the process status.
- Provide on-demand tracking information for customer of the process.
- Provide reporting capabilities that provide on-fly analysis.

#7: SENSITIZE
- Fit the process with vigilant sensors and feedback loops that can prompt action.
- Build in customer feedback loops to detect dysfunction.
- Enable software smarts to trigger quick business reflexes.
- Attach environmental probes to the process to monitor change.

Mind It
- #8 ANALYZE AND SYNTHESIZE
  - Provide "what-if" capabilities to analyze decision options.
  - Provide "slice and dice" data analysis capabilities that detect patterns.
  - Provide intelligent integration capabilities across multiple information resources.
- #9 CONNECT, COLLECT, AND CREATE
  - Build knowledge repositories that can reused
  - Develop a FAQ database
  - Embedded knowledge-sharing spaces
- #10 PERSONALIZE
  - Learn preferences and habit of your customers.
  - Keep track of personal process execution habits.

Case Study: Storage Dimensions