Unit 4: Using Information Technology for strategic Advantage

Strategic Uses of IT

- Companies may choose to use information systems strategically, or they may be content to use IT to support efficient everyday operations.
- If a company emphasized strategic business uses of information technology, its management would view IT as a major competitive differentiator.
- 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.

Reengineering Business Processes

- One of the most important implementations of competitive strategies is **business process reengineering (BPR)**, often simply called **reengineering**.
- Reengineering is a fundamental rethinking and radical redesign of business processes to achieve dramatic improvements in cost, quality, speed, and service.
- 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.

FIGURE 2.10
Some of the key ways that business process reengineering differs from business improvement.

	Business Improvement	Business Process Reengineering
Level of Change	Incremental	Radical
Process Change	Improved new version of process	Brand-new process
Starting Point	Existing processes	Clean slate
Frequency of Change	One-time or continuous	Periodic one-time change
Time Required	Short	Long
Typical Scope	Narrow, within functions	Broad, cross-functional
Horizon	Past and present	Future
Participation	Bottom-up	Top-down
Path to Execution	Cultural	Cultural, structural
Primary Enabler	Statistical control	Information technology
Risk	Moderate	High

Source: Adapted from Howard Smith and Peter Fingar, *Business Process Management: The Third Wave* (Tampa, FL: Meghan-Kiffer Press, 2003), p. 118.

- However, figure above points out that although the potential payback of reengineering is high, so too is its risk of failure and level of disruption to the organizational environment.

- 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.
- 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.
- Many companies have found that organizational redesign approaches are an important enabler of reengineering, along with the use of information technology.
- For example, one common approach is the use of self-directed cross-functional or multidisciplinary *process teams*.
- Employees from several departments or specialties, including engineering, marketing, customer service, and manufacturing, may work as a team on the product development process.
- 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.

The Role of Information Technology

- 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.
- For example, the order management process illustrated in figure below 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, as outlined in figure.

FIGURE 2.11 The order management process consists of several business processes and crosses the boundaries of traditional business functions.

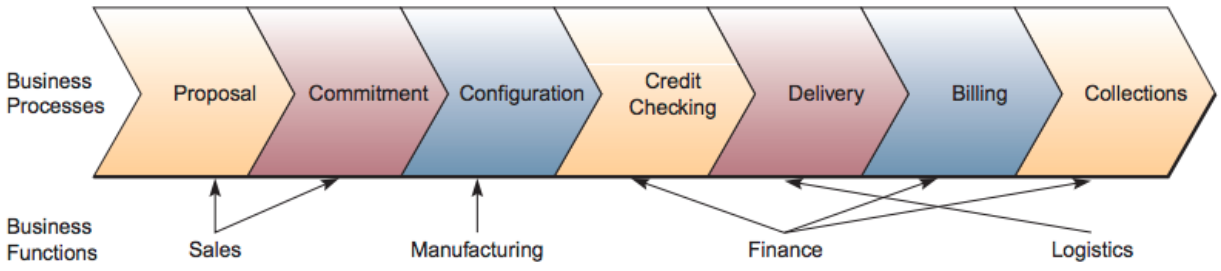
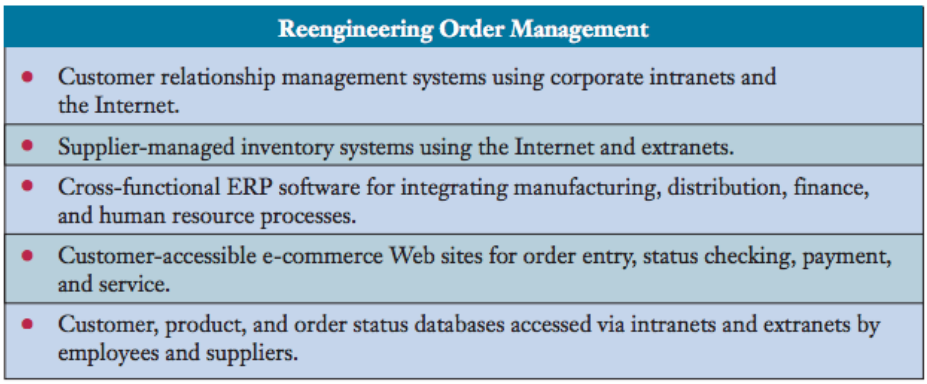


FIGURE 2.12
Examples of information technologies that support reengineering the order management processes.



Becoming an Agile company

- To be an agile company, a business must use four basic strategies:
    1. 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.
    2. 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.
    3. 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.
    4. 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.

FIGURE 2.13 How information technology can help a company be an agile competitor, with the help of customers and business partners.

Type of Agility	Description	Role of IT	Example
Customer	Ability to co-opt customers in the exploitation of innovation opportunities • As sources of innovation ideas • As cocreators of innovation • As users in testing ideas or helping other users learn about the idea	Technologies for building and enhancing virtual customer communities for product design, feedback, and testing	eBay customers are its de facto product development team because they post an average of 10,000 messages each week to share tips, point out glitches, and lobby for changes
Partnering	Ability to leverage assets, knowledge, and competencies of suppliers, distributors, contract manufacturers, and logistics providers in the exploration and exploitation of innovation opportunities	Technologies facilitating interfirm collaboration, such as collaborative platforms and portals, supply chain systems	Yahoo! has accomplished a significant transformation of its service from a search engine into a portal by initiating numerous partnerships to provide content and other media-related services from its Web site
Operational	Ability to accomplish speed, accuracy, and cost economy in the exploitation of innovation opportunities	Technologies for modularization and integration of business processes	Ingram Micro, a global wholesaler, has deployed an integrated trading system allowing its customers and suppliers to connect directly to its procurement and ERP systems

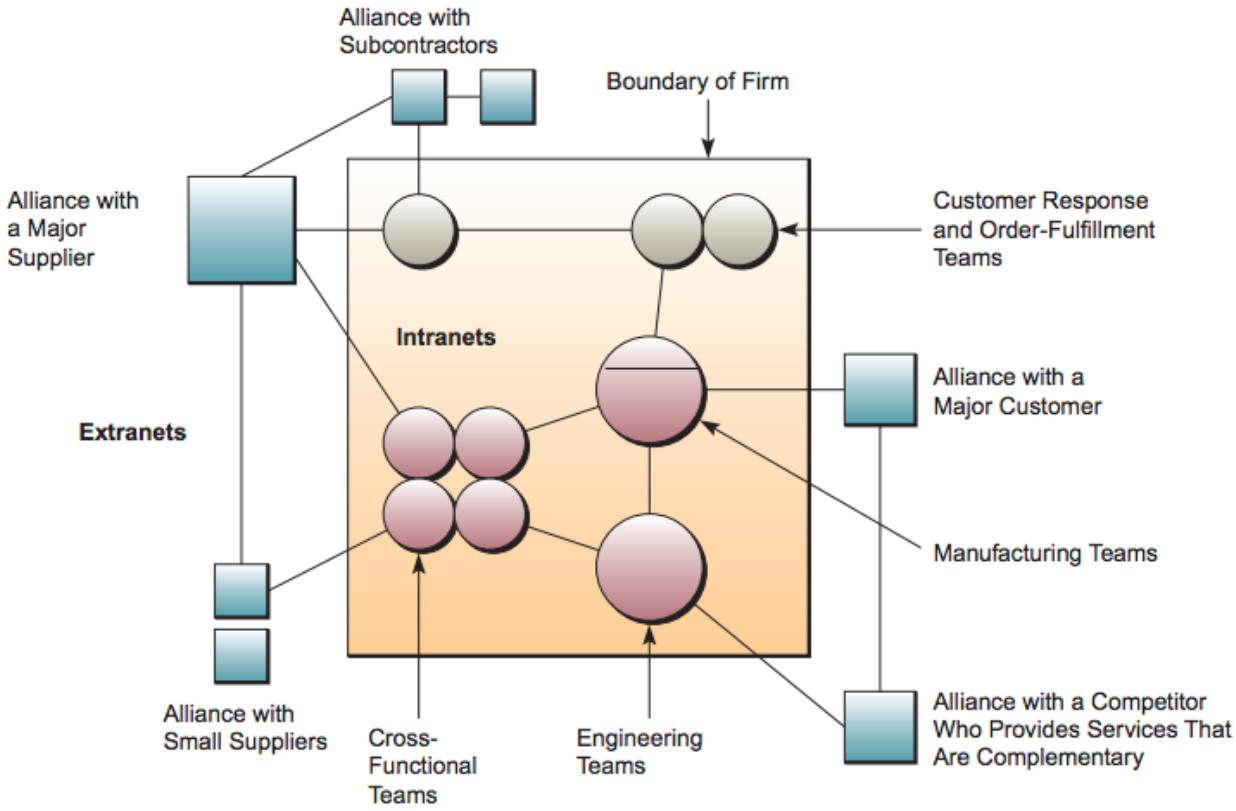
Source: Adapted from V. Sambamurthy, Anandhi Bhaharadwaj, and Varun Grover, "Shaping Agility through Digital Options: Reconceptualizing the Role of Information Technology in Contemporary Firms," *MIS Quarterly*, June 2003, p. 246.

- Figure above summarizes another useful way to think about agility in business.
- This framework emphasizes the roles that customers, business partners, and information technology can play in developing and maintaining the strategic agility of a company.
- Information technologies enable a company to partner with its suppliers, distributors, contract manufacturers, and others via collaborative portals and other Web-based supply chain systems that significantly improve its agility in exploiting innovative business opportunities.

Creating a Virtual Company

- 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.

FIGURE 2.14 A virtual company uses the Internet, intranets, and extranets to form virtual workgroups and support alliances with business partners.



- Figure above illustrates that virtual companies typically form virtual workgroups and alliances with business partners that are interlinked by the Internet, intranets, and extranets.
- Notice that this company has organized internally into clusters of process and cross-functional teams linked by intranets. It has also developed alliances and extranet links that form inter-enterprise information systems with suppliers, customers, subcontractors, and competitors.
- Thus, virtual companies create flexible and adaptable virtual workgroups and alliances keyed to exploit fast-changing business opportunities.

Virtual Company Strategies

FIGURE 2.15
The basic business strategies of virtual companies.

Strategies of Virtual Companies
• Share infrastructure and risk with alliance partners.
• Link complementary core competencies.
• Reduce concept-to-cash time through sharing.
• Increase facilities and market coverage.
• Gain access to new markets and share market or customer loyalty.
• Migrate from selling products to selling solutions.

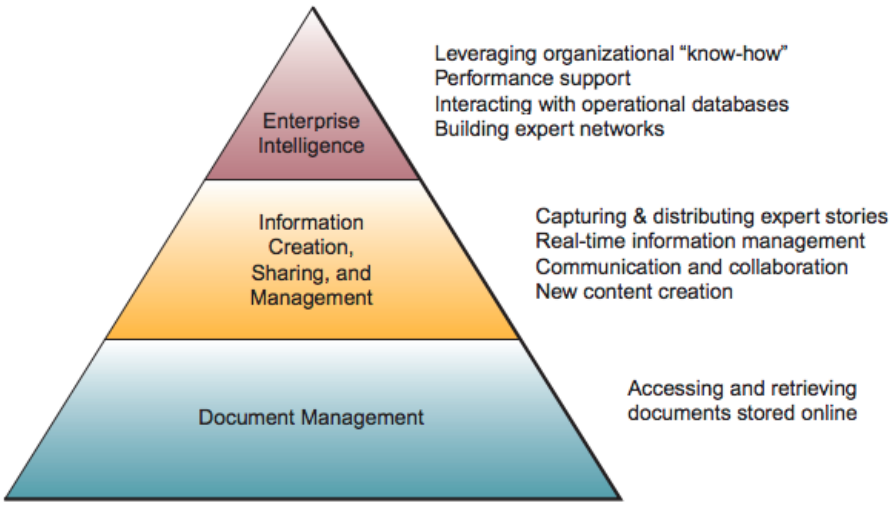
- A business may not have the time or resources to develop the necessary manufacturing and distribution infrastructure, personnel competencies, and information technologies to take full advantage of a new market opportunity in a timely manner.
- It can assemble the components it needs to provide a world-class solution for customers and capture the market opportunity only by quickly forming a virtual company through a strategic alliance of all-star partners.
- Today, of course, the Internet, intranets, extranets, and a variety of other Internet technologies are vital components in creating such successful solutions.

Building a Knowledge Creating Company

- In an economy where the only certainty is uncertainty, the one sure source of lasting competitive advantage is knowledge.
- When markets shift, technologies proliferate [multiply], competitors multiply, and products become obsolete [out of date] almost overnight, successful companies are those that consistently create new knowledge, disseminate it widely throughout the organization, and quickly embody it in new technologies and products.
- These activities define the “knowledge-creating” company, whose sole business is continuous innovation.
- Knowledge-creating companies exploit two kinds of knowledge:
    - **Explicit Knowledge:** which is the data, documents, and things written down or stored on computers.
    - **Tacit Knowledge:**
        - Resides in workers.
        - Can often represent some of the most important information within an organization.
        - Long-time employees of a company often “know” many things about how to manufacture a product, deliver the service, deal with a particular vendor, or operate an essential piece of equipment.
        - is not recorded or codified anywhere because it has evolved in the employee’s mind through years of experience.
        - Much of this tacit knowledge is never shared with anyone who might be in a position to record it in a more formal way because there is often little incentive to do so or simply, “Nobody ever asked.”

Knowledge Management Systems

FIGURE 2.16
Knowledge management can be viewed as three levels of techniques, technologies, and systems that promote the collection, organization, access, sharing, and use of workplace and enterprise knowledge.



Source: Adapted from Marc Rosenberg, *e-Learning: Strategies for Delivering Knowledge in the Digital Age* (New York: McGraw-Hill, 2001), p. 70.

- As illustrated in figure, successful knowledge management creates techniques, technologies, systems, and rewards for getting employees to share what they know and make better use of accumulated workplace and enterprise knowledge. In that way, employees of a company are leveraging knowledge as they do their jobs.

- Making personal knowledge available to others is the central activity of the knowledge creating company. It takes place continuously and at all levels of the organization.
- Many companies are building knowledge management systems (KMS) to manage organizational learning and business know-how.
- The goal of such systems is to help knowledge workers create, organize, and make available important business knowledge, wherever and whenever it's needed in an organization.
- This information includes processes, procedures, patents, reference works, formulas, best practices, forecasts, and fixes.
- Internet and intranet Web sites, groupware, data mining, knowledge bases, and online discussion groups are some of the key technologies that may be used by a KMS.
- Knowledge management systems also facilitate organizational learning and knowledge creation.
- They are designed to provide rapid feedback to knowledge workers, encourage behavior changes by employees, and significantly improve business performance.
- As the organizational learning process continues and its knowledge base expands, the knowledge-creating company works to integrate its knowledge into its business processes, products, and services.

- This integration helps the company become a more innovative and agile provider of high-quality products and customer services, as well as a formidable competitor in the marketplace.