

# Strategic Uses of Information Technology

## Chapter 3

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## Outline

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- Working Outward: Business-to-Consumer
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- Working Across: Business-to-Business
  - ◆ Coordinating with Co-suppliers
  - ◆ Establishing Close and Tight Relationships
  - ◆ Becoming a Customer-Centric Value Chain
  - ◆ Getting Back-End Systems into Shape

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## What is Strategic Use?

- Having a significant, long-term impact on a firm's growth rate, industry, and revenue
  - ◆ Utilizing the Internet to conduct business became the strategic use of IT
- Using IT to gain a sustained competitive advantage in business
  - ◆ Make distinction in business

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## Utilizing the Internet

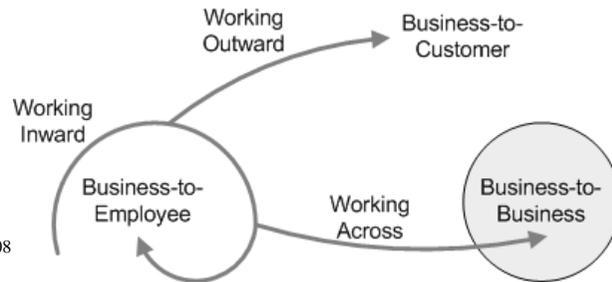
- Use of the Internet has already set off a revolution in business
- The questions that remain are:
  - ◆ Has the revolution ended, or
  - ◆ Does an even larger revolution loom?
  - ◆ Does IT still matter?
  - ◆ What sorts of strategic uses are companies making?

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## Strategic Use of Information Systems

- **Working Inward** – Improving a firm's internal processes and structure
- **Working Outward** – Improving the firm's products and relationships with customers
- **Working Across** – Improving its processes and relationships with its business partners



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## History of Strategic Uses of IT

- Mid 1980s: End user computing (working inward)
  - ◆ End user computing dept. to help employees learn about PCs and user computing language
- Late 1980s: Using IT to gain competitive advantage (working outward)
  - ◆ e.g. Merrill Lynch cash account management, AA airline ticket booking

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## History of Strategic Uses of IT (cont')

- 1990s: Reengineering business processes (inward again)
  - ◆ Totally redesign how the enterprise operated
  - ◆ Introduction of ERP
- Mid-1990s: Internet's potential becoming evident
  - ◆ The technology was mostly used internally: Intranets
    - ◆ Improve company processes
    - ◆ Publish e-forms
- Late 1990s: E-business underway
  - ◆ Bursting of the dot com bubble
  - ◆ Integration of the Internet into how companies work has proceeded

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## History of Strategic Uses of IT (cont')

- Early 2000s: Emphasis on working across
  - ◆ leveraging traditional operations by using the Internet to work more closely with others
    - ◆ Linking to suppliers, customers and other partners in one's value chain or business ecosystem
  - ◆ Strike back of Brick-and-Mortar
- Mid 2000s: Something has changed
  - ◆ Being used strategically: (Inward, Outward, Across)
  - ◆ Some start questioning IT ability for giving companies a competitive edge but it is absolutely necessary for competitive parity.

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## Whither the Internet Revolution?

- Revolution arises only after organization structure their activities around new technologies
  - ◆ We are now in a period where organizations are re-architecting themselves around Internet technologies
    - ◆ Tearing down old structures as they go
- Real gains will come when Internet technology adapts to organizations and people
  - ◆ When the technology disappears and becomes part of life
  - ◆ It will be quiet compared to frenzy of Dot-Com but many think it will be a giant revolution

## The Cheap Revolution

- The cost of data processing, storage and transport has dropped relentlessly
  - ◆ \$480/MIPS in 1978 → \$50/MIPS in 1985 → \$4/MIPS in 1995
  - ◆ \$10m/GB in 1956 → \$200K/GB in 1980 → \$1/GB in 2003
- CIO are shifting from buying expensive proprietary products to buying cheap generic products
  - ◆ Cheap Technology
    - ◆ Google: runs on 100,000 cheap servers
  - ◆ Dellification
    - ◆ Dell: moved from selling PC to servers, storage devices
  - ◆ The Cheap Revolution
    - ◆ Labor – outsourcing to other countries
    - ◆ Software – Linux vs. Microsoft
    - ◆ Telecommunications – VoIP

## Episode Two: Profitability Strikes Back

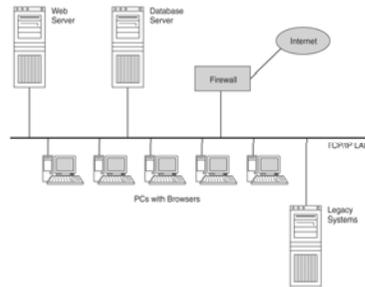
- Dot-Com became Dot-Bomb because they couldn't generate profits
  - ◆ Episode One: The Dot-Com Menace
  - ◆ Episode Two: Profitability Strikes Back
    - ◆ Whilst it has taken these so-called "old economy firms" longer to utilize the Web they realize that they must do so in a profit-making manner
- Use the Internet to complement your strategy, not replace your past way of serving customers nor disintermediate your channels
  - ◆ Michael Porter, Harvard Business School

## Does IT Still Matter?

- "IT Doesn't Matter" – article by Nicholas Carr in Harvard Business Review May 2003:
  - ◆ What makes a resource truly strategic is not ubiquity but scarcity
  - ◆ Proprietary technologies vs. infrastructural technologies
  - ◆ IT is an infrastructure technology, like rail, electricity, telephone etc.
  - ◆ IT build out is now much closer to its end than its beginning
  - ◆ When a resource becomes essential to competition but inconsequential to strategy, the risks it creates become more important than the advantages it provides

## Working Inward: Business-to-Employee

- Strategically using IT inside the enterprise still focuses on using Internet to improve business processes
- The primary e-business way to reach employees is via Intranets
  - ◆ Intranets are private company networks that use Internet technologies and protocols, and possibly the Internet itself



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## Benefits of using Intranets

- Wider access to company information
- More efficient and less expensive systems development
- Decreased training (due to browser interface)
- By using an Intranet's open-system architecture, companies can significantly decrease the cost of providing companywide information and connectivity
- Investments in a Intranet significantly less expensive than a proprietary network
- The link to the Internet allows companies to expand intranets worldwide easily and cheaply
- Companies only need to record information in one place, where it can be kept up-to-date for access by all employees no matter where in the world they are located

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## Fostering a Sense of Belonging

- Intranets are evolving into very important enterprise structures
  - ◆ In some enterprises, the intranet is seen as the enterprise
    - ◆ Internal forms, rules and processes
- Can also be seen as cold and impersonal
  - ◆ Creating a sense of belonging
    - ◆ Giving a means of communicating and creating communities
    - ◆ Care of employees

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Read Case Example P.109-113

## Working Outward: Business-to-Customer

- In most industries companies need sophisticated computer systems to compete
  - ◆ Airlines, hotels, rental car companies: *Reservation system*
  - ◆ Wholesale: *Automated order entry and distribution*
  - ◆ Finance: *ATM, trading and settlement system*
- As industry leaders increase the sophistication of their systems to improve quality, service innovation and speed
  - ◆ Competitors must do the same or find themselves at a disadvantage

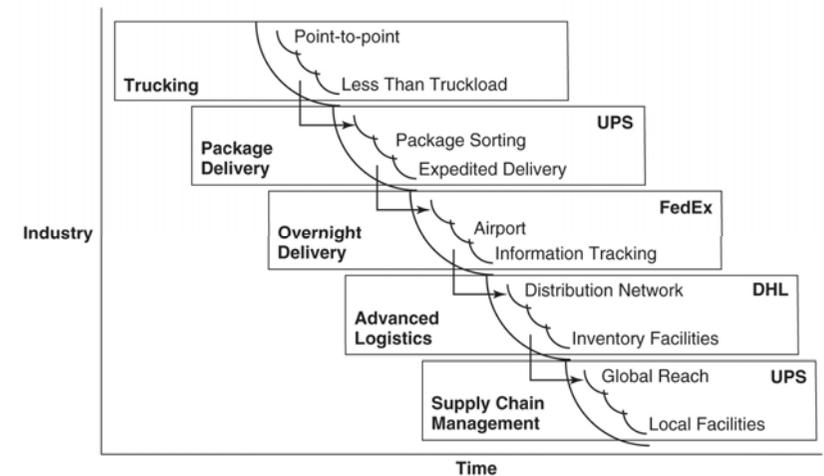
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## Jumping to a New Experience Curve

- Using IT (or any technology) as the basis for a product or service can, in some cases, be viewed as moving up a series of experience curves
- More experience leads to a set of connected curves vs. one continuous learning curve
- Each curve represents a new technology or combination thereof in a product or service as well as in its manufacture and/or support
- Moving to a new curve requires substantial investment in a new technology

## Jumping to a New Experience Curve



## Jumping to a New Experience Curve

- Strategically using IT to work outward is highly competitive and innovative
  - ◆ Technology updates occur frequently, forming a set of connected experience curves
  - ◆ Each curve represents a new technology or combination thereof in a product or service as well as in its manufacture and/or support
  - ◆ Moving to a new curve requires substantial investment in a new technology
- The principle of the experience curve is that management should not have too much emotional attachment to the current experience curve and fail to see the next one
  - ◆ Keep up or lose out
  - ◆ Historically lessons
    - ◆ Mainframe manufacturers ignored minicomputer firms
    - ◆ The minicomputer firms ignored PC manufacturers
    - ◆ Microsoft ignored the Internet

## The Emergence of Electronic Tenders

- Initially IT has been embedded in products and services for its computational capabilities
  - ◆ e.g. in cars and elevators to make them operate more efficiently
- Internet and embedded systems now allow products / services to be tended
  - ◆ e.g. packages / luggage tracking
  - ◆ Vehicle diagnostics monitored by car dealer
  - ◆ Potential uses are endless and we are just at the beginning
- Options are endless but the goal is still to get closer to the customer

## Getting Closer to Customers

- B2C e-business is the most widely reported form of e-business.
  - ◆ Nearly every type of product can now be purchased online: books, CDs, flowers etc.
  - ◆ Many success stories (e.g. Dell, E\*Trade)
- Success is not easily achieved:
  - ◆ Amazon had its business viability questioned for a long time
  - ◆ Levi Strauss, despite encouraging figures, quit selling jeans over the Internet
- Use of Internet has now become much more sophisticated.

## Getting Closer to Customers

- Customer Relationship Management (CRM) are used to learn more about customers
  - ◆ Whether you visit their website, call them (home, office, mobile) or buy something – the firm is often keeping track and combining that information to create a profile of you
  - ◆ Followed on from ERP
    - ◆ ERP focused on internal data
    - ◆ CRM focuses on customer data
  - ◆ Boon or bane: depends on how intrusive you think
    - Great useful information vs. Invasion of privacy (Protection laws in many countries)

## Getting Closer to Customers

- Successful selling over the Internet entails much more than just setting up a Web site and taking orders
  - ◆ It involves organizing the entire value chain around the Internet
- The E-Business model: Redefining customer value
  - ◆ On-demand
  - ◆ Personalization of service
  - ◆ Access to a wide range of competitive prices and sellers for products
- The Internet is not only used to sell to customers online. It is also used to provide services to companies
  - ◆ Sometimes it can be difficult to know which is more valuable – the product or the service
- The current focus is on staying in closer contact with customers
  - ◆ Understanding them better
  - ◆ Eventually, becoming customer driven by delivering personalized products and service

## Advantages of B2C E-business

- **Global Accessibility:** The Internet eliminates geographic boundaries.
- **Reduced Order Processing:** Automated order processing improves efficiency.
- **Greater Availability:** The company is available online 24 hours a day, 7 days a week.
- **Closer Customer Relationships:** With a direct link to customers, the company can quickly address concerns and customize responses.
- **Increased Customer Loyalty:** With improved customer service and personalized attention comes greater customer loyalty.
- **New Products and Services:** With direct links to customers, the company can provide information based products and services.
- **Direct Marketing:** Manufacturers can bypass retailers and distributors, selling directly to customers.

## Potential B2C Problems

- **Technical:** The information systems are not always reliable or may be poorly designed.
- **Logistics:** Getting products to customers around the world in a timely manner brings physical barriers to the virtual business.
- **Personnel:** Few people have expertise in dealing with the new environment, both in technical and business arenas.
- **Legal:** Doing business across geographic boundaries means dealing with multiple legal systems.
- **Competitive Response:** The ease of creating a Web presence brings low barriers to entry for competitors.
- **Transparent Prices:** Customers can easily compare prices across Web sites, reducing profit margins.
- **Greater Competition:** The elimination of geographic boundaries means a firm must compete with competitors from around the world.

## Working Across: Business-to-Business

- Streamlining processes that cross company boundaries is the next big management challenge
  - ◆ From streamlining internal processes to changing processes to mesh with other
- Working across business takes many forms including:
  - ◆ Working with "co-suppliers"
  - ◆ Working with customers in a close mutually dependent relationship
  - ◆ Building a virtual enterprise, in fact, one that might evolve into an e-marketplace

## Coordinating with Co-Suppliers

- Collaborating with non-competitors is a type of working across
  - ◆ E.g. Two food manufacturers might have the same customers (supermarkets and other retailers) but do not compete with each other
- Key in coordinating with co-suppliers
  - ◆ Mechanisms to share information quickly and easily
- Recommended steps for cooperation
  - ◆ Streamlining internal process
  - ◆ Collaborating on new joint processes
    - ◆ Eliminate duplicate activities, focus on customer needs.

## Establishing Close and Tight Relationships

- Working across companies is the most difficult area of strategic use of IT and Internet
  - ◆ Having relationships with various players in one's business ecosystem
    - ◆ Banks, advertising agencies, suppliers, distributors, retailers, even competitors
    - ◆ Such relationships often have accompanying linking information systems

## Establishing Close and Tight Relationships

- 3 level of systems integration between companies
  - ◆ **Loose Integration:** Provide ad hoc access to internal information
  - ◆ **Close Integration:** Two parties exchange information in a formal manner
  - ◆ **Tight Integration:** Two parties share at least one business process

	Numbers of Relationships	Potential Benefit	Cost of Integration	Risk
<b>Tight</b>	Few	•••	•••	•••
<b>Close</b>	Some	••	••	••
<b>Loose</b>	Many	•	•	•

• Basic conformance      •• Intermediate conformance with significant detail      ••• Advanced conformance with significant detail and ongoing maintenance

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## Becoming a Customer-Centric Value Chain

- A company's value chain consists of:
  - ◆ Upstream supply chain
  - ◆ Downstream demand chain
- Traditional make-to-stock: build products / create services and then push them to customers
  - ◆ Supply-Push world
- The rising of the reverse: A demand-pull world
  - ◆ A customer's order triggers the creation of a customized product or service the customer has defined

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Read Case Example P.129

## Pros and Cons of Demand-Pull

<b>Pros</b>	<ul style="list-style-type: none"> <li>■ Better satisfy the customer's diversified needs</li> <li>■ Value-chain transparency                             <ul style="list-style-type: none"> <li>◆ 10,000 memory chips vs. 30,000 ordered due to shortage</li> </ul> </li> </ul>
<b>Cons</b>	<ul style="list-style-type: none"> <li>■ Infrastructures: Manufacturer's becomes its suppliers – binding them even tighter</li> <li>■ Crashes can be more devastating</li> </ul>

The promise of CRM is alluring: aims to help companies shift their attention from managing their operations to satisfying their customers

## Getting Back-End Systems in Shape

- Working across often needs integrate existing back-end systems
  - ◆ Accounting, finance, sales, marketing, planning, etc
  - ◆ Particular challenging
    - ◆ Variety of platforms
    - ◆ Incompatible
- Approaches
  - ◆ Purchase new systems
  - ◆ Database Management Systems (DBMS)
  - ◆ ERP Systems
  - ◆ Extranet

**Goal:** extend the company's back-end systems to reengineer business processes external to the company