Chapter 2
Gaining Competitive Advantage Through Information Systems

“Your got a life. TiVo gets it.”

TiVo Incorporated advertisement motto.

Learning Objectives

1. Discuss how information systems can be used for automation, organizational learning, and strategic advantage.
2. Describe the international business and IT strategies used by companies operating in the digital world.
3. Explain why and how companies are continually looking for innovative ways to use information systems for competitive advantage.
4. Describe the opportunities and how organizations can increase digital technologies to provide free goods and services to customers as a business strategy for gaining a competitive advantage.

Types of Decisions You Face

Decision-Making Levels of an Organization

Operational Level

Managerial Level
Executive Level

Organizational Functional Areas

<table>
<thead>
<tr>
<th>Functional Area</th>
<th>Information System</th>
<th>Examples of Typical Systems</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accounting and finance</td>
<td>Systems used for managing, controlling, and auditing the financial resources of the organization</td>
<td>Inventory management, Accounts payable, Expense accounts, Payroll processing, Accounts receivable, General ledger, Budget management, Accounts payable, Payroll processing</td>
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<tr>
<td>Human resources</td>
<td>Systems used for managing, controlling, and auditing the human resources of the organization</td>
<td>Recruitment, Training and development, Employee performance management, Benefits management, Benefits management, Workforce planning</td>
</tr>
<tr>
<td>Marketing</td>
<td>Systems used for managing new product development, distribution, pricing, promotional effectiveness, and related services offered by the organization</td>
<td>Marketing research and analysis, Market research and analysis, Segmentation, Target marketing, Product location analysis</td>
</tr>
<tr>
<td>Production and operations</td>
<td>Systems used for managing, controlling, and auditing the production and operations resources of the organization</td>
<td>Cost and quality tracking, Materials and resource planning, Cost and quality tracking, Cost and quality tracking, Supply chain management</td>
</tr>
</tbody>
</table>

Business Process Supported by Functional Area IS

Major IS Tasks: Business Value Added

- What do we mean when we say we create business value by automating, organizational learning and supporting strategy

The Five Forces Model – Evaluating Business Segments

Pursuit of Competitive Advantage

- What technologies enable an organization:
  - Best-made product
  - Superior customer service
  - Lower costs than rivals
  - Proprietary manufacturing technology
  - Shorter development/test lead times
  - Well-known brand name
  - More value for the money
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2. Describe international business and IS strategies used by companies operating in the digital world.

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4. Describe freeconomics and how organizations can leverage digital technologies to provide free goods and services to customers as a business strategy for gaining a competitive advantage.

Learning Objectives

International Business Strategies in the Digital World

- Home Replication Strategy
- Multidomestic Strategy
- Global Strategy
- Transnational Strategy

Home Replication Strategy
- International business as an extension of home business
- Strengths: focus on core competencies in home market
- Weakness: inability to react to local market conditions
- Appropriate use: homogeneous markets

Global Business Strategy
- Strengths?
- Weaknesses?

Multidomestic Business Strategy
- Strengths?
- Weaknesses?

Transnational Business Strategy
- Strengths?
- Weaknesses?
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Learning Objectives

Valuing Innovations

- Which new technology will make or break your business?

Organizational Requirements for Innovation

- Process requirements — the organization has to be willing to do whatever it takes to implement the change.
- Resource requirements — need to have the human capital necessary for successful deployment of the system.
- Risk tolerance requirements — organizational members must have appropriate tolerance of risk and uncertainty.

Successful Innovation Is Difficult

- Innovation is often fleeting.
  - The advantages gained from innovations are often short lived.
- Innovation is often risky.
  - Sometimes even superior products can lose the race.
  - Blu-ray vs. HD DVD
- Innovation choices are often difficult.
  - Foreseeing the future is not always possible.
  - In 1994, the Internet was not given much attention.

Miniaturization — What is Moore’s Law?

<table>
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<tr>
<th>Business/Information Systems Strategies</th>
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<tbody>
<tr>
<td>Strategy</td>
<td>Description</td>
<td>Strengths</td>
<td>Weaknesses</td>
</tr>
<tr>
<td>Multinational</td>
<td>Federation of associated firms and independent national-level</td>
<td>Ability to quickly react to changes</td>
<td>Difficult to manage due to cultural, political, and operational differences</td>
</tr>
<tr>
<td>Global</td>
<td>Centralized organization with standardized systems</td>
<td>Standardized product, efficient cost advantage, tight controls on costs and market conditions</td>
<td>High costs, less flexibility</td>
</tr>
<tr>
<td>National</td>
<td>Some aspects centralized, others decentralized (imposed network)</td>
<td>Can achieve the benefits of both centralized and decentralized systems</td>
<td>Difficult to manage, very complex</td>
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<th>IS/Business Strategy</th>
<th>Systems</th>
<th>Communications</th>
<th>Data Resources</th>
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</thead>
<tbody>
<tr>
<td>Multinational</td>
<td>Decentralized systems</td>
<td>Broad communication between home office and subsidiaries</td>
<td>Local databases</td>
</tr>
<tr>
<td>Global</td>
<td>Centralized systems</td>
<td>Multiple networks between home office and subsidiaries</td>
<td>Data sharing between central home office and subsidiaries</td>
</tr>
<tr>
<td>National</td>
<td>Distributed/networked systems, integrated database system</td>
<td>Enterprise-wide linkages</td>
<td>Centralized global data resources</td>
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</table>
Predicting the Next New Thing

- Deciding which innovations to adopt is very difficult.
- Diffusion of Innovations
  - Classic view of adoption of innovations

The Innovator’s Dilemma

- Disruptive innovations
  - New technologies, products, or services that eventually surpass dominant technologies
  - Online vs. brick-and-mortar retailing
  - Automobiles vs. horses
  - CDs vs. records
  - MP3 vs. CDs
  - Undermine effective management practices

Disruptive Innovations

- 1970s:
  - Mid- and high-performance users were bulk of the market
  - Digital Equipment Company (DEC) tried to sell to those markets
  - Microcomputers seen as “toys”

Disruptive Innovations (cont’d)

- 1980s:
  - Microcomputers focusing on low-performance users’ needs
  - Ignored by DEC

Disruptive Innovations (cont’d)

- 1990s:
  - Growing performance of Microcomputers, meeting mid-performance users’ needs
  - DEC lost biggest market segment

Disruptive Innovations (cont’d)

- Today, microcomputers meeting entire market’s needs
  - DEC out of business
  - Next disruptive innovation: 3G and 4G mobile phones?
The Innovator’s Solution

• Christensen outlines a process—disruptive growth engine—that helps organizations respond to disruptive innovations more effectively.
  1. Start early.
  2. Executive leadership.
  3. Build a team of expert innovators.
  4. Educate the organization.

Implementing the Innovation Process

• E-Business Innovation Cycle
  ◦ The key to success is the extent of IS use in timely and innovative ways.

E-Business Innovation Cycle

Choosing Enabling/Emerging Technologies

• Process/group devoted to looking for emerging IT

Matching Technologies to Opportunities

• Most promising new technology matched with current economic opportunities

E-Business Innovation Cycle (cont’d)

Executing Business Innovation for Growth

• Stage at which the change is actually implemented

Assessing Value

• Value created for customers and internal operations assessed
Three Ways to Think About Investments in Disruptive Innovations

- **Put technology ahead of strategy.**
  - Technology is so important to success, it needs to be considered first.
  - Strategy is developed afterwards.
- **Put technology ahead of marketing.**
  - Rapid development of technology makes it impossible for people to know what they want.
- **Innovation is continuous.**
  - New technologies are constantly being developed.

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4. Discuss the leveraging of digital technologies to provide free goods and services to customers as a business strategy for gaining competitive advantage.

Freeconomics

- Freeconomics—The leveraging of digital technologies to provide free goods and services to customers as a business strategy for gaining competitive advantage.

How Does Freeconomics Work (for Yahoo!)

- Price is set by a product/service’s marginal costs.
- Marginal costs for digital services decrease tremendously.
- Yahoo! makes millions with free e-mail service (by placing ads).

The Freeconomic Value Proposition

- Someone, somewhere is paying for a service.
- Value proposition includes more than just buyers and sellers.
  - Advertisers (see Google)

Approaches for Applying Freeconomics

- Advertising
- Freemium
- Cross-Subsidies
- Zero Marginal Cost
- Labor Exchange
- Gift Economy