Chapter 6

Managing International Information Systems
OBJECTIVES

- Identify the major factors driving the internationalization of business
- Compare strategies for developing global businesses
- Demonstrate how information systems can support different global business strategies
• Evaluate the issues and technical alternatives to be considered when developing international information systems

• Identify the challenges posed by global information systems and management solutions
**Challenge:** Fulfill customer orders made to a network of forty subsidiaries in Europe, Asia, and North America whose systems could not share data with one another

**Solutions:** develop a single corporate database and use middleware with standard interfaces to connect all the subsidiary’s systems

- Develop a single worldwide data model with standard definitions and codes
- Illustrates the role of systems in an international environment for reducing inventory and business process costs worldwide.
Global Product Development and Production

A new HP server’s path to market:
1. Idea for product hatched in Singapore.
2. Concept approved in Houston.
3. Concept design done in Singapore.
4. Engineering design in Taiwan, where many computer components are made; initial manufacture by a Taiwanese contractor.
5. Final assembly in Singapore, Australia, China, and India. Products made in Australia, China, and India are primarily for those markets; machines made in Singapore go to all of Southeast Asia.
Developing an International Information Systems Architecture

International information systems architecture:

• The basic information systems required by organizations to coordinate worldwide trade and other activities

Business driver:

• A force in the environment to which businesses must respond and that influences the direction of the business
International Information Systems Architecture

Figure 6-2
The Global Environment: Business Drivers and Challenges

The global business drivers can be divided into two groups:

General cultural factors:

- Global communication and transportation technologies
- Development of global culture

Table 6-1
General Cultural Factors: (Continued)

- Emergence of global social norms
- Political stability
- Global knowledge base
Specific business factors:

- Global markets
- Global production and operations
- Global coordination
- Global workforce
- Global economies of scale

Table 6-1 (Continued)
THE GROWTH OF INTERNATIONAL INFORMATION SYSTEMS

Business Challenges

General:

• Cultural particularism: Regionalism, nationalism, language differences

• Social expectations: Brand-name expectations, work hours

• Political laws: Transborder data and privacy laws, commercial regulations

Table 6-2
Specific:

- **Standards:** Different Electronic Data Interchange (EDI), telecommunications standards

- **Reliability:** Phone networks not uniformly reliable

- **Speed:** Different data transfer speeds, many slower than United States

- **Personnel:** Shortages of skilled consultants

Table 6-2 (Continued)
Global Strategies and Business Organization

Three kinds of organizational structure:

- Centralized (in the home country)
- Decentralized (to local foreign units)
- Coordinated (all units participate as equals)
Domestic exporter strategy:

• Heavy centralization of corporate activities in the home country of origin

Multinational strategy:

• Centralized financial management and control while decentralizing production, sales, and marketing operations to units in other countries
Franchisers:

- The product is financed and initially produced in the home country, but for product-specific reasons rely on foreign personnel for further production, marketing, and human resources.

Transnational strategy:

- The value-adding activities are managed from a global perspective without reference to national borders, optimizing sources of supply and demand wherever they appear, and taking advantage of any local competitive advantages.
### Global Systems to Fit the Strategy

Global Strategy and Systems Configurations

<table>
<thead>
<tr>
<th>System Configuration</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Domestic Exporter</td>
</tr>
<tr>
<td>Centralized</td>
<td>X</td>
</tr>
<tr>
<td>Duplicated</td>
<td></td>
</tr>
<tr>
<td>Decentralized</td>
<td>x</td>
</tr>
<tr>
<td>Networked</td>
<td></td>
</tr>
</tbody>
</table>

**Figure 6-3**
Four types of systems configuration:

1. **Centralized systems**: Systems development and operation occur totally at the domestic home base.

2. **Duplicated systems**: Development occurs at the home base but operations are handed over to autonomous units in foreign locations.
Four types of systems configuration: (Continued)

3. **Decentralized systems:** Each foreign unit designs its own unique solutions and systems.

4. **Networked systems:** Systems development and operations occur in an integrated and coordinated fashion across all units.
ORGANIZING INTERNATIONAL INFORMATION SYSTEMS

Reorganizing the Business

To develop a global company and information systems support structure:

• Organize value-adding activities along lines of comparative advantage

• Develop and operate systems units at each level of corporate activity —regional, national, and international

• Establish at world headquarters
Management Challenges in Developing Global Systems

- Agreeing on common user requirements
- Introducing changes in business processes
- Coordinating applications development
- Coordinating software releases
- Encouraging local users to support global systems
Global Systems Strategy

• **Define the core business processes:** Conduct workflow analysis, identify centers of excellence for these processes

• **Identify the core systems to coordinate centrally:** Conquer the core systems and define these systems as truly transnational

• **Choose an approach:** Incremental, Grand Design, Evolutionary

• **Make the Benefits Clear**
Source: Adapted from Managing Information Technology in Multinational Corporations by Edard M. roche, copyright 1993.
Technology Challenges of Global Systems

Computing platforms and systems integration:

- Develop global, distributed, and integrated systems to support digital business processes spanning national boundaries.

- Use of same hardware and operating system does not guarantee integration.

- Establish data and technical standards.
Technology Challenges of Global Systems (Continued)

Connectivity:

- Overcoming disparate national technical standards, data exchange restrictions and service levels
- User of Internet technology to create global intranets, extranets, virtual private networks (VPNs)
Internet Population in Selected Countries

Figure 6-5

Sources: CIA World Factbook 2003; Computer Industry Almanac; and www.cia.gov, accessed November 9, 2004
Software:

Unique challenges for application software:

• Cost of new interface designs

• Integrating new systems with old

• User interface design

• Differences in language and conventions
Managing Global Software Development

Offshore software outsourcing:

- Outsourcing portions of new systems like development work or maintenance of existing systems to external vendors in another country
Major cost components of offshore software development:

- Contract cost
- Vendor selection costs
- Transition management and knowledge transfer costs
- Domestic human resources costs
Major cost components of offshore software development: (Continued)

- Costs of improving software development processes
- Costs of adjusting to cultural differences
- Cost of managing an offshore contract
Total Cost of Outsourcing

<table>
<thead>
<tr>
<th>Cost of outsourcing contract</th>
<th>$10,000,000</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Best Case</td>
</tr>
<tr>
<td>Hidden Costs</td>
<td></td>
</tr>
<tr>
<td>1. Vendor selection</td>
<td>0.2%</td>
</tr>
<tr>
<td>2. Transition costs</td>
<td>2%</td>
</tr>
<tr>
<td>3. Layoffs &amp; retention</td>
<td>3%</td>
</tr>
<tr>
<td>4. Lost productivity/cultural issues</td>
<td>3%</td>
</tr>
<tr>
<td>5. Improving development processes</td>
<td>1%</td>
</tr>
<tr>
<td>6. Managing the contract</td>
<td>6%</td>
</tr>
<tr>
<td><strong>Total additional costs</strong></td>
<td><strong>1,520,000</strong></td>
</tr>
</tbody>
</table>

| Total cost of outsourcing (TCO) best case | 10,000,000 | 1,520,000 | 11,520,000 | 15.2% |
| Total cost of outsourcing (TCO) worst case | 10,000,000 | 5,700,000 | 15,700,000 | 57.0% |
Management Opportunities:

Ability to lower costs through global scale economies by building international systems for producing and selling goods and services in different regions of the world.
Management Challenges:

• Finding the right global business strategy

• Difficulties of managing change in a multicultural firm

• Difficulties of achieving global connectivity and integration
Solution Guidelines:

- Agreeing on common user requirements
- Introducing changes in business processes
- Coordinating applications development
- Coordinating software releases
- Encouraging local users to support global systems