

CHAPTER 2

INFORMATION SYSTEMS

FOR COMPETITIVE

ADVANTAGE



Management Information Systems, 10th edition,
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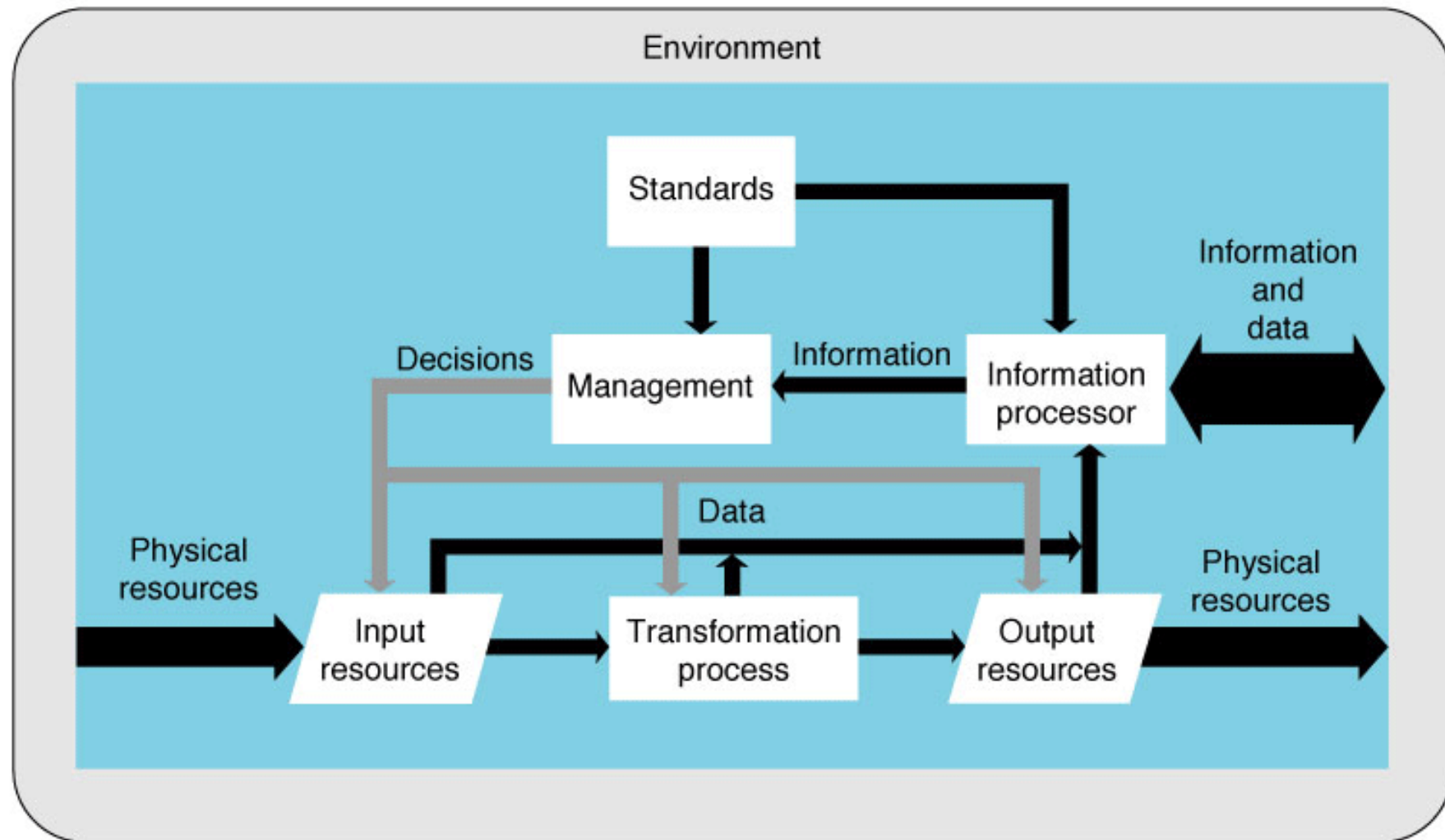
Prof. Dr. H. Deden Mulyana, SE., M.Si.



THE FIRM AND ITS ENVIRONMENT

- The physical system of a firm is an open system in that it interfaces with its environment
- Firms take resources from their environments, transforms these resources into products and services, and return the transformed resources to the environment
- Figure 2.1 shows this flow of resources from the environment, through the firm, and back to the environment ↓
- The flow of physical resources is at the bottom and the flow of conceptual resources is at the top

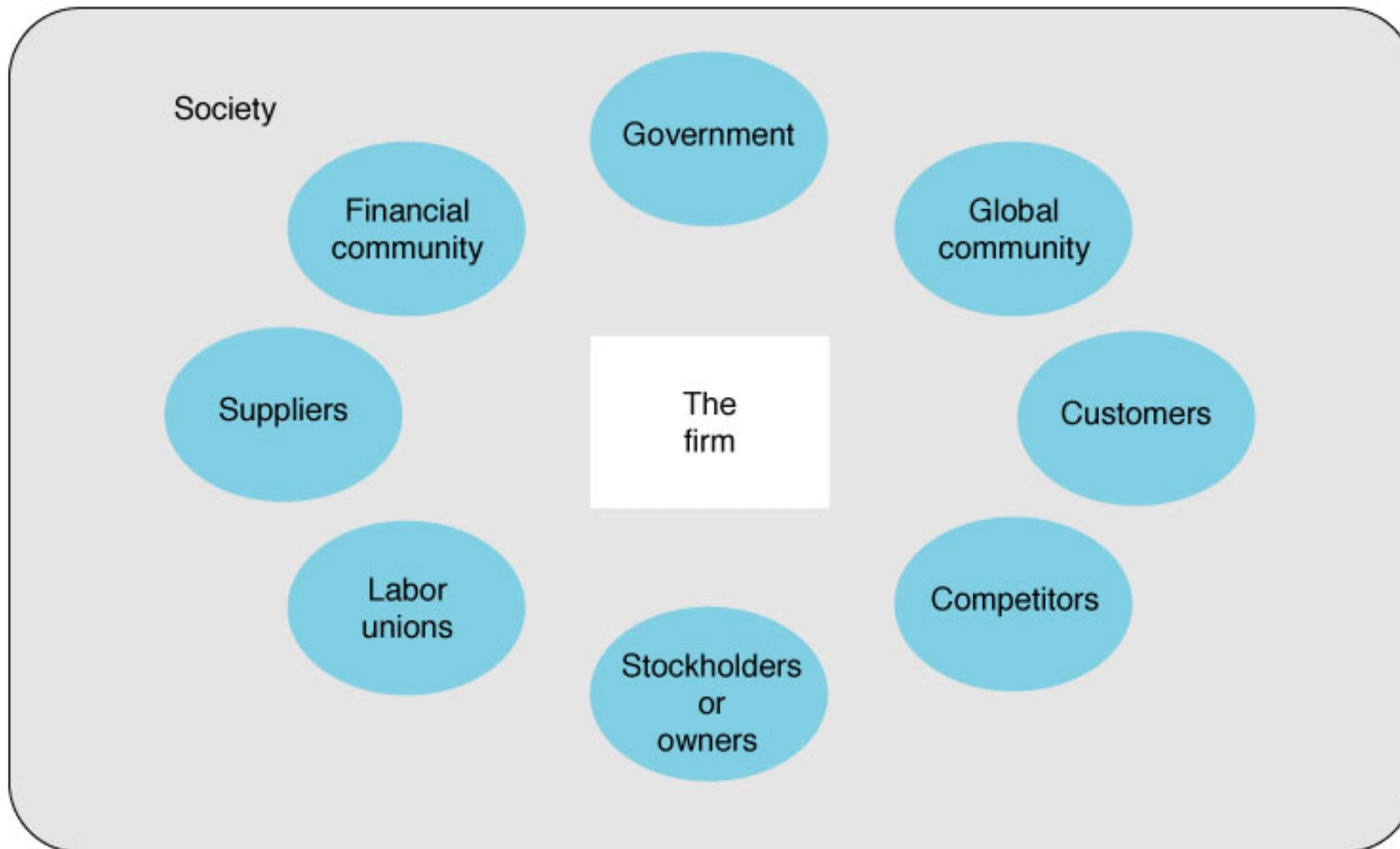
Figure 2.1 The General System Model of the Firm



The General Systems Model of the Firm

- **Figure 2.1 shows three flows:**
 - **The Physical Resource Flow:** includes personnel, material, machines, and money
 - **The Conceptual Resource Flow:** The arrows in the upper part of the figure show data, information, and decision-related information. At right, a 2-way flow of data and information that connects the firm to its environment
 - **The Firm's Control Mechanism:** The elements that enable the firm to operate as a closed-loop system are shown in the upper portion of the diagram

Figure 2.2 Eight Environmental Elements



Environmental elements exist outside the firm and have a direct or indirect influence on it.

Environmental Resource Flows

- The firm is connected to its environmental elements through resource flows, including:
 - information flowing from customers;
 - materials flowing to customers;
 - money flowing to stockholders;
 - machinery flowing from suppliers;
 - personnel flowing from suppliers; and
 - the global community and labor unions
- Less frequent flows include: the money flow from the government, the material flow to suppliers, and the personnel flow to competitors

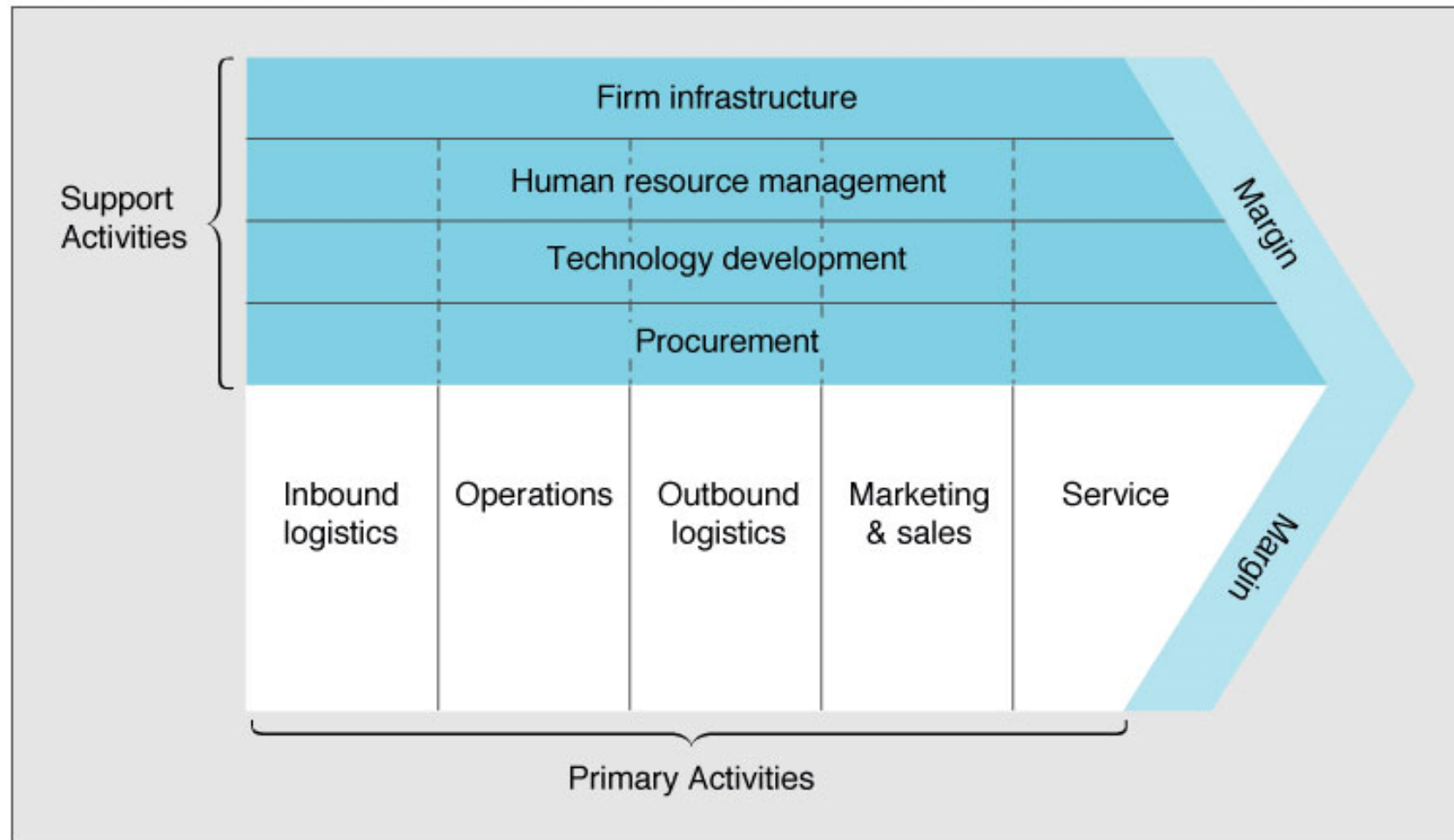
COMPETITIVE ADVANTAGE

- In the IS field, **competitive advantage** refers to the use of information to gain marketplace leverage
- Porter argues that firms achieve competitive advantage by providing one of the following:
 - products and services at a lower price,
 - higher quality products and services, or
 - meeting the special needs of certain market segments
- An important point to recognize is that the firm's managers use both conceptual and physical resources to meet the firm's strategic objectives

Porter's Value Chains

- Porter argued that firm's opportunities to create competitive advantage occur at different steps in the **value chain** (Figure 2.3)
- **The Margin** is the value of the firm's products and services less their costs, as perceived by the firm's customers
- The value chain is made of the primary and support activities that contribute to a firm's margin value. Increasing that marginal value is the objective of the chain model
- Firms can create value by performing activities, which Porter calls **value activities**

Figure 2.3 A Value Chain

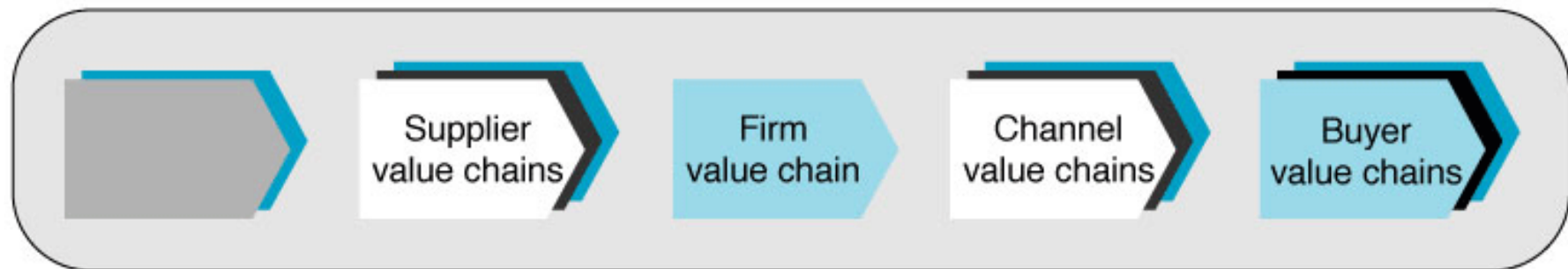


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Expanding the Scope of the Value Chain (Figure 2.4)

- Additional advantages that can be achieved by linking the firm's value chain to those of other organizations creating an **inter-organizational system (IOS)**
- The participating firms (**business partners**) work as a coordinated unit, creating a synergy that cannot be achieved by working alone
- Porter termed this the **value system**

Figure 2.4 A Value System



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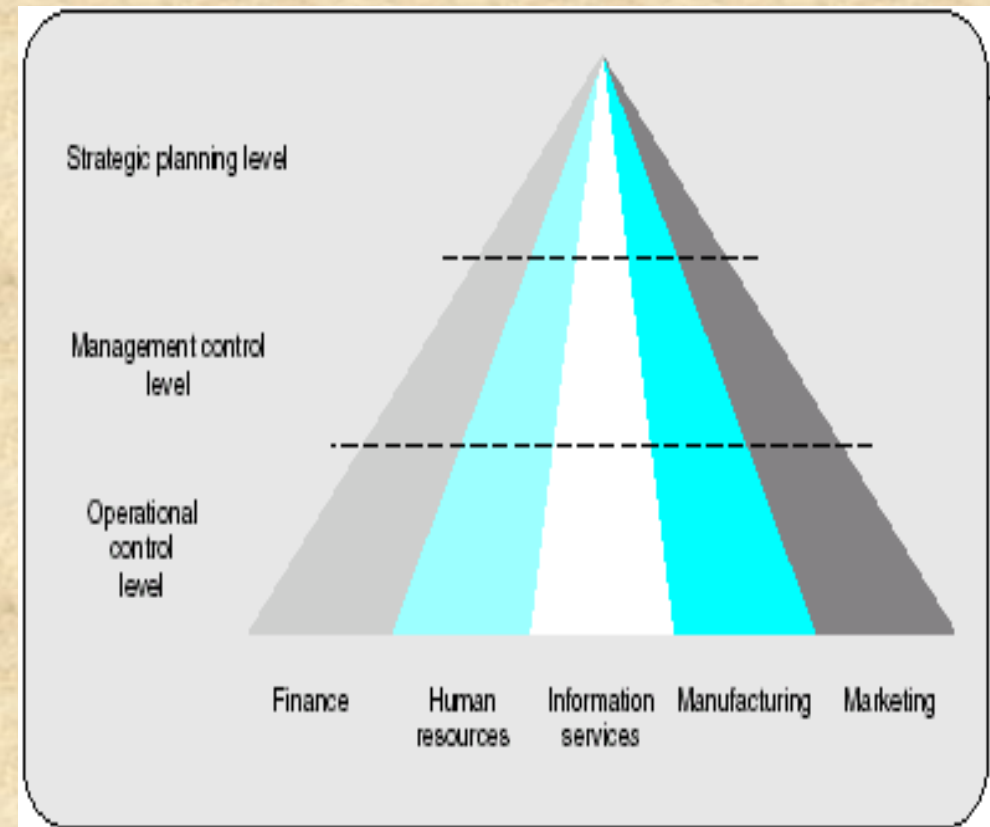
The Dimensions of Competitive Advantage

1. **Strategic advantage:** plans used to achieve an advantage
2. **Tactical advantage:** methods for accomplishing a strategy in a better way than competitors do
3. **Operational advantage:** everyday transactions and processes that confer an advantage

Information systems shaped by all three have the best chance to substantially increase a firm's performance

The Dimensions of Competitive Advantage (cont.)

- Competitive advantage can be created at all three levels of the corporate pyramid:
 - **Strategic advantage:** advantage achieved through the selection of the fundamental strategic direction and destination of the firm
 - **Tactical advantage:** methods for accomplishing a strategy in a better way than competitors do
 - **Operational advantage:** everyday transactions and processes that confer an advantage



CHALLENGES FROM GLOBAL COMPETITORS

- The biggest players in today's global marketplace are multinational corporations (MNCs)
- Information processing and communications-based coordination are especially crucial for an MNC due to the scale and geographic dispersal of their business activities
- Coordination, in particular, has become a key to achieving competitive advantage in a global marketplace

INFORMATION MANAGEMENT

- A firm's information resources consist of:
 - Computer hardware
 - Computer software
 - Information specialists
 - Users
 - Facilities
 - Databases
 - Information
- Achieving competitive advantage through the use of information requires the effective management of these resources, otherwise known as **information management**

The Dimensions of Information

- Information can be viewed as having four basic dimensions that contribute to information value:
- **Relevancy:** information is relevant when it pertains to the problem at hand
- **Accuracy:** information has value when it is accurate
- **Timeliness:** Information should be available for problem solving before crisis situations develop or opportunities are lost
- **Completeness:** information should be available to present a complete picture of a problem or a solution

The Changing Nature of Information Management

- The task of information management faces new problems as new technologies are making older style transaction processing systems obsolete
- Managing “**legacy systems**” is one such problem, such as converting them to run on new hardware
- The use of multimedia data means that **image management** is now a second important task for information managers
- **Knowledge management** is a third task, requiring an easy-to-use database management system and software packages for use in analyzing data

STRATEGIC PLANNING FOR INFORMATION RESOURCES

- The **chief information officer (CIO)** provides the strategic direction for a firm's information resources; and
- The CIO also coordinates the IS department's strategic effort with the firm's overall strategic business plan
- As strategic planning in specific business areas is also developed, the firm's information resources must also be coordinated with these efforts (see Figure 2.6)

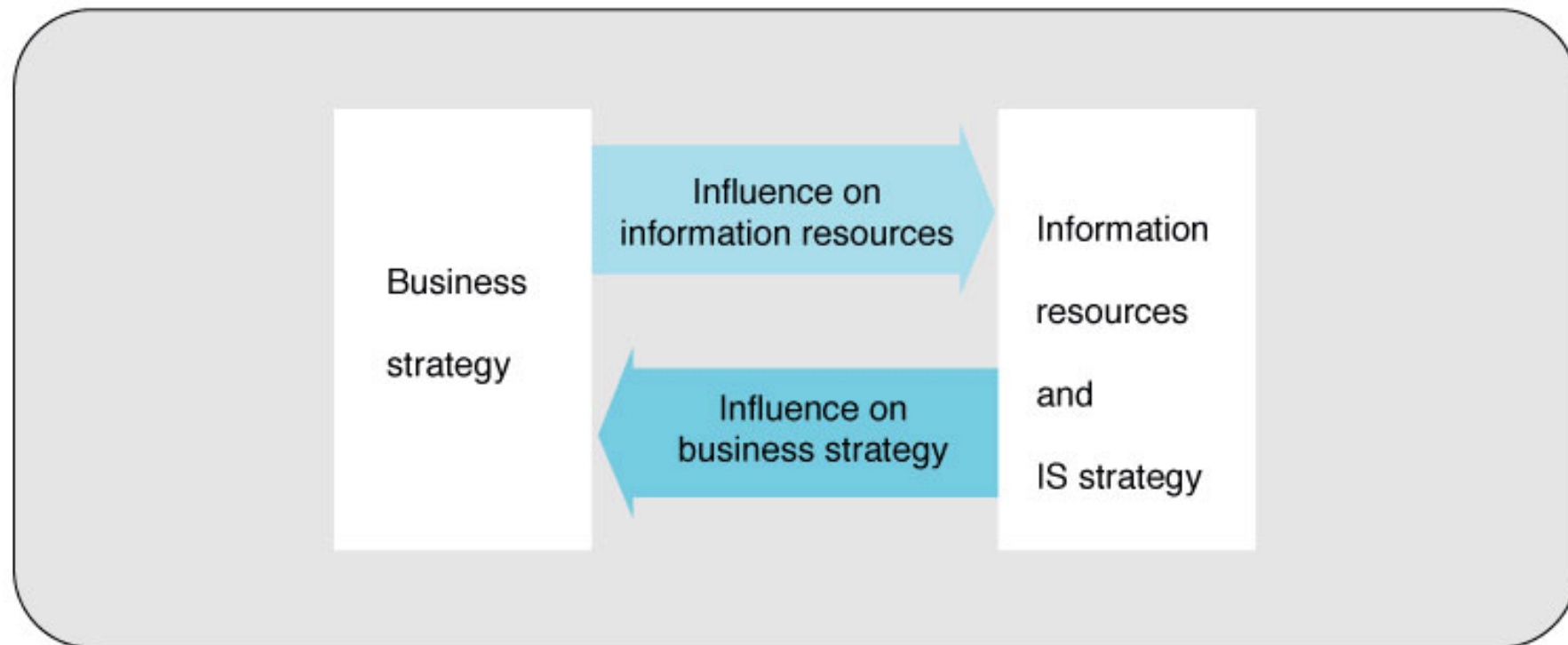
Figure 2.6 The Business Areas Should Cooperate in Developing Their Strategic Plans



Strategic Planning for Information Resources (SPIR)

- SPIR is the *concurrent* development of strategic plans for both the firm and its information services
- Developing the two plans together means that the firm's plan will reflect the support provided by information services and the information services plan will reflect the future demands for systems support
- Figure 2.7 illustrates the manner these two planning processes influence each other

Figure 2.7 Strategic Planning for Information Resources

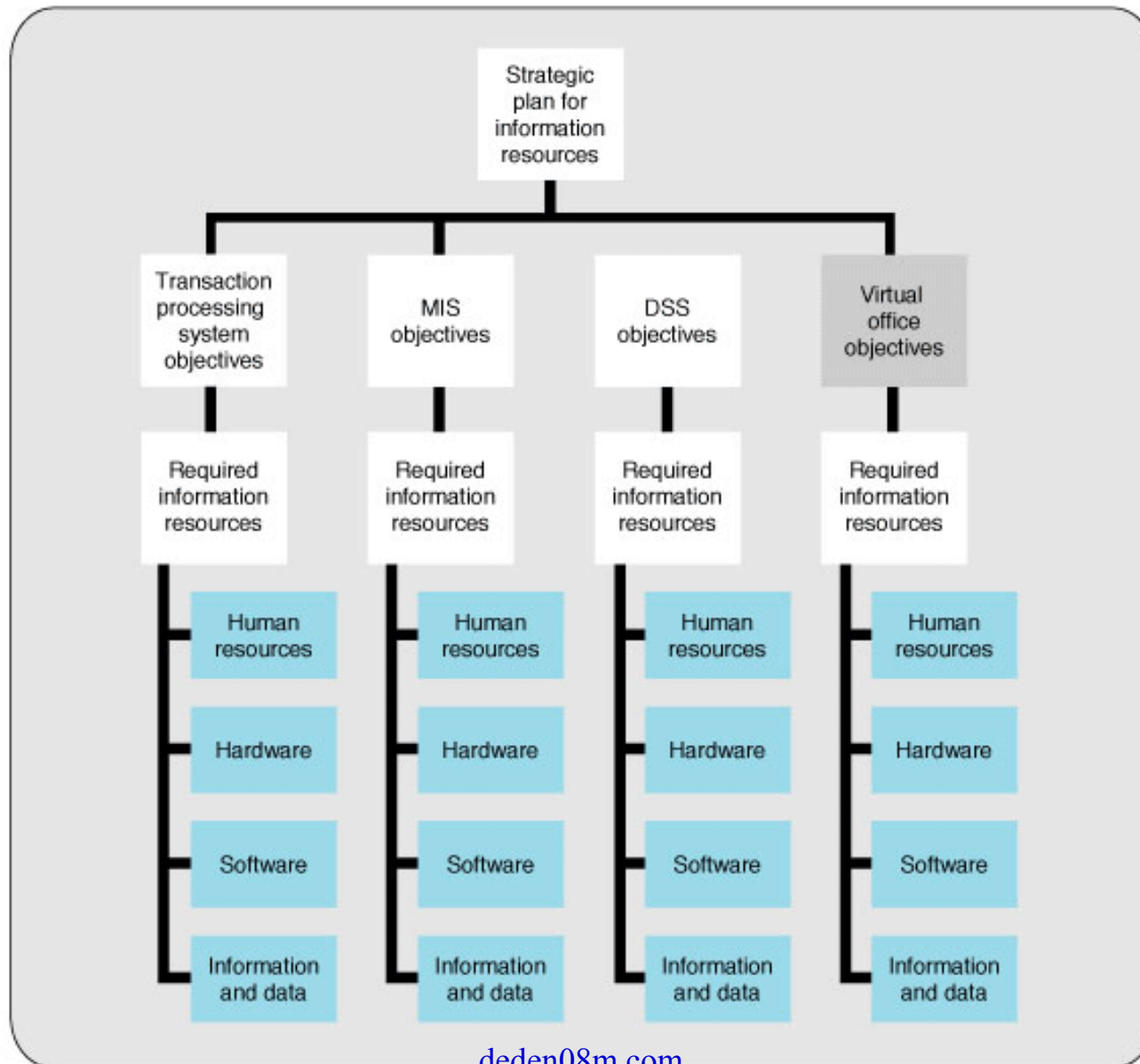


Source: William R. King, "Strategic Planning for Management Information Resources: The Evolution of Concepts and Practice," Information Resources Management Journal 1 (Fall 1988), 3. Used with permission.

Core Content of a Strategic

- Figure 2.8 shows the basic framework for a strategic plan for information resource management
- Two core topics that should be in every firm's strategic plan for information resources are:
 1. The objectives to be achieved by each category of information system during the time period covered by the plan
 2. The information resources necessary to meet those objectives

Figure 2.8 Basic Framework of a Strategic Plan for Information Resources



An Example Strategic Plan for Information Resources

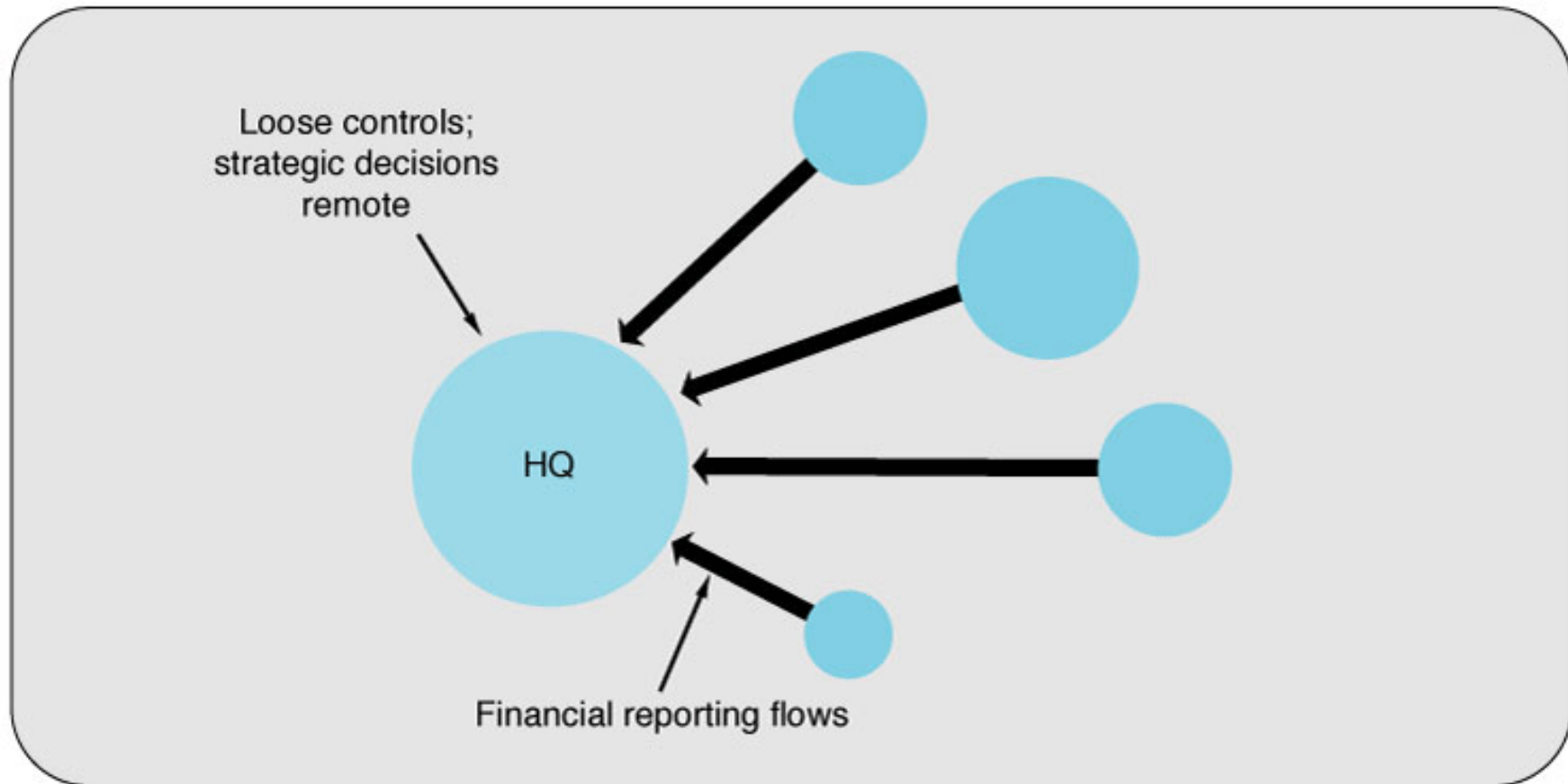
Figure 2.9 (see text) is an example of an SPIR report. It includes the following aspects:

- An executive summary, spelling out the goals of the firm's information services unit;
- Definitions of the scope of IT services in three organizational units; and
- A summary of the work plan for implementing systems enabling the firm to meet its information services goals

GLOBAL BUSINESS STRATEGIES

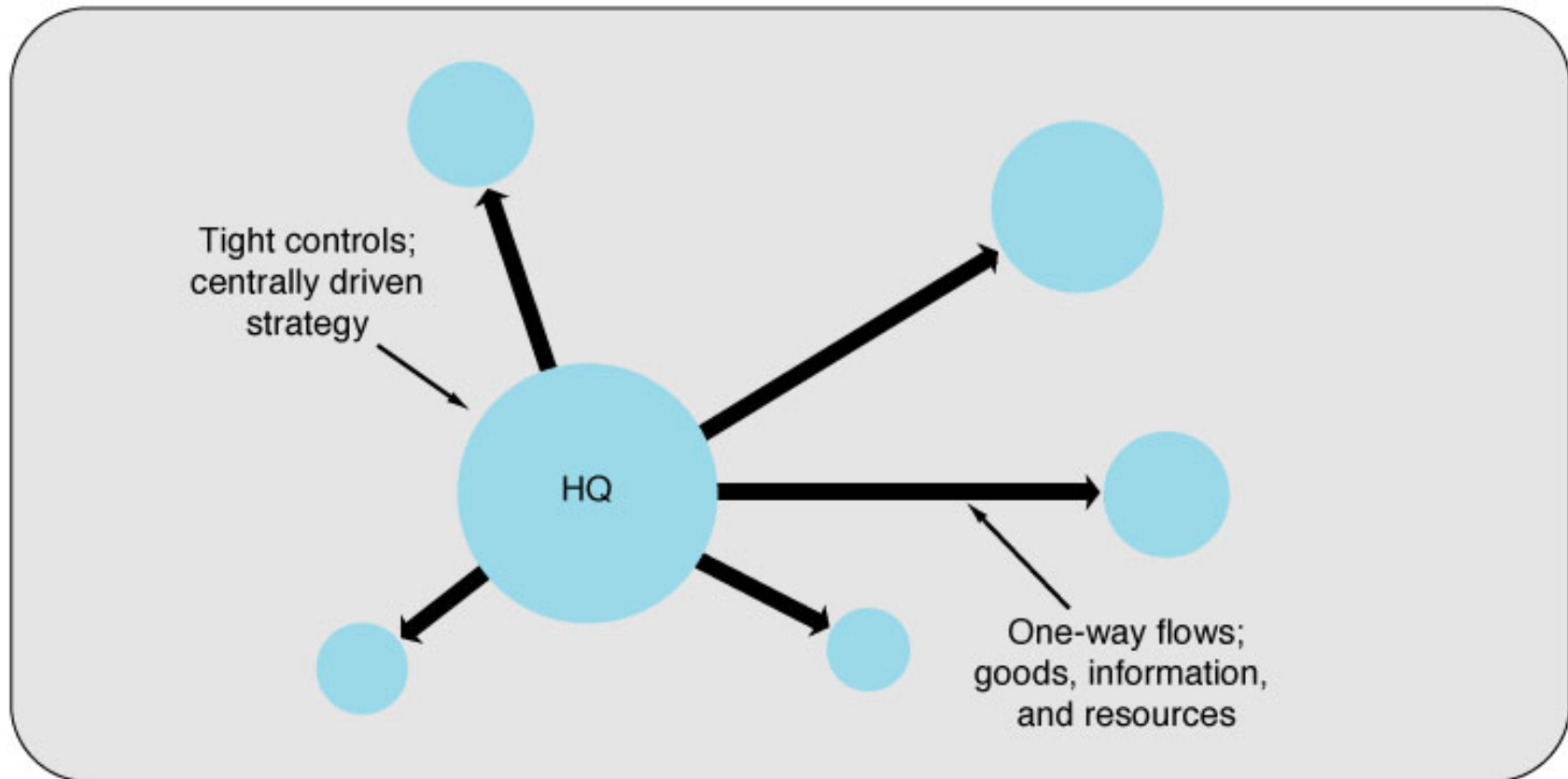
- Bartlett and Ghoshal identified 4 main strategic ways that MNCs can use information to coordinate the activities of a parent company with its subsidiaries (see Figs. 2.10-13):
 1. Decentralized control strategy
 2. Centralized control strategy
 3. Centralized expertise strategy
 4. Centralized control and distributed expertise strategy

Figure 2.10 Decentralized Control Strategy



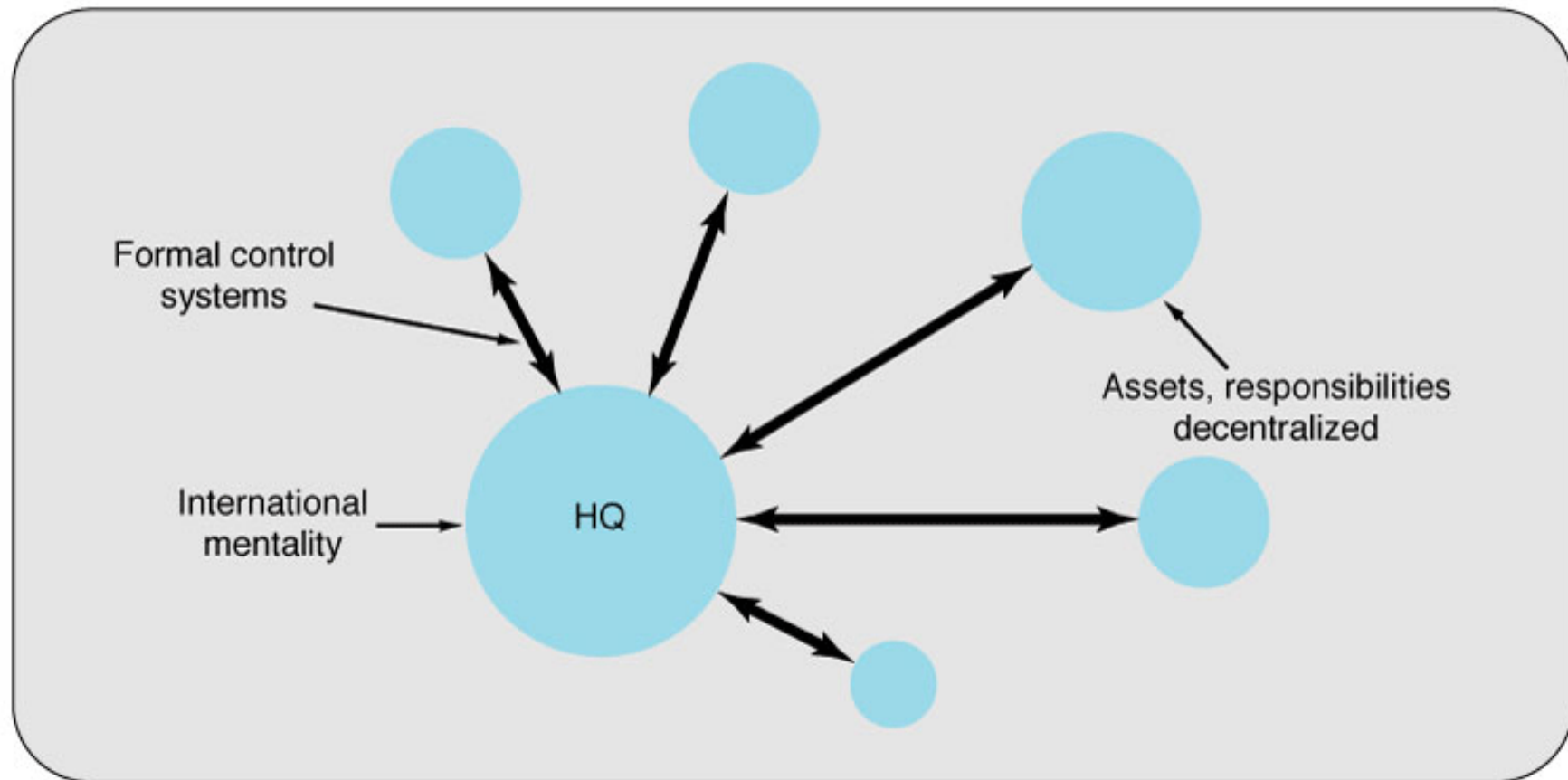
Source: Jahangir Karimi and Benn R. Konsynski, "Globalization and Information Management Strategies," *Journal of Management Information Systems* 7 (Spring 1991), 12. Used with permission.

Figure 2.11 Centralized Control Strategy



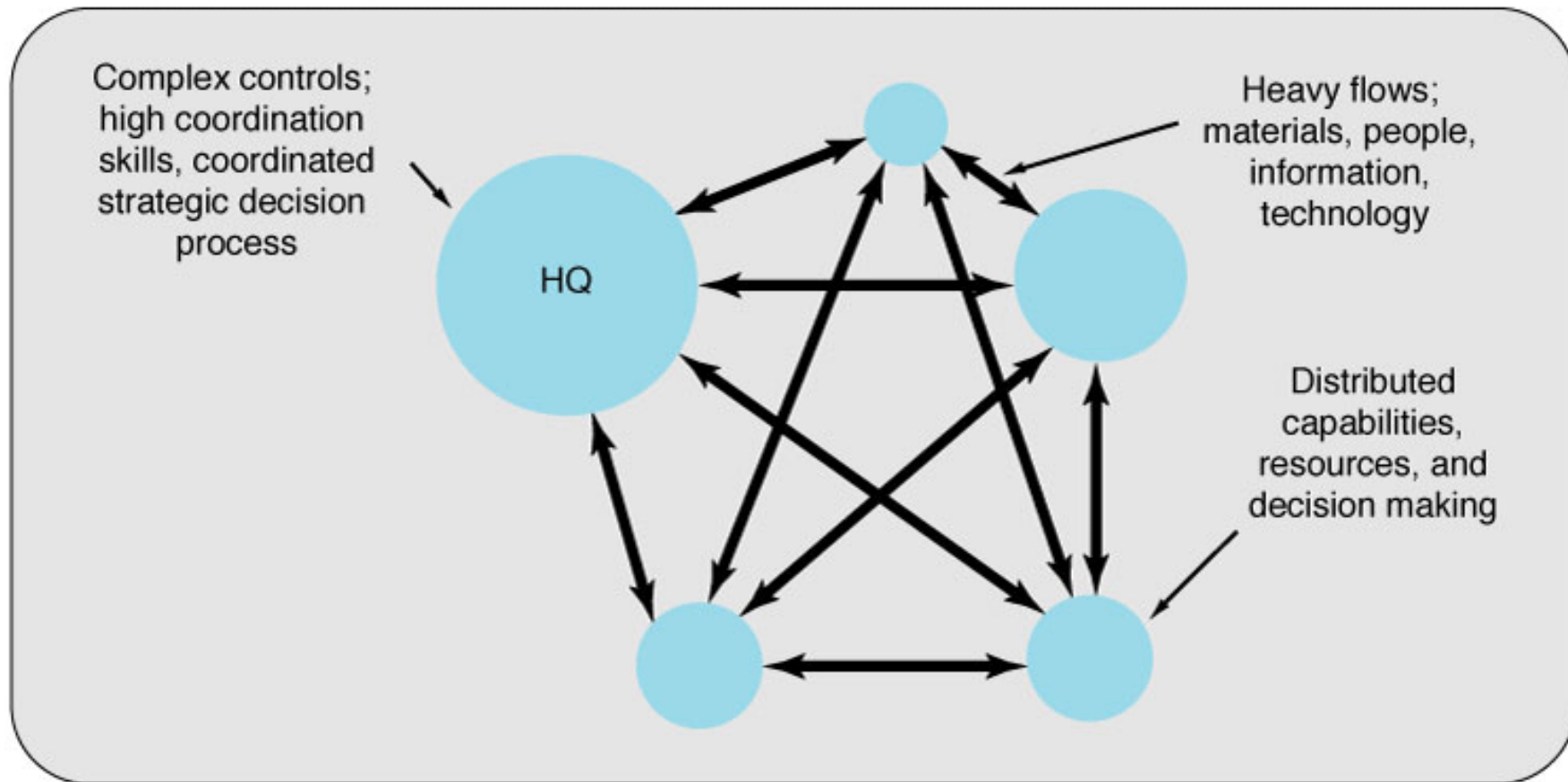
Source: Jahangir Karimi and Benn R. Konsynski, "Globalization and Information Management Strategies," Journal of Management Information Systems 7 (Spring 1991), 13. Used with permission.

Figure 2.12 Centralized Expertise Strategy



Source: Jahangir Karimi and Benn R. Konsynski, "Globalization and Information Management Strategies," Journal of Management Information Systems 7 (Spring 1991), 14. Used with permission.

Figure 2.13 Centralized Control and Distributed Expertise Strategy



Source: Jahangir Karimi and Benn R. Konsynski, "Globalization and Information Management Strategies," *Journal of Management Information Systems* 7 (Spring 1991), 15. Used with permission.

END OF CHAPTER 2