

# **Chapter 2**

# **Strategic Use of**

# **Information Resources in**

# **a Global Economy**

**Strategic Management of Information  
Systems**

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# Learning Objectives

- List the identifying factors of the eras of information usage.
- Know what makes an information resource valuable.
- Explain how information resources are used strategically in context of the 5-forces model.
- Understand how information resources can be used to alter the value chain.
- Explain the importance of strategic alliances.
- Know the risks of information resources.

# Real World Examples

- The Spanish manufacturer Zara has a simple business model that provides a significant strategic advantage.
- Their system links demand to manufacturing and manufacturing to distribution.
- Customers visit up to 17 times per year to check on new items that may have arrived.
- Since products are limited customers will immediately purchase products they like.
- Loyal and satisfied customer base.

- Zara aligns its information system strategy with its business strategy.
- The POS system sends daily updates to Zara's headquarters.
- Managers report to designers what sold and what customers wanted but couldn't find.
- The information is used to determine what to keep and what to discontinue or change.
- New designs can be ordered twice a week.
- The entire process is automated so that new designs and products can be created quickly.

# EVOLUTION OF INFORMATION RESOURCES

# Information Resources

- Over the past decades the use of information resources has changed.
- Organizations have moved from an “efficiency model” of the 1960’s to a “value creation model” of the 2000’s.
- Companies seek to utilize those technologies that give them competitive advantage.
- Maximizing the effectiveness of the firm’s business strategy requires the general manager to identify and use information resources.
- Figure 2.1 shows this change.

	<b>1960s</b>	<b>1970s</b>	<b>1980s</b>	<b>1990s</b>	<b>2000+</b>
<b>Primary Role of IT</b>	Efficiency Automate existing paper-based processes	Effectiveness Solve problems and create opportunities	Strategic Increase individual and group effectiveness	Strategic Transform industry/organization	Value creation Create collaborative partnerships
<b>Justify IT expenditure</b>	ROI	Increasing productivity and decision making	Competitive position	Competitive position	Adding Value
<b>Target of systems</b>	Organization	Individual manager/ Group	Business processes	Business processes ecosystem	Customer, supplier, ecosystem
<b>Information model</b>	Application specific	Data-driven	User-driven	Business-driven	Knowledge-driven
<b>Dominant technology</b>	Mainframe-based	Minicomputer-based	Microcomputer “decentralized intelligence”	Client-Server “distribution intelligence”	Internet “ubiquitous intelligence”
<b>Basis of Value</b>	Scarcity	Scarcity	Scarcity	Plentitude	Plentitude
<b>Underlying economics</b>	Economic of information bundled w/ economics of things	Economic of information bundled w/ economics of things	Economic of information bundled w/ economics of things	Economic of information separated f/ economics of things	Economic of information separated f/ economics of things

Figure 2.1 Eras of information usage in organizations

# INFORMATION RESOURCES AS STRATEGIC TOOLS



# Information Resources

- The term information resources is defined as the available data, technology, people, and processes available to perform business processes and tasks.
- Information resources can be either assets or capabilities.
  - *IT asset* is anything, tangible or intangible, that can be used by a firm in its processes for creating, producing and/or offering its products (IT infrastructure is an asset).
  - *IT capability* is something that is learned or developed over time in order for the firm to create, produce or offer its products.

# IT Assets

- IS infrastructure:
  - It includes data, technology, people, and processes.
  - The infrastructure provides the foundation for the delivery of a firm's products or services.
- Information repository.
  - Logically-related data that is captured, organized and retrievable by the firm.
- Web 2.0 assets now include resources used but not owned by the firm (eBay, Facebook, etc.).

# IT Capabilities

- Three major categories of IT capabilities:
  - **Technical skills** - applied to designing, developing and implementing information systems.
  - **IT management skills** - critical for managing the IT function and IT projects.
  - **Relationship skills** - can either be externally-focused or spanning across departments.

Type of Information Resource	Definition	Example
<b>IT Asset</b>	Anything that can be used by a firm in its processes for creating, producing and/or offering its products (goods or services)	
<b>IS infrastructure</b>	Base foundation of the IT portfolio shared through the firm <sup>3</sup>	Hardware, software, network, data components, proprietary technology, web-based services
<b>Information repository</b>	Data that is logically related and organized in a structured form accessible and able for decision making purposes.”	Critical information about customers that can be used to gain strategic advantage. Much of this information is increasingly available on the web.
<b>IT Capability</b>	Something that is learned or developed over time in order for the firm to create, produce or offer its products using IT assets	
<b>Technical skill</b>	Ability applied to designing, developing and implementing information systems	Proficiency in systems analysis and design; programming skills
<b>IT management skills</b>	Ability to managing IT function and IT projects	Being knowledgeable about business processes and managing systems to support them; evaluating technology options; envisioning creative IS solutions to business problems
<b>Relationship skills</b>	Ability of IS specialists to work with parties outside the IS department.	Spanning: having a good relationship between IT and business managers Externally-forced: have a good relationship with an outsourcing vendor

**Figure 2.2 Information Resources**

# Advantages of Information Resources

- General managers evaluating an information resource for competitive advantage needs to ask:
  - What makes the information resource valuable?
  - Who appropriates the value created by the information resource?
  - Is the information resource equally distributed across firms?
  - Is the information resource highly mobile?
  - How quickly does the information resource become obsolete?

# HOW CAN INFORMATION RESOURCES BE USED STRATEGICALLY?

# The Strategic Landscape

- Managers confront elements that influence the competitive environment.
- Slim tolerance for error.
- Managers must take multiple view of the strategic landscape, such as:
  - First view - Porter's five competitive forces model.
  - Second view - Porter's value chain.
  - Third view – focuses on the types of IS resources needed (Resource Based View).

# Using Information Resources to Influence Competitive Forces

- Porter's five forces model show the major forces that shape the competitive environment of the firm.
  1. **Threat of New Entrants**: new firms that may enter a companies market.
  2. **Bargaining Power of Buyers**: the ability of buyers to use their market power to decrease a firm's competitive position
  3. **Bargaining Power of Suppliers**: the ability suppliers of the inputs of a product or service to lower a firm's competitive position
  4. **Threat of Substitutes**: providers of equivalent or superior alternative products
  5. **Industry Competitors**: current competitors for the same product.
    - Figure 2.3 and 2.4 show this model in detail.



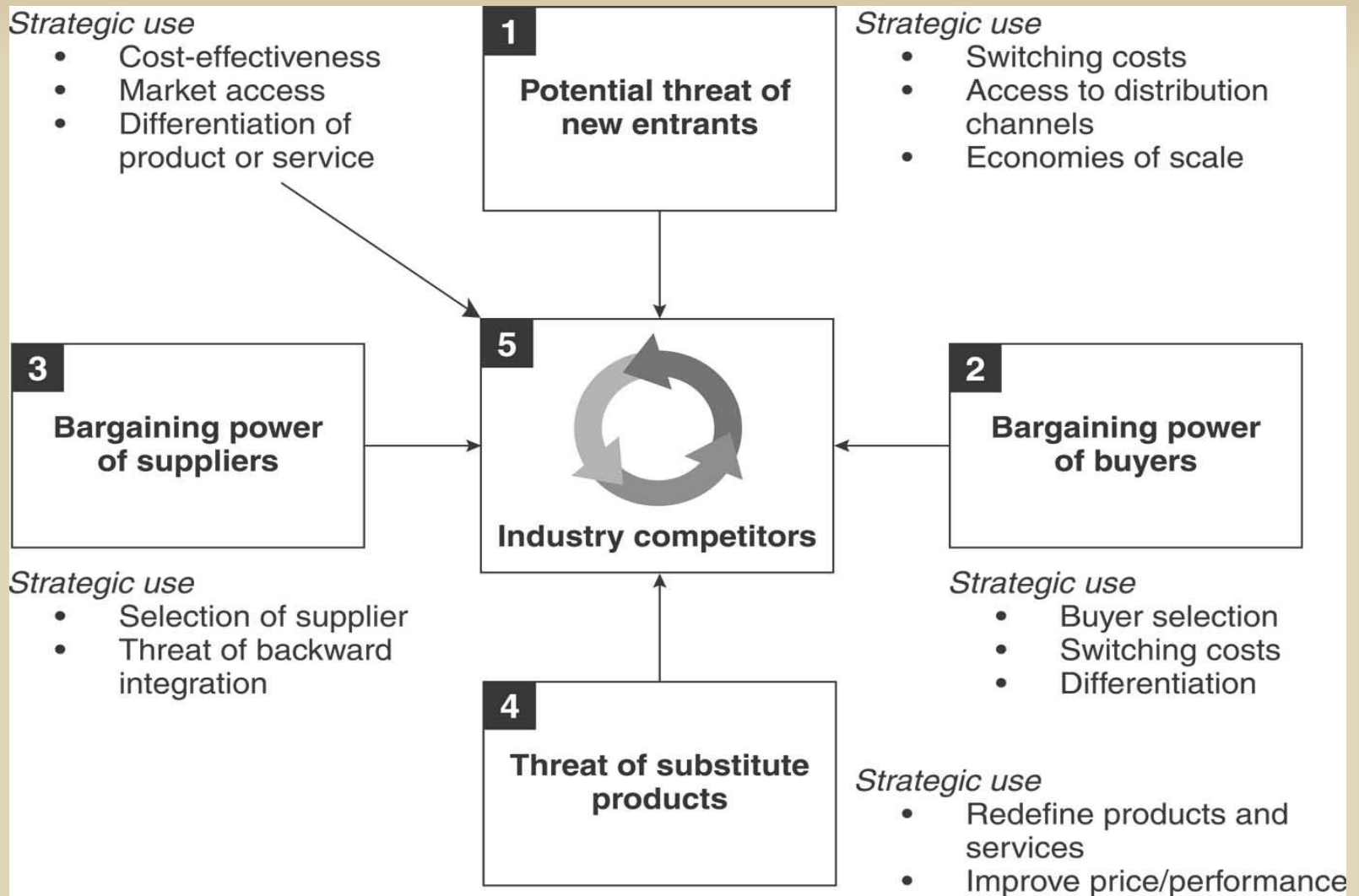


Figure 2.3 Five competitive forces with potential strategic use of information resources.

Competitive Force	IT Influence on Competitive Force
Threat of New Entrants	Zara's IT supports its tightly-knit group of designers, market specialists, production managers and production planners. New entrants are unlikely to provide IT to support relationships that have been built over time. Further it has a rich information repository about customers that would be hard to replicate.
Bargaining Power of Buyers	With its constant infusion of new products, buyers are drawn to Zara stores. Zara boasts more than 11,000 new designs a year, whereas competitors typically offer only 2,000 – 4,000. Further, because of the low inventory that the Zara stores stock, the regulars buy products they like when they see them because they are likely to be gone the next time they visit the store. More recently Zara has employed laser technology to measure 10,000 women volunteers so that it can add the measurements of 'real' customers into its information repositories. This means that the new products will be more likely to fit Zara customers.
Bargaining Power of Suppliers	Its computer-controlled cutting machine cuts up to 1000 layers at a time. It then sends the cut materials to suppliers who sew the pieces together. The suppliers' work is relatively simple and many suppliers can do the sewing. Thus, the pool of suppliers is expanded and Zara has greater flexibility in choosing the sewing companies. Further, because Zara dyes 50% of the fabric in its plant, it is less dependent on suppliers and can respond more quickly to mid-season changes in customer color preferences.
Threat of Substitute Products	Industry competitors long marketed the desire of durable, classic lines. Zara forces on meeting customer preferences for trendy, low-cost fashion. It has the highest sales per square foot of any of its competitors. It does so with virtually no advertising and only 10% of stock is unsold. It keeps its inventory levels very low and offers new products at an amazing pace for the industry (i.e., 15 days from idea to shelves). Zara has extremely efficient manufacturing and distribution operations.
Industrial Competitors	Zara offers extremely fashionable lines that are only expected to last for approximately 10 wears. It offers trendy, appealing apparel at a hard-to-beat price.

Figure 2.4 Application of five competitive forces model for Zara.

# Porter's Value Chain Model

- Value chain model addresses the activities that create, deliver, and support a company's product or service (see Figure 2.5).
- Two broad categories:
  - Primary activities – relate directly to the value created in a product or service.
  - Support activities – make it possible for the primary activities to exist and remain coordinated.

# Altering the Value Chain

- The Value Chain model suggest that competition can come from two sources:
  - Lowering the cost to perform an activity and
  - Adding value to a product or service so buyers will be willing to pay more.
- Lowering costs only achieves competitive advantage if the firm possesses information on the competitor's costs
- Adding value is a strategic advantage if a firm possesses accurate information regarding its customer such as: which products are valued? Where can improvements be made?

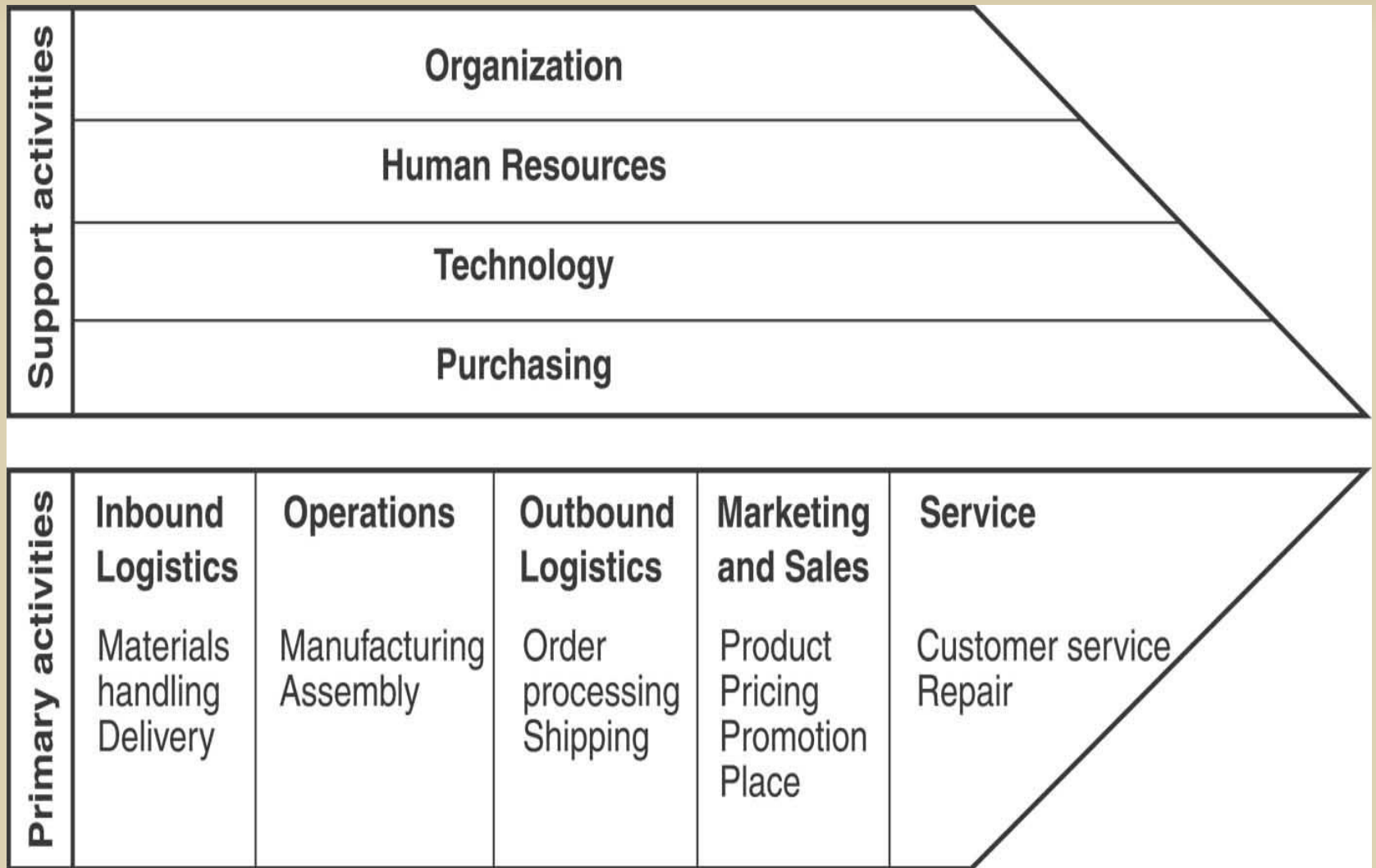


Figure 2.5 Value chain of the firm.

# The Value Chain System

- The value chain model can be extended by linking many value chains into a **value system**.
- Much of the advantage of supply chain management comes from understanding how information is used within each value chain of the system.
- This can lead to the formation of entirely new businesses designed to change the information component of value-added activities. (Figure 2.6)

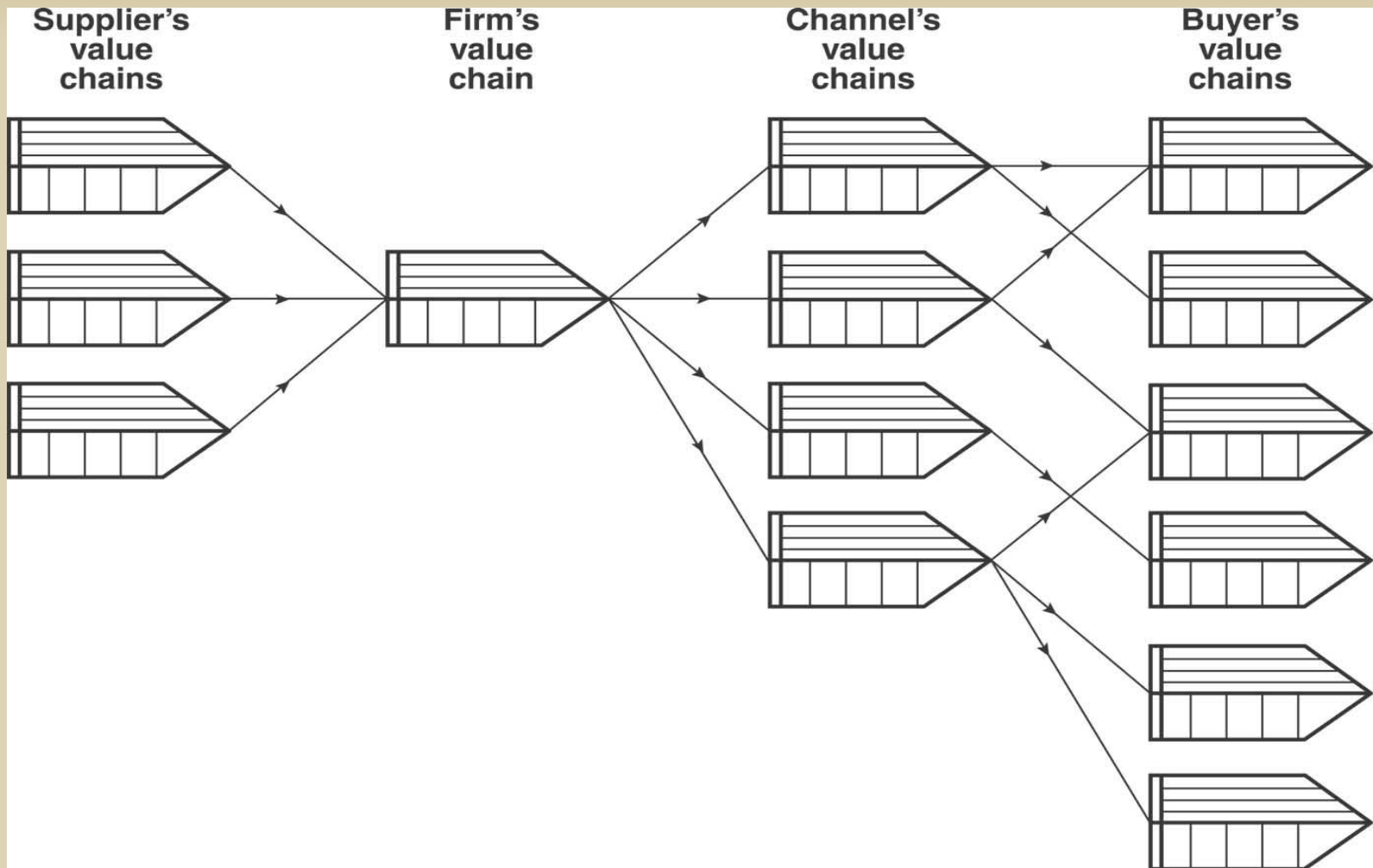


Figure 2.6 The value system: interconnecting relationships between organizations.

# CRM and the Value Chain

- Customer Relationship Management (CRM) is a natural extension of applying the value chain model to customers.
- CRM includes management activities performed to obtain, enhance relationships with, and retain customers.
- CRM is a coordinated set of activities.
- CRM can lead to better customer service, which leads to competitive advantage for the business.



Activity	Zara's Value Chain
<b>PRIMARY ACTIVITIES</b>	
Inbound Logistics	IT-enabled Just-in-Time (JIT) strategy results in inventory being received when needed. Most dyes are purchased from its own subsidiaries to better support JIT strategy and reduce costs.
Operations	Information systems support decisions about the fabric, cut and price points. Cloth is ironed and products are packed on hangers so they don't need ironing when they arrive at stores. Price tags are already on the products. Zara produces 60% of its merchandise in-house. Fabric is cut and dyed by robots in 23 highly automated Spanish factories.
Outbound Logistics	Clothes move on miles of automated conveyor belts at distribution centers and reach stores within 48 hours.
Marketing and Sales	Limited inventory allows low percentage of unsold inventory (10%); POS at stores linked to headquarters to track how items are selling; Customers ask for what they want and this information is transmitted daily from stores to designers over handheld computers.
Service	No focus on service on products
<b>SUPPORT ACTIVITIES</b>	
Organization	IT supports tightly-knit collaboration among designers, store managers, market specialists, production managers and production planners.
Human Resources	
Technology	Technology is integrated to support all primary activities. Zara's IT staff works with vendor to develop automated conveyor to support distribution activities.
Purchasing	Vertical integration reduces amount of purchasing needed.

Figure 2.7 Application of Value Chain Model

# Supply Chain Management

- An approach that improves the way a company finds raw components it needs to make a product or service, manufactures that product or service, and delivers it to customers.
- Technology permits supply chains of customer's and supplier's to be linked.
- Requires collaboration and the IT to support the seamless connection.
- Electronic marketplaces can be used to limit information sharing.

# The Resource-Based View

- The Resource-Based View (RBV) looks at gaining competitive advantage through the use of information resources.
- Two subsets of information resources have been identified:
  - Those that enable firms to attain competitive advantage (rare and valuable resources that are not common place).
  - Those that enable firms to sustain competitive advantage (resources must be difficult to transfer or relatively immobile).

	VALUE CREATION		VALUE SUSTAINABILITY		
	Value	Rarity	Imitation	Substitution	Transfer
<b>Information Asset</b>					
IT Infrastructure	M	M	H	M	H
Information Repository	H	M	M	L	M
<b>Information Capability</b>					
Technical Skills	M	L	M	M	M
IT Management Skills	H	H	L	L	M
Relationship Skills					
<i>Externally-focused</i>	H	M	L	M	L-M
<i>Spanning</i>	H	H	L	L	L
Note: L = low; M = medium; H = high					
Adapted from Wade, M and Hulland, J. "The Resource-Based View and Information Systems Research: Review, Extension and Suggestions for Future Research,," MIS Quarterly, 28 (1), pp. 107-142.					

Figure 2.8 - Information Resources at Zara, by Attribute

# STRATEGIC ALLIANCES

# Strategic Alliances

- An interorganizational relationship that affords one or more companies in the relationship a strategic advantage.
- E.g., Delta recently formed an alliance with e-Travel Inc to promote Delta's inline reservation system.
- This helps reduce Delta's agency fees while offering e-Travel new corporate leads.
- Also, Supply Chain Management (SCM) is another type of IT-facilitated strategic alliance.

# Types of Strategic Alliances

- Supply Chain Management: improves the way a company finds raw components that it needs to make a product or service.
  - Technology, especially Web-based, allows the supply chain of a company's customers and suppliers to be linked through a single network that optimizes costs and opportunities for all companies in the supply chain
  - Wal-Mart and Proctor & Gamble.
- Co-opetition: a new strategy whereby companies cooperate and compete at the same time with companies in their value net
  - Covisint and General Motors, Ford, and DaimlerChrysler.

# RISKS



# Potential Risks

- There are many potential risks that a firm faces when attempting to use IT to outpace their competition.
- They are:
  - **Awakening a sleeping giant** – a large competitor with deeper pockets may be nudged into implementing IS with even better features
  - **Demonstrating bad timing** – sometimes customers are not ready to use the technology designed to gain strategic advantage
  - **Implementing IS poorly** – information systems that fail because they are poorly implemented
  - **Failing to deliver what users want** – systems that don't meet the firm's target market likely to fail
  - **Web-based alternative removes advantages** – consider risk of losing any advantage obtained by an information resource that later becomes available as a service on the web.
  - **Running afoul of the law** – Using IS strategically may promote litigation

# FOOD FOR THOUGHT: CO-CREATING IT AND BUSINESS STRATEGY

# Co-Creating IT and Business Strategy

- Information is increasingly a core component of the product or service offered by the firm.
- IT strategy is business strategy – they cannot be created without each other.
- Some company's main product is information (financial services).
- FedEx can not function without IT even though they are primarily a package delivering company.

# SUMMARY