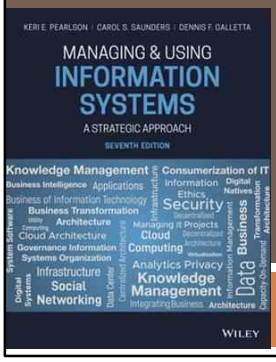
CHAPTER 2
STRATEGIC USE OF INFORMATION RESOURCES



Chapter Introduction

- This chapter introduces the concept of building competitive advantage using information systems-based applications.
- It begins with a discussion of a set of eras that describe the use of information resources historically.
- It then presents information resources as strategic tools, discussing information technology (IT) assets and IT capabilities.
- Michael Porter's Five Competitive Forces Model then provides a framework for discussing strategic advantage, and his Value Chain Model addresses tactical ways organizations link their business processes to create strategic partnerships.

Chapter Introduction

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- We then introduce the Piccoli and Ive's Model to show how strategic advantage may be sustained in light of competitive barriers while the Resource Based View focuses on gaining and maintaining strategic advantage through information and other resources of the firm.
- The chapter concludes with a brief discussion of strategic alliances, co-opetition, risks of strategic use of IT, and co-creating IT and business strategy.
- Just as a note: this chapter uses the terms *competitive advantage* and *strategic advantage* interchangeably.

CASE: Zara

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- Zara, a global retail and apparel manufacturer based in Arteixo, Spain, needed a dynamic business model to keep up with the ever-changing demands of its customers and industry.
- At the heart of its model was a set of business processes and an information system that linked demand to manufacturing and manufacturing to distribution.
- The strategy at Zara stores was simply to have a continuous flow of new products that were typically in limited supply.

CASE: Zara

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- As a result, regular customers visited their stores often--an average of 17 times a year, whereas many retail stores averaged only four times a year.
- When customers saw something they liked, they bought it on the spot because they knew it would probably be gone the next time they visited the store.
- The result was a very loyal and satisfied customer base and a wildly profitable business model.
- How did Zara do it?

CASE: Zara

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- It was possible in part because the company aligned its information system strategy with its business strategy.
- An early version of its corporate website gave some insight:
  - *Zara's approach to design is closely linked to our customers.*
  - *A non-stop flow of information from stores conveys shoppers' desires and demands, inspiring our 200-person strong creative team.*

CASE: Zara

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- Zara described its revised core value statement on its corporate site, which was recently restated for a more general audience, only using four simple words: beauty, clarity, functionality, and sustainability.
- However, accomplishing this is not so simple.
- Martin Roll showed in an extensive analysis of Zara that such a strategy is accomplished only through an amazing orchestration of information systems (IS), employing two important rules: "To give customers what they want" and "get it to them faster than anyone else."

CASE: Zara

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- While other brands can take six months to get their new designs into stores, Zara can get a new design created and in stores within two weeks.
- Producing about 12,000 new designs each year and manufacturing over 450 million items requires a well-oiled supply chain coupled with more than simple daily sales reports.
- Zara is constantly vigilant, on the lookout for new design trends, so they can stock their shelves with items that are still likely to be top-of-mind for customers.

➢ Vigilant: keeping careful watch for possible danger or difficulties

CASE: Zara

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- Those trends often come from fashion influencers such as actors, actresses, and other celebrities worldwide.
- Zara also captures comments from customers, visits college campuses and nightclubs, and even notes what their customers are wearing in their stores, to find new fashion ideas.
- In short, customers help co-create fashions that will appear in Zara stores.

CASE: Zara

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- An interesting illustration of Zara's rapid response is that four women visited separate Zara stores in Tokyo, Toronto, San Francisco, and Frankfurt, asking for pink scarves.
- Over the next few days, this story was repeated in other stores globally.
- One week later, Zara sent 500,000 pink scarves to 2,000 stores globally, which sold out in three days.

CASE: Zara

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- This story illustrates how trends begin on a small scale but develop rapidly.
- Thanks to meticulous (꼼꼼한, 세심한) use of IS, Zara is equipped to handle that rapid development and reach the fashion market before the inevitable decline.
- The entire process from factory to shop floor is coordinated from Zara's headquarters by using IS.

CASE: Zara

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- The point-of-sale (POS) system on the shop floor records the information from each sale, and the information is transmitted to headquarters at the end of each business day.
- Using a handheld device, the Zara shop managers also report daily to the designers at headquarters to let them know what has sold and what the customers wanted but couldn't find.

CASE: Zara

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- The information is used to determine which product lines and colors should be kept and which should be altered or dropped.
- The designers communicate directly with the production staff to plan for the incredible number of designs that are manufactured every year.
- The shop managers have the option to order new designs twice a week using mobile devices.

CASE: Zara

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- Before ordering, they can use these devices to check out the new designs.
- Once an order is received at the manufacturing plant at headquarters, a large computer-controlled piece of equipment calculates how to position patterns to minimize scrap and cut up to 100 layers of fabric at a time.
- The cut fabric is then sent from Zara factories to external workshops for sewing.

CASE: Zara

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- The completed products are sent to distribution centers where miles of automated conveyor belts are used to sort the garments and recombine them into shipments for each store.
- Zara's IS department wrote the applications controlling the conveyors, often in collaboration with vendors of the conveyor equipment.
- As the Zara example illustrates, innovative use of a firm's information resources can provide it substantial and sustainable advantages over competitors.

CASE: Zara

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- Every business depends on IS, making its use a necessary resource every manager must consider.
- IS can also create a strategic advantage for firms that bring creativity, vision, and innovation to their IS use.
- The Zara case is an example.

Evolution of Information Resources

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- The Eras model (Figure 2.1) summarizes the evolution of information resources over the past six decades.
- To think strategically about how to use information resources now and in the future within the firm, a manager must understand how the company arrived at where it is today.
- This model provides a good overview of trends and uses that have gotten the company from simple automation of tasks to extending relationships and managing their business ecosystems to where it is today.

	Era I 1960s	Era II 1970s	Era III 1980s	Era IV 1990s	Era V 2000s	Era VI 2010s	Era VII 2020+
Primary Role of IT	Efficiency	Effectiveness	Strategy	Strategy	Value creation	Value extension	Value capture
	Automate existing paper-based processes	Solve problems and create opportunities	Increase individual and group effectiveness	Transform industry/ organization	Create collaborative partnerships	Create community and social business	Connect intelligent devices; Establish platforms; Harness big data
Justify IT Expenditures	Return on investment	Increase in productivity and better decision quality	Competitive position	Competitive position	Added value	Creation of relationships	New revenue models
Target of Systems	Organization	Organization/ Group	Individual manager /Group	Business processes	Customer/ Supplier relationships	Customer/ Employee/supplier ecosystem	Platforms
Information Models	Application specific	Data driven	User driven	Business driven	Knowledge driven	People driven (or relationship driven)	Big Data driven
Dominant Technology	Mainframe, "centralized intelligence"	Minicomputer, mostly "centralized intelligence"	Microcomputer, "decentralized intelligence"	Client server, "distributed intelligence"	Internet, global "ubiquitous intelligence"	Social platforms, social networks, mobile, cloud	Intelligent devices, sensors, electronics, platforms
Basis of Value	Scarcity	Scarcity	Scarcity	Plenitude	Plenitude	Hyperplenitude	
Underlying Economics	Economics of information bundled with economics of things	Economics of information bundled with economics of things	Economics of information bundled with economics of things	Economics of information separated from economics of things	Economics of information separated from economics of things	Economics of relationships bundled with economics of information	Economics of information and data bundled with economics of things

Figure 2.1 Eras of Information Usage in Organizations

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Evolution of Information Resources

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- IS strategy from the 1960s to the 1990s was driven by internal organizational needs:
  - Lower existing transaction costs.
  - Provide support for managers by collecting and distributing information.
  - Redesign business processes.

Evolution of Information Resources

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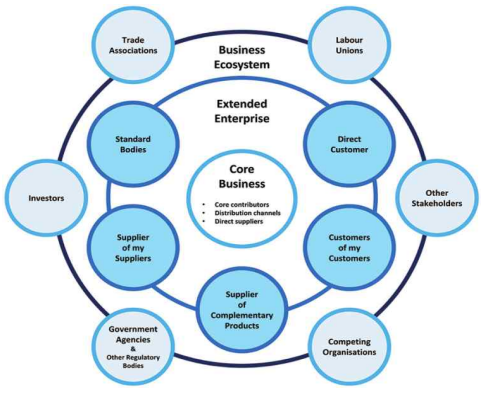
- Most recently, enterprises have found that social IT platforms and capabilities drive a new evolution of applications, processes, and strategic opportunities that often involve an ecosystem of partners rather than a list of suppliers.
- Business ecosystems are collections of interacting participants, including vendors, customers, and other related parties, acting in concert (together) to do business.



Evolution of Information Resources

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- In Eras I through III, the value of information was tied to physical delivery mechanisms.
- In these eras, value was derived from scarcity reflected in the cost to produce the information.
- Information, like diamonds, gold, and MBA degrees, was more valuable because it was found in limited quantities.

Evolution of Information Resources

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- However, the networked economy beginning in Era IV drove a new model of value--value from plenitude.
- Network effects
  - Offered a reason for value derived from plenitude;
  - The value of a network node to a person or organization in the network increased when others joined the network.

Metcalfe's Law

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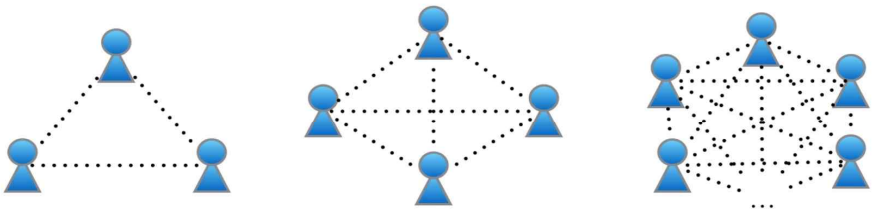

Number of Links
= (3x2)/2 = 3

Number of Links
= (4x3)/2 = 6

Number of Links
= n(n-1)/2

Network Value = Number of links in a fully connected network x Value per link

Evolution of Information Resources

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- As each era begins, organizations adopt a strategic role for IS to address not only the firm's internal circumstances but also its external circumstances.
- Thus, in the value-creation era (Era V), companies sought those applications that again provided them an advantage over their competition and kept them from being outgunned (우세하다) by start-ups with innovative business models or traditional companies entering new markets.
- For example, companies such as Microsoft, Google, Apple, and Facebook created and maintained a competitive advantage by building technical platforms and organizational competencies that allowed them to bring in partners as necessary to create new products and services for their customers.
- Their business ecosystems give them agility as well as access to talent and knowledge, extending the capabilities of their internal staff.

Evolution of Information Resources

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- Eras VI and VII have brought another paradigm shift in the use of information with an era of hyperplenitude:
  - Seemingly unlimited availability of information resources as the Internet and processing and storage through cloud computing sparked (촉발시키다, 촉발하다) new value sources such as community and social business and the Internet of Things (connecting intelligent devices, sensors, and other electronics).

Information Resources as Strategic Tools

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- 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, goods or services. (i.e. IT infrastructure).
  - IT capability is something that is learned or developed over time for the firm to create, produce or offer its products.

IT ASSETS

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- Infrastructure
  - Data/Information, technology, people and processes available to perform business processes and tasks. (not just technology!)
  - The infrastructure provides the foundation for the delivery of a firm's products or services.
  - Might even include resources not owned by the firm.
    - ✓ Internet-based software: *Software as a Service*, or SaaS.
    - ✓ Social networking systems: Facebook, LinkedIn, etc.

IT ASSETS

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- Information repository
  - Logically-related data that is captured, organized and retrievable by the firm.
  - Designed to improve the firm's efficiency.

IT Capabilities

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- 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.
  - Outside the organization (vendors, customers)
  - Within the organization (managers)

Information Resources as Strategic Tools

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IT Assets	IT Capabilities
IT Infrastructure • Hardware • Software and company apps • Network • Data • Website Information Repository • Customer information • Employee information • Marketplace information • Vendor information	Technical Skills • Proficiency in systems analysis • Programming and web design skills • Data analysis/data scientist skills • Network design and implementation skills IT Management Skills • Business process knowledge • Ability to evaluate technology options • Project management skills • Envisioning innovative IT solutions Relationship Skills • *Spanning skills* such as business-IT relationship management • *External skills* such as vendor and platform management

Figure 2.2 Information Resources

How Can Information Resources Be Used Strategically?

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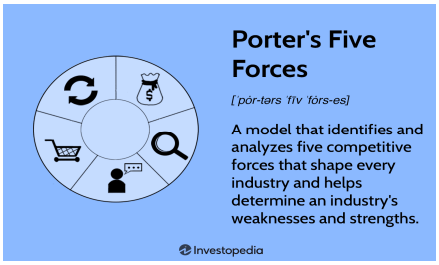
- Managers must take multiple views of the strategic landscape, such as:
  - First view - Porter's five competitive forces model.
    - ✓ Information resources should be directed strategically to alter the competitive forces to benefit the firm's position in the industry.



How Can Information Resources Be Used Strategically?

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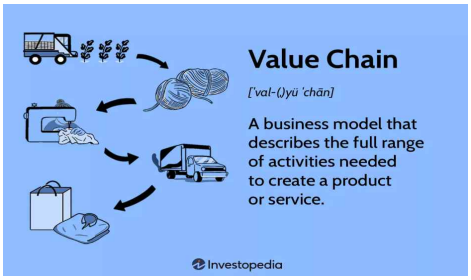
- Managers must take multiple views of the strategic landscape, such as:
  - Second view - Porter's value chain model.
    - ✓ Information resources should be directed at altering the value-creating or value-supporting activities of the firm.



How Can Information Resources Be Used Strategically?

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- Managers must take multiple views of the strategic landscape, such as:
  - Third view – focuses on the types of IS resources needed (Resource Based View).
    - ✓ To gain and sustain competitive advantage

RESOURCE BASED VIEW

Using Information Resources to Influence Competitive Forces

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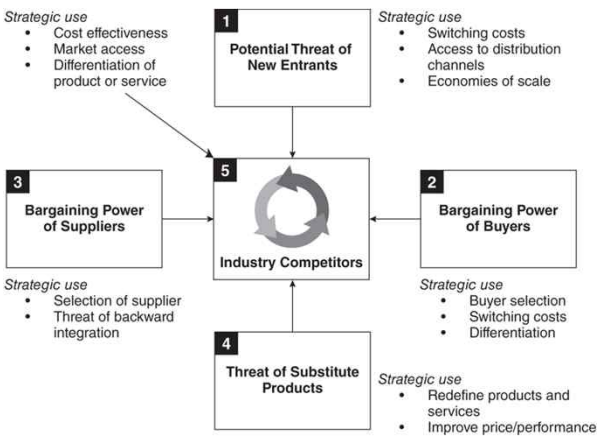

Figure 2.3 Five competitive forces with potential strategic use of information resources

Using Information Resources to Influence Competitive Forces

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Competitive Force	IT Influence on Competitive Force	For Zara
Threat of New Entrants	• Can be lowered if there are barriers to entry. • Sometimes IS can be used to create barriers to entry.	• Zara's IT supports its tightly knit group of designers, market specialists, production managers, and planners. • New entrants are unlikely to be able to provide IT to support such relationships that have been built over time at Zara. • Further, it has a rich information repository about customers that would be hard to replicate.

Figure 2.4.1 Application of five competitive forces model for Zara

Using Information Resources to Influence Competitive Forces

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Competitive Force	IT Influence on Competitive Force	For Zara
Bargaining Power of Buyers	• Can be high if it's easy to switch. • *Switching costs* are increased by giving buyers things they value in exchange such as lower costs, effort, or time; or useful information.	• Zara has employed laser technology to measure 10,000 women volunteers so that it can add the measurement of "real" customers into its information repositories. • Zara also takes into account climate, geographic average sizes, and culture difference so that new products will be more likely to reach the right markets and will fit the customers.

Figure 2.4.2 Application of five competitive forces model for Zara

Using Information Resources to Influence Competitive Forces

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Competitive Force	IT Influence on Competitive Force	For Zara
Bargaining Power of Suppliers	• Strongest when there are few firms to choose from, quality of inputs is crucial, or the volume of purchases is insignificant to the supplier.	• It's computer-controlled cutting machine cuts 1,000 layers at a time. • A large number of sources are available for the simple task of sewing the pieces together. • Zara has great flexibility in choosing the sewing companies.

Figure 2.4.3 Application of five competitive forces model for Zara

Using Information Resources to Influence Competitive Forces

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Competitive Force	IT Influence on Competitive Force	For Zara
Threat of Substitute Products	• Depends on buyers' willingness to substitute and the level of switching costs buyer's face.	• IT helps Zara offer extremely fashionable lines that are expected to last for approximately 10 wears. • IT enables Zara to offer trendy, appealing apparel at hard-to-beat prices, making substitutes difficult.

Figure 2.4.4 Application of five competitive forces model for Zara

Using Information Resources to Influence Competitive Forces

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Competitive Force	IT Influence on Competitive Force	For Zara
Industrial Competitors	• Rivalry is high when it is expensive to leave an industry, the industry's growth rate is declining, or products have lost differentiation.	• Zara tracks breaking trends and focuses on meeting customer preferences for trendy, low-cost fashion. • The result is highly fashion-responsive inventories, only two scheduled reduced-price sales events per year, virtually no advertising, very small volumes of stock remaining unsold, very low inventory levels, new products offered in 15days from idea to shelves, and extremely efficient manufacturing and distribution operations.

Figure 2.4.5 Application of five competitive forces model for Zara

Using Information Resources to Alter the Value Chain

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- Value Chain model addresses the activities that create, deliver, and support a company's product or service.
- 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.

Using Information Resources to Alter the Value Chain

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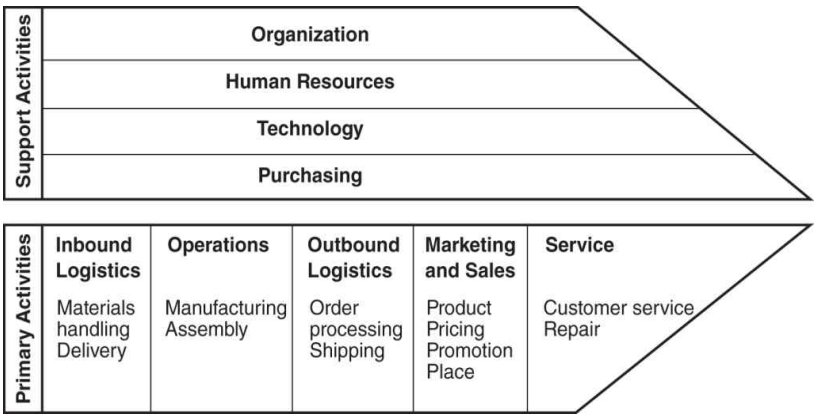

Figure 2.5 Value chain of the firm.

Using Information Resources to Alter the Value Chain

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- Competition can come from:
  - Lowering the cost to perform an activity, increasing profit.
  - Adding value to a product or service so buyers will be willing to pay more (again, increasing profit).

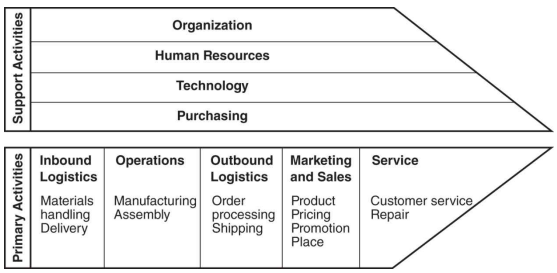

Figure 2.5 Value chain of the firm.

Using Information Resources to Alter the Value Chain

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- 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 within the larger system.
- This can lead to the formation of entirely new businesses designed to change the information component of value-added activities. (Figure 2.6)

Using Information Resources to Alter the Value Chain

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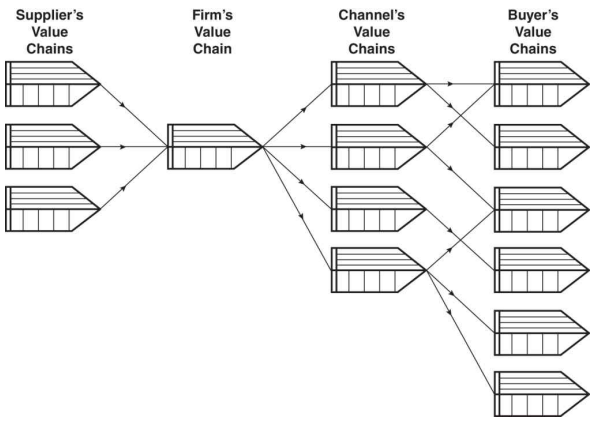

Figure 2.6 The value system: interconnecting relationships between organizations

Using Information Resources to Alter the Value Chain

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- Optimizing a company's internal processes, such as its supply chain, operations, and customer relationship processes, can be another source of competitive advantage.
- Tools are routinely used to automate the internal operations of a firm's value chain, such as
  - Supply Chain Management (SCM) to source materials for operations,
  - Enterprise Resource Planning (ERP) systems to automate functions of the operations activities of the value chain, and
  - Customer Relationship Management (CRM) systems to optimize the processing of customer information.

Using Information Resources to Alter the Value Chain

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Primary Activity	Zara's Value Chain
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. • Many suppliers are located near its production facilities.
Operations	• IS 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 50% of its merchandise in house. • Fabric is cut and dyed by robots in 12 highly automated factories in Spain, Portugal, and Turkey. • Factories are provided with substantial idle time (up to 85%) to be able to respond to rapid changes in demand.

Figure 2.7.1 Application of value chain model to Zara

Using Information Resources to Alter the Value Chain

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Primary Activity	Zara's Value Chain
Outbound Logistics	• Clothes move on miles of automated conveyor belts at distribution centers and reach stores within 48 hours of the order.
Marketing and Sales	• Limited inventory allows a low percentage of unsold inventory and only two scheduled discount sales per year. • POS at stores linked to headquarters 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

Figure 2.7.2 Application of value chain model to Zara

Using Information Resources to Alter the Value Chain

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Secondary Activity	Zara's Value Chain
Organization	• IT supports tightly knit collaboration among designers, store managers, market specialists, production managers, and production planners.
Human Resources	• Managers are trained to understand what's selling and report data to designers every day. • The manager is key to making customers feel listened to and to communicating with headquarters to keep each store and the entire Zara clothing line at the cutting edge of fashion.
Technology	• Technology is integrated to support all primary activities. • Zara's IT staff works with vendors to develop automated conveyors to support distribution activities.
Purchasing	• Vertical integration reduces the amount of purchasing needed.

Figure 2.7.3 Application of value chain model to Zara

Sustaining Competitive Advantage

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- Attaining competitive advantage is one thing.
  - A firm often exploits rare and valuable resources.
- But sustaining competitive advantage is another.
  - Resources must be difficult to transfer or relatively immobile.
- In an industry facing hyper-competition, recall that trying to sustain an advantage can be a deadly distraction.
- Consider the banking industry as a good example that has undergone much change over the past five decades.
  - Personal visit, Automated Teller Machines (ATM), Bank-By-Phone, Bank-By-Web, Mobile Banking

Barrier	Definition	Examples
IT Project Barrier	• It would be a large undertaking for a competitor to build the system to copy the capability.	• Requires a large investment. • Requires a long time to build. • Complicated to build.
IT Assets and Capabilities Barrier	• Competitors might lack the IT resources to copy the capability.	• Database of customers that cannot be copied. • Expert developers or project managers.
Complementary Resource Barrier	• The firm has other resources that create a synergy with the IT that provides competitive advantage.	• Respected brand. • Partnership agreements. • Exclusivity arrangements. • Good location.
Preemption Barrier	• The firm "got there first."	• Loyal customer base built at the beginning. • Firm known as "the" source.

Figure 2.8 Barriers to competition and building sustainability

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Sustaining Competitive Advantage

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- A firm might simultaneously:
  1. Seek ways to build sustainability by looking into each of the four potential barriers to identify promising ways to block the competition and at the same time.
  2. Continue to innovate and change the industry.

Sustaining Competitive Advantage

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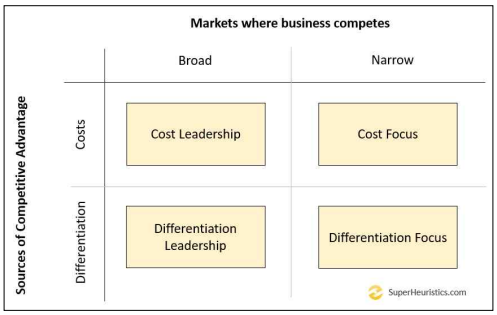
- Netflix has done both by building a dependable and efficient mailing business and creating new business models such as streaming and series production.
- Focusing only on building sustainability has the potential effect of fighting a losing battle, and focusing only on new business models might be too risky as the sole source of growth.



Using the Resource-Based View (RBV)

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- The RBV looks at gaining competitive advantage through the use of information resources.
- The RBV has been applied in the area of IS to help identify two types of information resources:
  - Those that enable a firm to attain competitive advantage.
  - Those that enable a firm to sustain the advantage over the long term.

Using the Resource-Based View (RBV)

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- Some types of resources are better than others for creating attributes that enable a firm to attain competitive advantage.
  - ✓ Value
  - ✓ Rarity
- Whereas other resources are better for creating attributes to sustain competitive value.
  - Low substitutability
  - Low mobility
  - Low imitability

Resources to Attain Competitive Advantage

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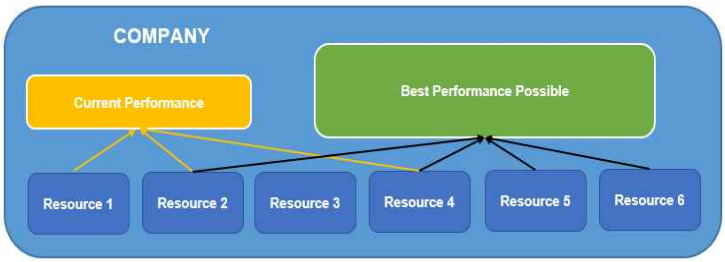
- Valuable and rare resources that firms must leverage to establish a superior resource position help companies attain competitive advantage.
- A resource is considered valuable when it enables the firm to become more efficient, effective, or innovative.
- It is a rare resource when other firms do not possess it.



Resources to Sustain Competitive Advantage

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- Many firms that invested in systems learned that gaining a competitive advantage does not automatically mean that they could sustain it over the long term.
- The only way to do that is to continue to innovate and to protect against resource imitation, substitution, or transfer.
- For example, Walmart's complex logistics management is deeply embedded in both its own and its suppliers' operations so that imitations by other firms is unlikely.

	Value Creation		Value Sustainability		
Resource/ Attribute	Value	Rarity	Imitation	Substitution	Transfer
IT Asset					
IT Infrastructure	Moderate because of its skillful use of the POS equipment, handheld computers, automated conveyors, and computer-controlled equipment to cut patterns, but similar technology could be purchased and used by competitors		Easy to imitate and transfer its infrastructure Moderate for substitution of infrastructure (automated conveyers)		
Information Repository	High value and rarity because of its information about customers' preferences and body types, which Zara leverages strategically; well integrated with Zara's operations and personnel; retail information analyzed by designers to identify future products		Difficult to imitate and transfer Extremely difficult to substitute because of the volume and nature of the data		

Figure 2.9.1 Information resources at Zara, by attribute

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	Value Creation		Value Sustainability		
Resource/ Attribute	Value	Rarity	Imitation	Substitution	Transfer
IT Capability					
Technical Skills	Low value/rarity because IS professionals could be hired relatively easily to perform the technical work		Moderately difficult to imitate, substitute, or transfer; some sustainability results because the skills are used to integrate across a range of systems		
IT Management Skills	High value/rarity because they were acquired over time		Difficult to imitate, substitute, or transfer; resources leveraged well		
Relationship Skills- Externally Focused	High value from relationship with European manufacturers Moderate rarity because other companies also have relationship with manufacturers although required time to develop the relationship		Difficult to imitate, substitute, or transfer; turnaround time of under 5 weeks from conception to distribution		
Relationship Skills- Spanning	High rarity of spanning		Difficult to imitate, substitute, or transfer spanning; unusual tight-knit teams at headquarters not easy to imitate or purchase in the marketplace, allowing the ability to correctly interpret and quickly respond to customer needs		

Figure 2.9.2 Information resources at Zara, by attribute

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Social Capital as an IT Resource

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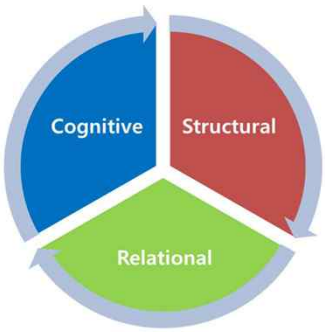
- Social Capital Theory: A management theory that is gaining in popularity as a tool in understanding a social business.
- Social capital: The sum of the actual and potential resources embedded within, available through, and derived from the network of relationships possessed by an individual or social unit.

How the connected people think.



Who is connected to whom.

How the connected people interact.

Social Capital as an IT Resource

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Social Capital	Description
Structural Dimension	• Is concerned with the pattern of relationships in the network. • Who is connected to whom.
Relational Dimension	• Looks at the nature of relationships among members in the network (i.e., respect, friendship). • How the connected people interact.
Cognitive Dimension	• Looks at the way people think about things in the network, in particular, whether they have a shared language, system of meanings or interpretations. • How the connected people think.

Strategic Alliances

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- Inter-organizational relationship that affords one or more companies a strategic advantage.
  - Example: Zynga (Game Maker) and Facebook.
- Business Ecosystems
  - A group of strategic alliances in which a number of partners provide important services to each other and jointly create value for customers.
  - Example: Both Facebook and the app provider benefit from their alliance.
- Co-opetition
  - Companies cooperate and compete at the same time.
  - Example: Microsoft builds laptops but also supplies operating systems to other laptop makers.

Risks

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- There are many potential risks that a firm faces when attempting to use IT to outpace their competition.
- Executives should be aware of these risks in advance:
  - Awakening a sleeping giant
  - Demonstrating bad timing
  - Implementing IS poorly
  - Failing to deliver what users want
  - Running afoul of the law

Awakening a Sleeping Giant

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- A firm can implement IS to gain competitive advantage only to find that it nudged a larger competitor with deeper pockets into implementing an IS with even better features.
- FedEx offered its customers the ability to trace the transit and delivery of their packages online.
- FedEx's much larger competitor, UPS, rose to the challenge.
- UPS not only implemented the same services but also added a new set of features eroding some of the advantages FedEx enjoyed, causing FedEx to update its offerings.
- Both the UPS and FedEx sites passed through multiple website iterations as the dueling (fighting) delivery companies continue to struggle for competitive advantage.

Demonstrating Bad Timing

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- Sometimes customers are not ready to use the technology designed to gain strategic advantage.
- For example, Grid Systems created the GRiDPAD in 1989.
- It was a tablet computer designed for businesses to use in the field and was well reviewed at that time.
- But it didn't get traction (견인력).
- Three decades later, in 2010, Apple introduced the iPad, and tablet computing took off.

Implementing IS Poorly

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- Stories abound of IS that fail because they are poorly implemented.
- Typically, these systems are complex and often global in their reach.
- An implementation fiasco (failure) took place at Hershey Foods when it attempted to implement its supply and inventory system.
- Hershey developers brought the complex system up too quickly and then failed to test it adequately.
- Related systems problems crippled shipments during the critical Halloween shopping season, resulting in large declines in sales and net income.

Failing to Deliver What Users Want

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- Systems that do not meet the needs of the firm's target market are likely to fail.
- For example, in 2011, Netflix leadership divided the company into two, calling the DVD-rental business Qwikster and keeping the streaming business under Netflix.
- But customers complained, and worse, closed their accounts.
- Less than a month later, Qwikster was gone.
- Netflix reunited both businesses under the Netflix name.

Running Afoul of the Law (1)

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- Using IS strategically may promote litigation (소송) if the IS result in the violation of laws or regulations.
- Years ago, American Airlines' reservation system, Sabre, was challenged by the airline's competitors on the grounds that it violated antitrust laws (독과점금지법).
- More recently, in 2010, Google said it was no longer willing to adhere to Chinese censorship.

Running Afoul of the Law (2)

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- The Chinese government responded by banning searching via all Google search sites (not only google.cn but all language versions, e.g., google.co.jp. google.com.au), including Google Mobile.
- Google then created an automatic redirect to Google Hong Kong, which stopped June 30, 2010, so that Google would not lose its license to operate in China.
- Today, Google is acting in compliance with the Chinese government's censorship laws and Chinese users of Google.cn see filtered results as before.

Running Afoul of the Law (3)

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- Later, in 2019, the discovery of a secret "Dragonfly" project, a mobile search engine for the Chinese market that complies with China's censorship laws, has resulted in resistance by Google employees.
- Finally, European antitrust officials claimed that Google's search engine unfairly generates results that favor its shopping sites over those of its competitors and that its Android mobile phone operating system unfairly features Google as the default search engine.

Co-Creating IT and Business Strategy

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- 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.
  - The trend is towards integrating the two.
- Some company's main product is information (financial services).
- FedEx can not function without IT even though they are primarily a package delivering company.