Chapter 3

Information Systems, Organizations, and Strategy

After completing this chapter, students should be able to answer the following questions:

Which features of organizations do managers need to know about to build and use information systems successfully? What is the impact of information systems on organizations?

How does Porter’s competitive forces model help companies develop competitive strategies using information systems?

How do the value chain and value web models help businesses identify opportunities for strategic information system applications?

How do information systems help businesses use synergies, core competencies, and network-based strategies to achieve competitive advantage?

What are the challenges posed by strategic information systems and how should they be addressed?
Introduction

Chapter 3 describes how organizations and information systems work together, or sometimes against each other. The idea, of course, is to keep them in sync, but that's not always possible. We'll look at the nature of organizations and how they relate to information systems.

3.1 Organizations and Information Systems

You could say that this chapter relies on the chicken-and-egg theory to develop a relationship between organizations and information systems. You need to design information systems that serve the existing organization. At the same time you must be ready and willing to restructure the organization to take advantage of the improvements an information system can offer. So which one takes precedence—the organization or the information system? Actually neither one. The goal is to adapt one to the other.

What Is An Organization?

An organization is a stable, formal social, structure that takes resources from the environment and processes them to produce outputs (Laudon and Laudon, 2010:107). Figure 7 depicts this process.

Figure 7: The Organisation

![Diagram of an organization showing inputs from the environment, production process, and outputs to the environment.]

Source: (Laudon and Laudon, 2010:87)

Organisations and Information systems are similar. Information systems use data as their main ingredient and organizations rely on people. However, the similarities are remarkable. Both are a structured method of turning raw products (data/people) into useful entities (information/producers).

Think of some of the organizations you’ve been involved in. Didn’t each of them have a structure, even if it wasn’t readily apparent? Perhaps the organization seemed chaotic or didn’t seem to have any real purpose. Maybe that was due to poor input, broken-down processing, or unclear output. It could very well be that feedback was ignored or missing altogether.
Features of Organizations

The class you’re enrolled in is an organization of sorts, isn’t it? Think about it – how many of the following characteristics fit your class? How many fit any organization you’re in?

- Clear division of labor
- Hierarchy
- Explicit rules and procedures
- Impartial judgments
- Technical qualifications for positions
- Maximum organizational efficiency

These characteristics describe organizations that are called bureaucracies. Most of us think of them as slow, cumbersome, and unprogressive. That isn’t necessarily so. Many organizations have bureaucratic characteristics and operate very well.

Routines and Business Processes

Successful organizations develop efficient routines for producing goods and services. Successful organizations are able to reduce costs and win a competitive advantage over others because these routines are built into business processes. However, some standard operating procedures (SOPs), politics, and culture are so ingrained in organizations that they actually hinder the success of the group because they don’t allow people to change their routines and processes as they should.

Organizational Politics

Each person in an organization ultimately has his own goals. Those goals may be aligned very well with organizational goals but perhaps they aren’t. The bottom line is each person comes into an organization with different concerns and perspectives. When those viewpoints clash with others the end result is organizational politics. And, politics can essentially kill organizational changes necessary for incorporating new information systems.

Organizational Culture

Just as every society reflects cultural values like language, dress, and food, so too does every organization have its own culture. Some companies like Google are very —laid-back. The company allows employees to bring their dogs to work and ride skateboards in the hallways. Other companies like IBM require employees to adhere to a strict dress code and leave the skateboards at home. Yet both companies are very successful in their own right. However, when each company embarks on organizational change, the culture is very much a player in what they can and can’t do.
Organizational Environments

Organizations differ because their ultimate goals differ. Some organizations are small by nature or small by design. Using the same thought process as you did for recognizing the different structures in organizations around you, think about the unique differences in those organizations. Why are they different: size, goals, environmental factors that restrict their growth?

For instance, contrast a real estate company with an insurance company. The real estate company is constantly looking for new customers (buyers and sellers) and new products (houses or commercial properties) to sell. It may choose to stay small or to go with a nationwide conglomerate. The environmental factors that are likely to influence it are the state of the national economy or the nature of the local economy. Many external factors are out of its control. The employees of the company must respond quickly to potential sales or they simply won’t make any money. This type of organization must be creative in the way it generates business and in the type of systems it uses.

On the other hand, the insurance company has relatively stable customers. People sign up with the insurer and pay their premiums on a regular basis. While customers may come and go, the turnover is fairly small. Because most state governments require people to carry insurance, the agent has a stable stream of income from premiums. Although the parent company may suffer large losses from a sudden influx of customer claims, the small agency is not as heavily influenced by environmental factors. This organization doesn’t have to devise ways of ingeniously using or generating data and its systems needs are mundane.

Both of these businesses are small and entrepreneurial. But they must respond to their employees, customers and potential customers in very different ways. Each of them has different business processes that must be used to meet goals of staying in business. Disruptive Technologies: Riding the Wave: Remember typewriters? They were ubiquitous in the business world thirty years ago. How many have you seen lately? Did they fade away because they weren’t a good idea when they were first invented? They weren’t a good product? They didn’t serve a need? As we all know, the answers to all those questions is a resounding no. They were a great invention, a great product, and served a real need. But they were supplanted by a disruptive technology called computers.

**SELF CHECK QUESTION 3.1**

What is an organization? Compare the technical definition of organization with the behavioural definition

(Answers at the end of this Section)
Organizational Structure

The point is that every group of people is an organization. The interesting question you could ask yourself would be: —How would the world look and function without some kind of organization?

Table 2 shows some common organizational structures. Think about your own experiences, in your workplace or your daily life, and try to list some organizations that fit into each category. They’re all around you and affect you in so many ways. Remember, just as organizations affect you in many different ways, so too do you affect the organizations.

Table 2: Organisational Structures

<table>
<thead>
<tr>
<th>ORGANIZATIONAL TYPE</th>
<th>DESCRIPTION</th>
<th>EXAMPLES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entrepreneurial structure</td>
<td>Young, small firm in a fast-changing environment. It has a simple structure and is managed by an entrepreneur serving as its single chief executive officer.</td>
<td>Small start-up business</td>
</tr>
<tr>
<td>Machine bureaucracy</td>
<td>Large bureaucracy existing in a slowly changing environment, producing standard products. It is dominated by a centralized management team and centralized decision making.</td>
<td>Midsize manufacturing firm</td>
</tr>
<tr>
<td>Divisionalized bureaucracy</td>
<td>Combination of multiple machine bureaucracies, each producing a different product or service, all topped by one central headquarters.</td>
<td>Fortune 500 firms, such as General Motors</td>
</tr>
<tr>
<td>Professional bureaucracy</td>
<td>Knowledge-based organization where goods and services depend on the expertise and knowledge of professionals. Dominated by department heads with weak centralized authority.</td>
<td>Law firms, school systems, hospitals</td>
</tr>
<tr>
<td>Adhocracy</td>
<td>Task force organization that must respond to rapidly changing environments. Consists of large groups of specialists organized into short-lived multidisciplinary teams and has weak central management.</td>
<td>Consulting firms, such as the Rand Corporation</td>
</tr>
</tbody>
</table>

Source: (Laudon and Laudon, 2010:114)

Other Organizational Features

Would you consider the same organizational structure for a softball team as you would for a theatre production group? Although there would be some similarities, the two groups would probably have some major differences. An automobile dealership would have some similarities to a department store (both sell products) and yet they would have major structural differences. Organizations that enter into collaborative partnerships tend to seek out companies with similar structures. It is much easier for the employees to work together if they aren’t required to learn a whole different work structure on top of learning new tasks.
3.2 How Information Systems Impact Organizations and Business Firms

Change is the only constant in the relationship between information systems and organizations. As technology evolves and changes, its introduction into organizations requires changes in the firm’s infrastructure and the services it can provide to its employees, customers, and suppliers.

Years ago information systems consisted of a huge mainframe computer with a few terminals connected to it. You had to schedule a specific time to use the computer if your company had one at all. All data were kept on one machine, and in some respects the data were available to whoever could access them.

When personal computers were introduced in the early 1980s, it became the norm for most people to have individual computing islands on their desks. The computers weren’t connected to each other and if you wanted to exchange data or information, you had to somehow get the data from your desk to the other person’s desk. It wasn’t easy.

Now it seems we’ve come full circle in some ways: we’ve combined the storage and data processing on a central machine with personal computing available on desktops. The data are available to anyone who can use them or has authorized access through a network with links literally all over the world.

The text discusses two major types of theories about how information systems affect organizations: economic theories and behavioral theories.

**Economic Impacts**

It’s sometimes cheaper to hire a computer than to hire a person. We may not like the idea that machines can replace human beings, but when you think about it, they have been doing this for thousands of years.

To better illustrate this concept, let’s take a look at how a company can find it cheaper to use an information system to develop and disseminate a Human Resources policy for employee dress codes. The HR assistant may write the first draft of the policy and give it to the HR director on paper. The director will review it and make changes. The assistant then must incorporate the changes and reprint the document. Wait! If there is an information system, the assistant can submit the draft to the director electronically and the director can make changes to the electronic version of the file and return it to the assistant. Already we’ve saved part of a tree!

Of course others in the organization must review the new dress code policy. The proposed policy can be printed in fifteen copies, a person can manually send the copies out, track who they went to and when, and then track all the changes made to the proposal. Or, the proposed policy can be sent electronically to reviewers who will electronically collaborate on necessary changes. Each of the reviewers can see in —real time!—what the others think and the changes they would like to
make. We’ve saved another part of the tree in reduced paper use, but we’ve also saved a lot of
time and human effort.

Once the policy is set, it has to be sent to each employee. We could do that through the old
method of printing hundreds of copies. Or we could send the policy to each person electronically
(e-mail). Everyone would have a personal copy stored on computer. There is no need to print it
out on paper because it will be stored electronically and can be referenced whenever it is
convenient. As employees acknowledge receipt of the policy via e-mail, the HR department
knows they received it.

So what about the people who don’t have their own personal computer? You could post the new
policy to the company Intranet, which would be available to all employees whenever they find it
convenient. Again, time and resources are cut drastically through the use of an information
system. If the policy needs to be revised, the same process can be used to make and send out
changes. The revised policy can be posted on the intranet for all to see.

This is just one example of how technology is helping organizations reduce their costs of doing
business. The transaction cost theory supports the idea that through technology businesses can
reduce their costs of processing transactions with the same emphasis and zeal that they try to
reduce their production costs.

We mentioned earlier that many of the job cuts taking place in businesses are now affecting
white-collar, managerial positions. That follows the agency theory of economic impacts brought
on by information systems. Now one manager can oversee ten employees (agents) rather than
four employees because information is cheaper and easier to disseminate.

**Organizational and Behavioral Impacts**

**IT Flattens Organizations**

Rather than five layers of management in an organization, information technology allows
companies to flatten the layers to three, maybe even two. Here’s how:

- IT pushes decision-making rights lower in the organization because lower-level
  employees receive the information they need to make decisions without supervision.
- Managers now receive so much more accurate information on time, they become much
  faster at making decisions, so fewer managers are required.
- Management costs decline as a percentage of revenues, and the hierarchy becomes much
  more efficient.
**Postindustrial Organizations**

Postindustrial theories also support the notion that IT should flatten hierarchies. Here’s why:

- Professional workers tend to be self-managing, and decision making should become more decentralized as knowledge and information become more widespread throughout the firm.
- IT may encourage task force-networked organizations in which groups of professionals come together – face to face or electronically – for short periods of time to accomplish a specific task; once the task is accomplished, the individuals join other task forces.

Technology makes virtual organizations more feasible, cheaper, and easier to set up and tear down than before. If you had a small group of people from each functional area of the company collaborating on a new production method, you can bring them together, decide on the new methodology, and then return them to their regularly assigned units. Let’s say your company decides to develop a new method of shipping hammers. You would need to draw people from the production department, the shipping department, the packaging department, and the accounting department to help develop the new procedures. Without an information system you would need to have a clerical worker available to record and send out all the information to everyone before and after the meetings. You would have to set up a time and place for team members to meet. Scheduling everyone’s time is often a nightmare! Because of the political nature of organizations and people, which we’ve previously discussed, most of those assigned to this team would probably have to be middle managers.

If your company had the proper information system, much of the hassle and expense of this scenario could be eliminated. By using technology, most of the collaboration and communication throughout the organization, top-to-bottom, side-to-side, could be accomplished quicker and cheaper.

One of the biggest benefits to this method would be the fact that the decision-making process of this committee can be pushed to lower levels and management can check progress electronically. Perhaps the managers wouldn’t be as concerned about delegating responsibility because they can keep an eye on the committee throughout the process and monitor its progress easier. Everyone in the entire organization could have access to the work of the committee. What about those people not physically located in the same place? No problem: electronically they have the same access to the process as everyone else.

**Understanding Organizational Resistance to Change**

Information systems are closely intertwined with an organization’s structure, culture, and business processes. New systems disrupt established patterns of work and power relationships, so there is often considerable resistance to them when they are introduced. The complex relationship between information systems, organizational performance, and decision making must be carefully managed.
Management Information Systems

Technology doesn’t automatically transform organizations. There is no magic wand companies can wave that will solve all their problems just because they installed the latest information system.

People using technology efficiently and effectively, however, can transform organizations. Technology can enhance communications up and down the organization and from one department to another on the same managerial level. As our dress code policy example shows, communications are much faster and better using technology. The lines of communication are shorter, clearer, and more concise.

The behavioral theory of the integration of information systems in an organization says that the political structure of an organization changes through access to information. The common status symbol in an organization used to be the corner office. Now the political status symbol is how much information a person has access to.

**The Internet and Organizations**

The example used earlier of posting personnel policies to the company intranet is just one small example of how businesses are using network technologies to reduce costs and enhance their business processes. Business-to-business commerce is growing at a tremendous pace because of the cost savings the Internet allows. The Internet provides an open platform technology that allows transaction processing between businesses at much cheaper costs and provides an easy-to-use interface. The innovative ways organizations are using the Internet, intranets, and extranets to improve their business processes and lower costs is simply fascinating.

Even government bureaucracies are getting into the act. The U.S. Post Office is facing a severe threat to its core business. More and more businesses and individuals are turning to e-mail and the Web to correspond with each other. As e-mail continues to grow as a substitute for —snail mail,— the Post Office must find innovative ways of using the Internet to gain new business. It’s doing so by selling postage on the Internet, and it now offers electronic bill-paying services. Companies can send bills to their customers electronically and individuals and businesses can pay all their bills over the new Internet-based service.

**Implications for the Design and Understanding of Information Systems**

The integration of an information system into an organization naturally causes change for the organization. Sounds simple enough. What isn’t so simple to manage is the very fact that many people do not readily accept change. No matter how much technology you employ, it is still the organization’s people who will make or break it. Remember the triangle introduced in Chapter 1, when we discussed hardware, software, and persware? It's back!
Change can be so traumatic to some organizations that they find it easier to keep doing business the same old way for as long as they can get away with it. That’s why some organizations seem to be stuck doing business the way they did in 1969.

### 3.3 Using Information Systems to Achieve Competitive Advantage

Google, Amazon, e-Bay—the giants of the Internet. They are successful and make loads of money. They could easily rest on their laurels, kick back, and relax. If they are so successful, why do they keep working so hard to continually introduce new products and services and improve the old ones? Because someone, somewhere, is trying to take their place and become the new giant. These companies must constantly work to keep their competitive advantage and they are using information systems to do so.

#### Porter’s Competitive Forces Model

Porter’s competitive forces model contends that much of the success or failure of a business depends on its ability to respond to its external environment. Figure 8 shows four external forces that every business must contend with at one time or another.

#### Figure 8: Porter’s Competitive Forces Model.

![Porter’s Competitive Forces Model Diagram](image)

Source: (Laudon and Laudon, 2010:122)

It’s important to understand from this model that a firm’s success is not predicated on how well it does internally. It must also pay attention to:
Traditional competitors: always nipping at your heals with new products and services trying to steal your customers.

New market entrants: not constrained by traditional ways of producing goods and services, they can easily jump into your markets and lure customers away with cheaper or better products and services.

Substitute products and services: customers may be willing to try substitute products and services if they decide your price is too high or the quality of your products and services is too low.

Customers: fickle to say the least, they are now armed with new information resources that make it easier for them to jump to your competitors, new market entrants, or substitute products.

Suppliers: the number of suppliers used may determine how easy or difficult your business will have in controlling your supply chain. Too few suppliers and you lose a lot of control.

**Information System Strategies for Dealing with Competitive Forces**

Many companies have found that effective and efficient information systems allow them to deal with external forces in one of four ways: low-cost leadership, product differentiation, focus on market niche, and strengthen customer and supplier intimacy.

**Low-Cost Leadership**

By using information systems to lower your operational costs you can lower your prices. That will make it difficult for traditional competitors and new market entrants to match your prices. This strategy works best with commodities such as computers or with household products retailers such as Wal-Mart.

**Efficient customer response systems** provide a company and its suppliers with an integrated view of customers. These systems provide instantaneous information to the company and its suppliers. Every staff member can have access to the information in the system to help reduce costs and prices well below that of the competition. Processes such as supply replenishment are automated between companies and suppliers. When products reach a certain re-order point, the system automatically sends a message to the supplier who can quickly send out new stock. These systems help companies achieve low-cost leadership in their industry.

**Product Differentiation**

A very effective use of strategic information systems is to create products or services that are so different that they create barriers for the competition. Product differentiation is at the heart of Apple Computer’s success. Sure it make computers. But the company gets away with charging a premium price because it differentiates its products from all others. Competitors, like Hewlett-Packard and IBM, have tried to duplicate Apple’s strategic business model but have not been quite as successful.
Management Information Systems

Apple uses product differentiation to help market its iPod and online music system to a broad swath of the population and create barriers that its competitors are having difficulty overcoming. People like to feel that they are unique individuals with their own needs and desires. One of the best strategies for dealing with competitors is to offer customers exactly what they want, when they want it, and how they want it. The Internet provides a new outlet for mass customization by allowing customers to order one-of-a-kind products.

For instance, by visiting the Ping Golf Club Web site, an individual can step through a series of pages that will help design golf clubs to fit her. The customer answers questions on the site about her height, arm length, hand size, and level of play. The site then advises her on the exact type of club that best fits her needs and provides all of the information necessary to order the clubs. Once ordered, Ping can produce the product in a matter of hours and use a shipping partner to deliver the clubs in less than five days. The individual feels special and Ping has gained a new customer.

Focus on Market Niche

If an organization is in a fiercely competitive market, it can choose to focus on a very narrow segment of the market rather than a broad general audience. A firm can gather very specific information about its customers using data mining techniques. Then it creates a focused differentiation business strategy to market directly to those consumers. Being able to address the needs and wants of a very small market segment is why companies are so intent on gathering consumer information from a variety of sources.

Apple Computer uses focused differentiation to help sell its computers to a narrow target market of graphic designers and educators rather than the general population of computer users.

Strengthen Customer and Supplier Intimacy

Supply chain management (SCM) systems increase supplier intimacy while customer relationship management systems increase customer intimacy. SCM systems create immense switching costs between a company and its suppliers because of the investment of hardware and software necessary to make the system successful. Customer relationship management systems allow companies to learn details about customers that give them the competitive advantage over traditional competitors and new market entrants.

Implementing these competitive strategies requires precise coordination of people, technology and the organization. A company can pursue one or more of these strategies but cannot isolate any of the three dimensions of an information system. They must all work in concert together to have any hope of success.

The Internet's Impact on Competitive Advantage

Try to think of one industry that has not been touched by the Internet. Its impact on Porter's Competitive Forces Model is apparent from entertainment to retail to travel to financial services.
The Internet allows traditional competitors to introduce new products and services and lure customers away. It provides a low cost avenue for new market entrants. Consumers can easily and quickly find substitute products and services through the Internet. Customers can use information provided on the Internet to create new competition between companies while suppliers can increase their market power. Table 3 summarizes the impact the Internet is having on many industries.

Not all of the news is bad though. The Internet provides new opportunities for companies to increase their customers and markets while reducing their costs. The companies we first mentioned in this section, Google, Amazon, and e-Bay are continually creating new products and services through the Internet. They are successful because they use their strategic competitive forces information systems to continually improve their competitive advantage.

### Table 3: Impact of the Internet on Competitive Forces

<table>
<thead>
<tr>
<th>COMPETITIVE FORCE</th>
<th>IMPACT OF THE INTERNET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Substitute products or services</td>
<td>Enables new substitutes to emerge with new approaches to meeting needs and performing functions</td>
</tr>
<tr>
<td>Customers’ bargaining power</td>
<td>Availability of global price and product information shifts bargaining power to customers</td>
</tr>
<tr>
<td>Suppliers’ bargaining power</td>
<td>Procurement over the Internet tends to raise bargaining power over suppliers; suppliers can also benefit from reduced barriers to entry and from the elimination of distributors and other intermediaries standing between them and their users</td>
</tr>
<tr>
<td>Threat of new entrants</td>
<td>The Internet reduces barriers to entry, such as the need for a sales force, access to channels, and physical assets; it provides a technology for driving business processes that makes other things easier to do</td>
</tr>
<tr>
<td>Positioning and rivalry among existing competitors</td>
<td>Widens the geographic market, increasing the number of competitors, and reducing differences among competitors; makes it more difficult to sustain operational advantages; puts pressure to compete on price</td>
</tr>
</tbody>
</table>

Source: (Laudon and Laudon, 2010:130)

Of course the Internet has turned many traditional management practices to dust. Customers have access to much more information and data than they ever did before. They can compare product prices across hundreds of companies with a few clicks. Before the Internet, customers may have had access to a limited number of retailers. Through the Internet, they now have access to hundreds of retailers open 24 hours a day. Once retailers had only local competition. Now they have to compete with other retailers located halfway around the world.

**The Business Value Chain Model**

Be better than the competition. That’s the mantra of most companies that are serious about winning the game. Areas of the organization most affected by leveraging technology are in producing the product, getting it to the stores, and making the customer happy. Remember the WorldWide Candy Corporation from Chapter 2? Think of all the activities that go into getting
the Cybernuts candy bar made, from procuring raw materials to actual production. Then consider how the candy bar gets from the factory to the store shelves. And what about all those commercials you see? These are primary activities. Just as important are support activities: human resources, accounting, and finance. These functions support the primary functions of production, shipping, and sales and marketing. The value chain model shown in Figure 9 below will help an organization focus on these activities and determine where to focus their efforts the most.

Figure 9: The Value Chain Model.

![Value Chain Model Diagram](image)

Source: (Laudon and Laudon, 2010:131)

By effectively using an information system in a strategic role at any, or preferably all, levels of the organization, a digital firm can provide more value in their products than the competition. If they can’t provide more value, then the strategic information system should help them provide the same value but at a lower price.

**Benchmarking** provides a way for businesses to determine how they stand up against their competitors within the same industry. For instance, if the industry standard in producing golf clubs is ten days, Ping can benchmark their production schedule of five days and determine that they are more successful than their competitors. They can also research the best practices of other golf club manufacturers and decide if they should fine tune their business processes to wring even more resources from the production process.
Information to formulate benchmarks and best practices can come from internal sources, other companies within the same industry, external industries, university research units, or the government.

**Extending the Value Chain: The Value Web**

More and more companies are incorporating the Internet in their business strategies through the use of *value webs* – Figure 10. Ford Motor Company is forming many partnerships and alliances via the Web to offer services and products that otherwise would be too difficult, costly, or time-consuming.

> —Suppliers are an integral part of our business, and our success is interdependent with theirs. We rely on more than 2,000 production suppliers to provide many of the parts that are assembled into Ford vehicles. Another 9,000 suppliers provide a wide range of nonproduction goods and services, from production equipment to computers to advertising. (Ford.com Web site)

Ford is using value webs to connect itself, suppliers, and business partners and share best practices so that each participant can improve its business processes. That in turn lowers supply costs for Ford and ensures a certain level of standardization through the manufacturing process. Suppliers can collaborate with each other via the value web to enhance their core competencies and improve the entire supply chain. Sharing information through the value web helps not just Ford but the entire vehicle manufacturing industry.

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**SELF CHECK QUESTION 3.2**

What is a strategic information system? What is the difference between a strategic information system and a strategic-level system?

*(Answers at the end of this Section)*
Synergies, Core Competencies, and Network-Based Strategies

Very seldom will you find a business that provides all of its own services, supplies, and processes throughout the entire chain. It isn’t practical or efficient to do so. Almost every business relies on partnerships with other companies to produce goods and services. The most successful companies will determine the best synergies, core competencies and network-based strategies to reduce costs, improve products and services, and increase profits.

Synergies

AOL has provided dial-up Internet access for consumers and businesses since the early 1990s. In addition to providing Internet access it also creates specific content that is available only to its customers. The last few years has seen a huge increase in the demand for broadband access by customers across the U.S. AOL simply doesn’t have the necessary infrastructure to provide what its customers want. But other telecommunications companies such as BellSouth and Verizon can help AOL answer the demand through their networks. AOL, in synergy with the other companies can now provide the services customers want.
—David Scobey, President of BellSouth’s Retail Markets, said, —This new relationship will make it easier for loyal AOL consumers to get all the benefits of BellSouth DSL without losing their AOL service. We think this promotion offers a compelling reason for AOL members to move to broadbandļ (www.timewarner.com Web site)

In early 2006, two telecommunication industry giants, Verizon and MCI, announced a partnership that will provide new services to large corporations and governments.

—Verizon has joined forces with MCI to form Verizon Business, a leading provider of advanced communications services for large businesses, government, and international organizations. The vision: To create one truly seamless, local-to-global IP network. One that works alongside one of the world’s most reliable wireless networks, providing your business with every piece of the solution you need, including the most important one of all: people.

Consumers and small businesses will also benefit from combining MCI’s world-class Internet backbone with Verizon’s broadband offerings, providing opportunities to advance our broadband services and keep pace with the increasing demands of the multimedia marketplaceļ (www.verizon.com)

Both companies have superior services. However, it would have been impossible for either company to alone provide the new service. Rather than forego the opportunity altogether, they combined their synergies to create new services for customers.

Enhancing Core Competencies

Why did Ford Motor Company form an alliance with UPS instead of continuing its long-time practice of delivering vehicles to dealers itself? Because Ford wanted to concentrate on its core competency of manufacturing vehicles and let UPS concentrate on its core competency of delivering products.

UPSLogistics‘ Web site says —By shaving four days off the delivery cycle and reengineering the network, Ford is realizing a $1 billion dollar reduction in vehicle inventory and more than $125 million in inventory carrying-cost reductions on an annualized basis. The savings will continue to grow as our precision, Web-enabled system reaches maturity and we surface and eliminate more non-value-added activities,‘ said Taylor. Ford and UPS Logistics Group launched the alliance a year ago to reengineer Ford’s vehicle delivery system amid rising consumer demand for on-time vehicle delivery. UPS Logistics Group created UPS Autogistics as a business unit to manage the project. With a single network manager in place to analyze any potential problems before they occur, we’ve managed to avoid bottlenecks, reduce the amount of assets in the supply chain, and cut inventory carrying costs,‘ said Tom Kolakowski, manager of Ford North American Vehicle Logisticsļ
Network-Based Strategies

It's long been known in the economics field that the economics of manufacturing produces a diminishing return on investment at some point in time. But in network economics the opposite is true.

For example, you have a small company with 15 employees operating on a client/server network. You've already paid for the server that supports 25 employees. When you hire the 16th employee, you won't have to spend much money, if any, to support the new employee on the network. You're actually increasing the server's output without an associated increase in cost.

Technology makes virtual companies more feasible, cheaper, and easier to set up and tear down than before. The Boeing Company, manufacturer of airplanes, uses virtual organizations throughout its design and manufacturing processes. It contracts with other businesses for certain types of work such as the development of new seat configurations. When the process is completed, the outside vendor is released from the job.

As more companies outsource work to other vendors, virtual companies are becoming the norm. Network technologies based on Internet standards provide the infrastructure necessary to make them successful. Companies are no longer tied to suppliers and business partners located in specific geographical areas but can find the best service provider or business partner around the world.

Ford Motor Company, General Motors, and DaimlerChrysler rocked the automotive industry when they announced their joint venture Covisint. The three leading competitors in this industry were joining forces to create a single Internet source for all the suppliers that served the three corporations. The Big Three automotive manufacturers became the keystone firms that created a platform used by all the niche firms that supply them. The entire network is a business ecosystem (Figure 11) for the industry. The idea is to drive down the cost of supplies and make the entire industry more efficient. While things haven't gone as smoothly as originally hoped for, the idea has been planted and is now spreading to other industries.

SELF CHECK QUESTION 3.3

How have the value chain and competitive forces models changed as a result of the Internet and the emergence of digital firms?

(Answers at the end of this Section)
3.4 Using Systems for Competitive Advantage: Management Issues

Strategic information systems often change the organization as well as its products, services, and operating procedures, driving the organization into new behavioral patterns. Successfully using information systems to achieve a competitive advantage is challenging and requires precise coordination of technology, organizations, and management.

Sustaining Competitive Advantage

Using information systems to beat the competition and increase the value of a product is not easy. Because competitors can quickly copy strategic systems, competitive advantage is not always sustainable. Sustaining a competitive advantage constantly requires changing processes and methods of conducting business. Managers simply cannot rest on their laurels with today's fast paced, fast changing technological advances. Technology changes much faster than organizations can adapt. As soon as employees and managers become comfortable with a particular system, it’s almost time to make some more changes.

Aligning IT with Business Objectives

Unfortunately the success rates for companies aligning IT initiatives with their business objectives isn’t that good. Too many times failures are directly attributable to people not understanding information technology as well as they should and simply trying to ignore it for as long as they can.
Performing a Strategic Systems Analysis

Completing a strategic systems analysis is one of the first steps managers should take to help determine how they can use information systems to gain a competitive advantage. Ask yourself these questions about your own firm:

1. What is the structure of the industry in which your firm is located?
2. What are the business, firm, and industry value chains for your firm?
3. Have you aligned IT with your business strategy and goals?

Managing Strategic Transitions

A vital attribute of any manager's success is the ability to adapt to change. The pace of technological change is at its highest level ever. With each advance, the organization must use strategic transitions, a movement between levels of socio-technical systems, to its advantage. Making changes in the information systems should trigger a review of associated processes to make sure they are in sync. Teaming up with competitors may seem at odds with wanting to beat the competition, but in fact may be the smartest thing to do. Technological changes allow you to do both without sacrificing too much.

As we continue through the book, you should keep in mind how organizations are structured, how information needs vary from one organization to another, and how information systems can enhance or detract the characteristics of an organization. The most important thing you should remember is that at the core of every organization are people.

CASE STUDY

Read the —Can Detroit make the cars customers want?! Case Study on Page 128 of the text book and answer the questions that follow

(Answers at the end of this Section)
3.1 What is an organization? Compare the technical definition of organization with the behavioural definition.
The technical definition for an organization defines an organization as a stable, formal social structure that takes resources from the environment and processes them to produce outputs. The technical definition of an organization focuses on three elements: capital and labor, production, and products for consumption. The technical definition also implies that organizations are more stable than an informal group, are formal legal entities, and are social structures.

The behavioral definition states that an organization is a collection of rights, privileges, obligations, and responsibilities that are delicately balanced over a period of time through conflict and conflict resolution. This definition highlights the people within the organization, their ways of working, and their relationships.

The technical definition shows us how a firm combines capital, labor, and information technology. The behavioral definition examines how information technology impacts the inner workings of the organization. The behavioral definition is the more realistic of the two.

3.2 What is a strategic information system? What is the difference between a strategic information system and a strategic-level system?
A strategic information system is a computer system at any organizational level that fundamentally changes the goals, operations, products, services, or environmental relationships of organizations, in effect changing the very nature of the firm’s business. In contrast, strategic-level systems provide long-term planning information to senior executives. Strategic information systems are more far-reaching and deeply rooted, and fundamentally transform the organization itself.

3.3 How have the value chain and competitive forces models changed as a result of the Internet and the emergence of digital firms?
Internet technology has enabled a firm to extend the concept of its value chain to include all of the firm’s suppliers and business partners into a single Web. The main reason for this is that the Internet greatly reduces the cost of connecting online with partners. This enables companies to work directly with companies around the world and with companies too small to build their own international network. The same is true with digital firms because they essentially exist mainly because they can operate over the Net.

Similarly, because of the Internet and digital firms, corporations find it cheaper and easier to relate to suppliers and customers, enabling the company to meet the competitive problem identified using the competitive forces model. The competitive forces model has also changed in the Internet era because firms do not just compete with each other within the same industry; they compete as part of industry sets.
1. **Why is AutoNation having a problem with its inventory?**

AutoNation is fighting an entrenched tradition that dates back to the beginning of the auto industry. The entire industry is geared towards optimizing the factory and production processes to meet the needs of the industry instead of customers. They never had to worry much about new market entrants, substitute products, or even customer intimacy. That mindset needs to change because the Internet has empowered customers and given them access to all kinds of information not previously available. AutoNation understands the necessity of changing business strategies but will the Big Three (GM, Ford, and Chrysler) get it? AutoNation is battling a hundred years of tradition.

**Why is this also a problem for auto manufacturers such as GM, Ford, and Chrysler?**

In the 1980s, new market entrants from foreign companies, Toyota, Nissan, Mitsubishi, began exerting pressure on the Big Three U.S. manufacturers. The Internet helped customers begin exerting their influence through access to information. The Big Three are now having to change their business strategies, albeit very slowly.

**How is this problem impacting the business performance of AutoNation and of the auto manufacturers?**

The increasing influence being exerted by the two competitive forces—new market entrants and customers—is pressuring AutoNation and manufacturers to alter their business strategies. AutoNation must develop ways to strengthen its customer intimacy in order to remain competitive. Manufacturers need to change their focus from employees to customers.

2. **What pieces of data do AutoNation need to determine what cars to stock in each of its dealerships?**

AutoNation has begun focusing on the customer by collecting marketing data and implementing mass customization techniques for its direct mail campaigns. It needs to collect demographic data like income levels, ages, occupations, family configurations, and recreational interests of its customers to understand the types of vehicles people are most likely to buy. With the oil crisis of 2008 causing gasoline prices to rise above $4 a gallon, it may be helpful for AutoNation to collect external data about driving habits.
How can it obtain these data?

AutoNation can use its own marketing databases and data from its Web site coupled with external databases from the U.S. Census Bureau, local Chambers of Commerce, industry-specific research, and national retail organizations. By marrying internal and external data it can obtain a consolidated view of customers configured for each locale in which it does business.

3. What is AutoNation’s solution to its problem?

AutoNation is already gathering much of the data it needs and using data mining techniques to obtain information it can share with manufacturers to increase its customer intimacy. By jointly applying the data results, both AutoNation and the manufacturers can build products that satisfy customer needs and wants.

What obstacles must AutoNation overcome to implement its solution?

AutoNation must work with manufacturers to change the focus from optimizing production processes towards factories and workers to one of benefiting customers. AutoNation’s attempts to integrate customer data with auto manufacturing processes flies in the face of a hundred years of tradition. AutoNation must also change entrenched attitudes prevalent with auto executives, as shown by LaNeve’s lack of concern about inventory levels and his impression that the industry is not in crisis. It is!

How effective will the solution be?

Answers will vary but should incorporate elements of Porter’s Competitive Forces Model.