## Study Guide

## Strategic Business Objectives of Information Systems

Although many managers are familiar with the reasons why managing their typical resources such as equipment and people are important, it is worthwhile to examine the growing interdependence between a firm’s ability to use information technology and its ability to implement corporate strategies and achieve corporate goals. Specifically, business firms invest heavily in information to achieve six strategic business objectives:

1. Operational excellence
2. New products, services, and business models
3. Customer and supplier intimacy
4. Improved decision making
5. Competitive advantage
6. Survival

### Operational Excellence

Businesses continuously seek to improve the efficiency of their operations in order to achieve higher profitability. Information systems and technologies are some of the most important tools available to managers for achieving higher levels of efficiency and productivity in business operations, especially when coupled with changes in business practices and management behavior.

### New Products, Services, and Business Models

Information systems and technologies are a major enabling tool for firms to create new products and services, as well as entirely new business models. A **business model** describes how a company produces, delivers, and sells a product or service to create wealth. As successful as Apple Inc, NetFlix, and Wal-Mart were in their traditional brick-and-mortar existence, they have all introduced new products, services, and business models that have made them both competitive and profitable.

### Customer and Supplier Intimacy

When a business really knows its customers, and serves them well, the way they want to be served, the customers generally respond by returning and purchasing more. The result is increased revenues and profits. Likewise with suppliers: the more a business engages its suppliers, the better the suppliers can provide vital inputs. The result is a lower cost of doing business. JC Penney is an excellent example of how the use of information systems and technologies are extensively used to better serve suppliers and retail customers. Its information system digitally links the supplier to each of its stores worldwide. Suppliers are able to ensure the continuous flow of products to the stores in order to satisfy customer demands.

### Improved Decision Making

Information systems and technologies have made it possible for managers to use real-time data from the marketplace when making decisions. Previously, managers did not have access to accurate and current data and as such relied on forecasts, best guesses, and luck. The inability to make informed decision resulted in increasing costs and losing customers.

### Competitive Advantage

Doing things better than your competitors, charging less for superior products, and responding to customers and suppliers in real time all add up to higher sales and higher profits that your competitors cannot match. Toyota and Wal-Mart are prime examples of how companies use information systems and technologies to separate themselves from their competition. Toyota worked its way to top of its industry with the help of its legendary information system. Wal-Mart is the most efficient retail store in the industry based in large part on how well it uses its information resources.

### Survival

Firms also invest in information systems and technologies because they are necessities of doing business. Information systems are not a luxury. In most businesses, information systems and technology are the core to survival. Citibank was the first banking firm to introduce ATMs. In doing so, they had a major competitive advantage over their competitors. In order to remain and survive in the retail banking industry, other banks had no choice but to provide ATM services to banking customers.

New federal and state statutes and regulations have resulted in giving firms no choice but to turn to information systems and technologies in order to comply with the new requirements. HIPAA is a good example.- the Health Insurance Portability and Accountability Act, sets the standard for protecting sensitive patient data. Any company that deals with protected health information must ensure that all the required [physical](http://www.onlinetech.com/secure-hosting/physical-security), [network](http://www.onlinetech.com/secure-hosting/technical-security), and [process security](http://www.onlinetech.com/secure-hosting/administrative-security) measures are in place and followed. This of course involves complex technology.

## What is an Information System?



Figure 1-4 shows how using feedback completes the information processing loop. To be a good information systems manager, however, you must bring into that loop far more than just computer data. For instance, your information system reports that you produced 100,000 widgets last week with a “throwback” rate of 10 percent. The feedback loop tells you that the throwback rate has fallen 2 percent in the last month. Wow, you say, that’s a pretty good improvement. But if you put that information into the broader context of the organization, you’re still costing the organization a huge sum of money because each percentage point on the throwback rate averages $10,000. And when you bring in available external environmental information, your company is 5 percent above the industry norm. Now that’s information you can use — to your advantage or disadvantage!

## How Information Technology Enhances Business Processes

Information systems enhance business processes in two ways:

* Increasing the efficiency of existing processes by automating them.
* Enabling entirely new processes that are capable of transforming the business by changing the flow of information.

# Types of Information Systems

## Transaction Processing Systems

The operational level of an organization includes various units such as order processing, material movement control, payroll, accounts payable, and employee record keeping. This level is responsible for daily operations. The information systems used in this level of the organization are **transaction processing systems (TPS)**, so called because they record the routine transactions that take place in everyday operations. TPS combine data in various ways to fulfill the hundreds of information needs a company requires to be successful. The data are very detailed at this level. For instance, a TPS will record how many pounds of sugar are used in making our Cybernuts candy bar. It also records the time it takes from beginning to end to make the candy bar. And it can record the number of people working on the assembly line when our candy bar is made and what functions they perform.

People using transaction processing systems usually need information to help them answer routine questions such as: “How many Cybernuts candy bars did we produce yesterday?” or “How much sugar do we have on hand for today’s production run?”

Since there’s more to making the Cybernuts bar than just running the assembly line, a TPS will record the sales and marketing transactions as well. The system will record not just the number of dollars used in the marketing program, but also how many stores are actually stocking the candy bar and where the product is located inside the stores.

A lot of work is required to get the product from the manufacturing plant to the store shelves. How much did the company pay to package the product, store the product, and ship the candy bar to the stores? All that data can be recorded in a TPS, right down to how many truck drivers were required to deliver the product to the local convenience store.

The best transaction processing system will be integrated throughout the organization to supply useful information to those who need it when they need it.

**The transaction processing system records the data from everyday operations throughout every division or department in the organization. Each division/department is tied together through the TPS to provide useful information to management levels throughout the company.**

## Management Information Systems and Decision-Support Systems

Think about the functions of managers that you may have learned about in other classes: directing, controlling, communicating, planning, and decision making. Each manager takes on these roles countless times in a day. Managers review endless amounts of data that make their jobs easier and more efficient.

**Management information systems (MIS)** are designed to produce information on a periodic basis instead of on a daily recurring basis like those using a transaction processing system. Managers also require information on an exception basis. That is, they need to know if production is higher or lower than the targeted rate or if they are over or under their budgets. They also need to know about trends instead of straight numbers. The questions they may ask of the system would be: “How far behind in production are we for this quarter?” or “How many more workers would we need if we increased production by 10,000 candy bars per quarter?” or “If we do adopt the new Cybernuts recipe, what positions are open for the 25 excess workers and what skills do they possess that the company can use elsewhere?”

Before integrated systems, managers received periodic printed reports that gave them lots of data, but often didn’t supply information that they could utilize to make timely decisions.

**A management information system is used by managers throughout the organization to help them in directing, planning, coordinating, communicating, and decision making. The MIS will help answer structured questions on a periodic basis.**

**Decision-support systems (DSS)** also serve the management level of an organization, but in a somewhat different way from an MIS. An MIS uses internal data to supply useful information. A DSS uses internal data but also combines it with external data to help analyze various decisions management must make. Analyzing complex, interactive decisions is the primary reason for a company to use a DSS.

The sales and marketing management of WorldWide Candy would use a DSS to answer a semistructured question such as: “What price should we charge for the Cybernuts candy bar so that we can maximize our profits, minimize our costs, and still remain competitive?” Using a DSS, the manager in charge of the manufacturing division could determine the best answer to this semistructured question: “How does the change in the size and packaging of the Cybernuts candy bar affect the other products we produce, not just in shipping, but also on the display shelf at the convenience store?”

As a company is affected not only by what goes on solely within the company, but also by external forces not under its control, decision-support systems can help upper-level management. What happens to the pricing structure and availability of the raw materials for the Cybernuts bar if civil war breaks out in the sugar producing countries of Central America? Fluctuating gasoline prices affect the profit margins by increasing or decreasing the distribution costs of the product. All these external events can be put into context in a decision-support system so that WorldWide’s management can make effective decisions.

**Decision-support systems are used for complex “what-if” questions that require internal and external data. Decisions at this management level are mostly semistructured so the information system must respond to the unique requirements of the executives.**

## Executive Support Systems for Senior Management

**Executive support systems (ESS)** are used at the very upper echelons of management. At the strategic level, the typical decision is very unstructured. Often there is no specific question, but rather a series of undefined situations executives may face. There are no easy, definable answers. These executives require summarized, historical information gleaned from all other levels of the organization, coupled with large amounts of external data gathered from many sources.

Let’s assume that the Cybernuts bar is the most successful, most popular candy bar ever made. (You could say its success is due to the effective use of the previous three information systems!) The Universal Food Products Corporation just can’t create a product that comes close to the success of Cybernuts (their information systems aren’t as good) and is very envious of WorldWide Candy. So Universal Food Products offers to buy the Cybernuts product from WorldWide for what seems to be an astronomical amount of money. WorldWide executives can use their executive support system to determine if this offer is in the best interest of all. They can analyze the information gathered from all of the internal information systems and couple that with external data to help them make the decision. With an ESS, company executives can make their decision based on information, not on emotion.

Senior executives often access information through the use of a **portal**. Basically, a portal is a Web interface designed to present integrated personalized business content from a variety of sources.

As executives haven’t been using computers that long or don’t have time to fiddle around learning how to type, executive support systems use **digital dashboards** to make them easy to use and provide information in a real-time mode. The ESS must be able to incorporate external information with internal data to offer concise, complete information for the imprecise and incomplete scenarios executives face.

**An executive support system helps managers make strategic decisions affecting the entire company. The decisions use internal and external data to give executives the information they need to determine the proper course of action in unstructured situations.**

## Enterprise Applications

No business can afford disjointed information systems that don’t work together to produce a coherent picture of the entire organization. All the functions of a business must be integrated across traditional lines of demarcation. Islands of information can be devastating to a company if data cannot be shared throughout the company. Even worse, the islands of information can create problems if each faction of an enterprise has differing information that conflicts with other islands of information. These kinds of problems are what gave rise to **enterprise applications** that share the same data anywhere it’s needed in an organization.

The following sections are an overview of four major enterprise applications: **enterprise, supply chain management, customer relationship management, and knowledge management systems.** We’ll also study each of these systems in depth in future lectures.

### Enterprise Systems

**Enterprise systems** (also known as *enterprise resource planning (ERP)* systems) are used to bridge the communication gap between all departments and all users of information within a company. If the WorldWide Candy Company production department enters information about its processes, the data are available to accounting, sales, and human resources. If sales and marketing is planning a new advertising campaign for the CyberNuts candy bar, anyone anywhere within the organization will have access to that information. Enterprise systems truly allow a company to use information as a vital resource and enhance the bottom line.

The greatest enticement of enterprise systems is the chance to **cut costs firm-wide and enhance the ability to pass information throughout the organization**. The **biggest drawbacks to building enterprise information systems are time, money, and people**. Because the installation of the system is so **invasive, it takes a tremendous amount of time to install the hardware and software, train people to use it, and rework business processes** that will then inevitably change. Many companies find it more trouble than they care to handle.



**Enterprise Systems**

### Supply Chain Management Systems

Even if you properly manage your processes, wring out excess costs from every corner of the organization, and above all, have the best products at the lowest cost, if you can’t **get your products to the right customers at the right time** what good is all the rest? Managing your supply chain and getting products or services to customers efficiently and effectively is the real key to success.

**Supply chain management** systems offer new opportunities for companies to integrate data and information with their suppliers and customers and ultimately, lower costs for everyone. When WorldWide Candy installed their supply chain management system, a form of **interorganizational systems**, they created a cohesive network for buying raw materials, creating the candy bars, and getting the packaged goods to retail outlets.

Figure 2-9 illustrates an example of a supply chain management system. It shows how a leading manufacturer of office furniture overhauled its supply chain management system to promote optimal lowest-cost delivery plans.



Warehouse Management System

Transportation Management System

Figure 2-9: Example of a Supply Chain Management System

### Customer Relationship Management Systems

Do you wait for the customer to complain about your poor service before you take a critical look at your business processes? Do you spend more time and money acquiring new customers than you do in keeping your existing ones? Does each functional area of your organization have a completely different and separate viewpoint of your customers? Does your sales and marketing department make promises to your customers that manufacturing and production can’t possibly keep? If a manager answers yes to one or more of these questions he/she is in serious need of a good **customer relationship management** system.

CRM systems involve business processes in all the functional areas and every management level of a firm. The ideal CRM system provides end-to-end customer care from receipt of order through product delivery.

Because of technological limitations in the past, many companies created islands of information in the various functional areas. Sales and marketing at Cybernuts may tell a customer that the product order would ship by the fifteenth. Meanwhile manufacturing and production was experiencing a delay in producing the Cybernuts candy bar because the finance department didn’t purchase enough raw goods. The islands of information prevented each functional area from knowing the situations in other areas. CRM systems help solve some of these disjointed snafus.

CRM also helps a firm cut the costs of keeping good customers by supplying the entire organization with a consolidated view of the customers’ needs. Unprofitable customers are more easily identified with a CRM system and the time and energy spent can be retargeted to more profitable customers.

### Knowledge Management Systems

**Knowledge management systems** (KMS) enable organizations to better manage processes for capturing and applying knowledge and expertise.

Knowledge workers are those who promote the creation of new knowledge and integrate it into the organization. Research scientists may discover new methods of mixing sugar and cocoa beans and dairy products to make a better chocolate. Maybe a team of engineers will develop a new method of packaging the Cybernuts bar to make it easier to open. The legal knowledge workers may spend their time determining the copyright protections that could be afforded to the Cybernuts product name.

# 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 3-10 shows four external forces that every business must contend with at one time or another.

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Figure 3-10: Porter’s Competitive Forces Model.

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.

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 3-5 summarizes the impact the Internet is having on many industries.

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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. 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 below will help an organization focus on these activities and determine where to focus their efforts the most.

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Figure 3-11 The Value Chain Model.

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.

## 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

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 marketplace.”

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 Logistics.”

### 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.

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** 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.

**Using information systems can help a company beat the competition through differentiation and through providing services that are valuable to both customers and suppliers. Companies can also use information systems to reduce costs. Information technology is also challenging the traditional concepts of competition and partnerships that have existed for years.**

# 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.

***Disruptive Technologies:***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.

Companies must continually adapt and change or go out of business.

## 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?