

"Another big change from 20 years ago is that the notion of industry clusters is now pretty much ubiquitous. Many regions now look at development in these terms, and have identified hundreds and hundreds of different clusters. I think that the fact that productivity growth has risen dramatically shows that economic development has been a big success over the past few years."

If every community is developing the same industry clusters, how do they stand out?

"I think it's very important to understand that the bar has risen substantially. Everything matters now. The schools matter. The roads matter. You have to understand this is a marathon. Also, you can't try to build clusters across the board and be into everything. You have to build on your strengths."

Many local officials in the U.S. talk a lot about collaboration among universities, companies, and governments across an entire region. Is this new?

"There is a growing recognition that the interaction between one region or metropolitan area and its neighbors is important. The overlap between clusters is very important in stimulating growth. Isolated clusters are less powerful than integrated clusters. That's because new clusters often grow out of old clusters. I also think there is more recognition that you need a lot of cross-company collaboration in a region. Companies realize they have a lot of shared issues. Meanwhile, universities used to be seen as standalone institutions. Now, more regional economies see universities as players and are integrating them into industrial clusters."

Does the U.S. have a competitiveness problem?

"I think the U.S. is facing some very serious challenges. But the most important drivers of competitiveness are not national. They are regional and local. National policies and circumstances explain about 20 percent to 25 percent of why a regional economy is doing well. What really matters is where the skills and highly competitive institutions are based. Some of these assets take a very long time to build. But competitiveness essentially is in the hands of regions."¹⁵

Questions

1. In today's global business environment, does the physical location of a business matter?
2. Why is collaboration among universities important?
3. Is there a competitiveness problem in the United States?
4. What are the big differences in the way communities approach development today compared to 1990, when Porter wrote *The Competitive Advantage of Nations*?

Strategic Initiatives for Implementing Competitive Advantages

LEARNING OUTCOMES

- | | |
|---|---|
| 3.1. Identify how an organization can use business process reengineering to improve its business. | 3.3. Explain customer relationship management systems and how they can help organizations understand their customers. |
| 3.2. Explain supply chain management and its role in business. | 3.4. Summarize the importance of enterprise resource planning systems. |

Business Process Reengineering

This chapter introduces high-profile strategic initiatives that an organization can undertake to help it gain competitive advantages and business efficiencies—business process reengineering, supply chain management, customer relationship management, and enterprise resource planning (see Figure 3.1). Each of these strategic initiatives is covered in detail throughout this text. This chapter provides a brief introduction only.

A **business process** is a standardized set of activities that accomplish a specific task, such as processing a customer's order. Business processes transform a set of inputs into

LO 3.1 Identify how an organization can use business process reengineering to improve its business.



FIGURE 3.1
Strategic Initiatives for Competitive Advantages

a set of outputs—goods or services—for another person or process by using people and tools. Understanding business processes helps a manager envision how the entire company operates. **Workflow** includes the tasks, activities, and responsibilities required to execute each step in a business process. Understanding business processes, workflow, customers' expectations, and the competitive environment provides managers with the necessary ingredients to design and evaluate alternative business processes in order to maintain competitive advantages when internal or external circumstances change.

Business process reengineering (BPR) is the analysis and redesign of workflow within and between enterprises. Most companies pride themselves on providing breakthrough products and services for customers. But if customers do not receive what they want quickly, accurately, and hassle-free, even fantastic offerings will not prevent a company from annoying customers and ultimately eroding its own financial performance. To avoid this pitfall and protect its competitive advantage, a company must continually evaluate all the business processes in its value chain. Improving the efficiency and effectiveness of its business processes will improve the firm's value chain.

The common business processes outlined in Figure 3.2 reflect functional thinking. Some processes, such as a programming process, may be contained wholly within a single department. However, most, such as ordering a product, are cross-functional or cross-departmental processes and span the entire organization. The process of "order

FIGURE 3.2
Sample Business Processes

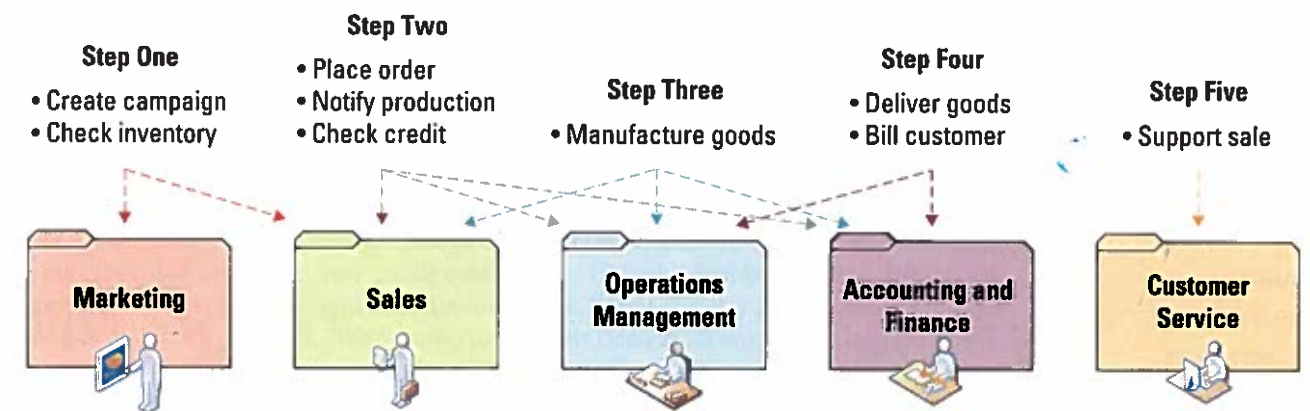
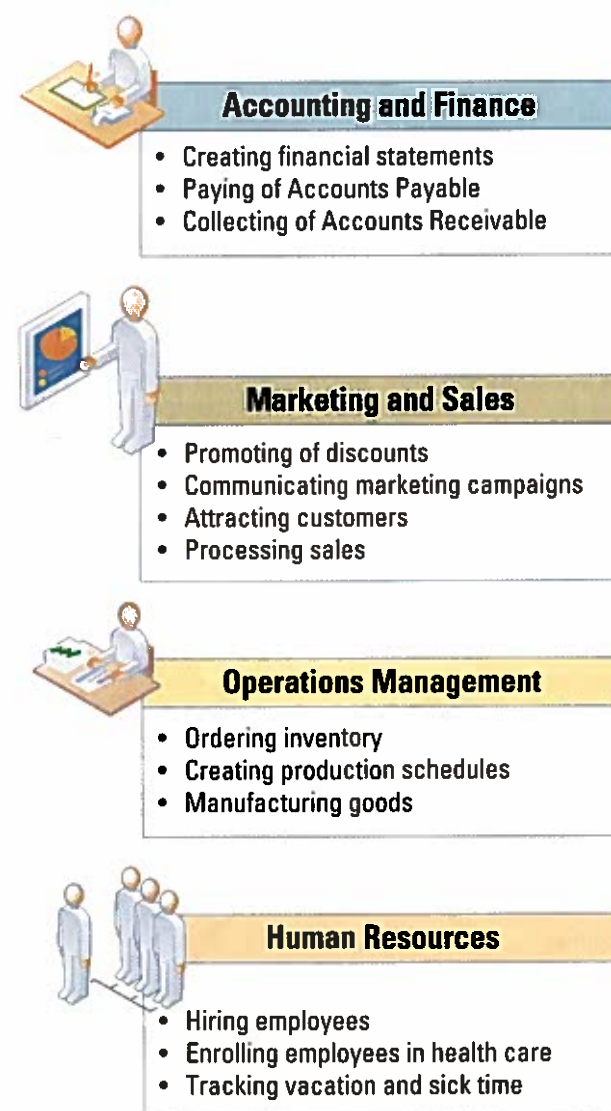


FIGURE 3.3
Five Steps in the Order-to-Delivery Business Process

to delivery" focuses on the entire customer order process across functional departments (see Figure 3.3). Another example is "product realization," which includes not only the way a product is developed, but also the way it is marketed and serviced. Some other cross-functional business processes are taking a product from concept to market, acquiring customers, loan processing, providing post-sales service, claim processing, and reservation handling.

Customer-facing processes, also called front-office processes, result in a product or service received by an organization's external customer. They include fulfilling orders, communicating with customers, and sending out bills and marketing information. **Business-facing processes**, also called back-office processes, are invisible to the external customer but essential to the effective management of the business; they include goal setting, day-to-day planning, giving performance feedback and rewards, and allocating resources. Figure 3.4 displays the different categories of customer-facing and business-facing processes along with an example of each. A company's strategic vision should provide guidance on which business processes are core, that is, which are directly linked to the firm's critical success factors. Mapping these core business processes to the value chain reveals where the processes touch the customers and affect their perceptions of value.

Figure 3.5 highlights an analogy to business process reengineering by explaining the different means of traveling along the same route. A company could improve the way it travels by changing from foot to horse and then from horse to car. With a BPR mind-set, however, it would look beyond automating and streamlining to find a completely different approach. It would ignore the road and travel by air to get from point A to point B. Companies often follow the same indirect path for doing business, not realizing there might be a different, faster, and more direct way.

Creating value for the customer is the leading reason for instituting BPR, and MIS often plays an important enabling role. Fundamentally new business processes enabled Progressive Insurance to slash its claims settlement time from 31 days to four hours, for instance. Typically, car insurance companies follow this standard claims resolution process: The customer gets into an accident, has the car towed, and finds a ride home. The customer then calls the insurance company to begin the claims process, which includes an evaluation of the damage, assignment of fault, and an estimate

FIGURE 3.4
Customer-Facing, Industry-Specific, and Business-Facing Processes





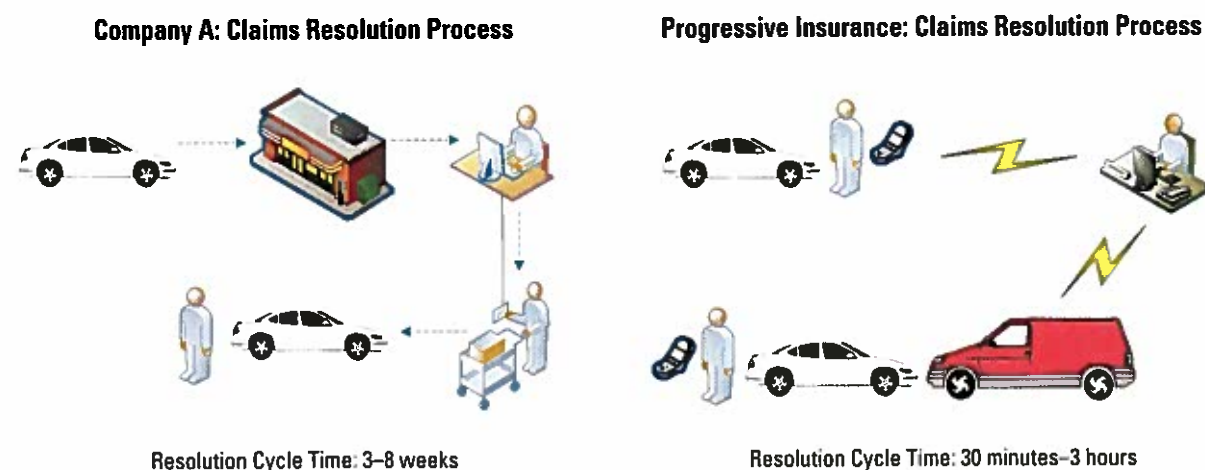
FIGURE 3.5
Different Ways to Travel
the Same Route

of the cost of repairs, which usually takes about a month (see Figure 3.6). Progressive Insurance's innovation was to offer a mobile claims process. When a customer has a car accident, he or she calls in the claim on the spot. The Progressive claims adjuster comes to the accident site, surveys the scene and takes digital photographs. The adjuster then offers the customer on-site payment, towing services, and a ride home. A true BPR effort does more for a company than simply improve a process by performing it better, faster, and cheaper. Progressive Insurance's BPR effort redefined best practices for an entire industry.

When selecting a business process to reengineer, wise managers focus on those core processes that are critical to performance, rather than marginal processes that have little impact. The effort to reengineer a business process as a strategic activity requires a different mind-set than that required in continuous business process improvement programs. Because companies have tended to overlook the powerful contribution that processes can make to strategy, they often undertake process improvement efforts using their current processes as the starting point. Managers focusing on reengineering can instead use several criteria to identify opportunities:

- Is the process broken?
- Is it feasible that reengineering of this process will succeed?
- Does it have a high impact on the agency's strategic direction?
- Does it significantly impact customer satisfaction?
- Is it antiquated?
- Does it fall far below best-in-class?
- Is it crucial for productivity improvement?
- Will savings from automation be clearly visible?
- Is the return on investment from implementation high and preferably immediate?

FIGURE 3.6
Auto Insurance Claims
Processes Reengineering



Supply Chain Management

LO 3.2 Explain supply chain management and its role in business.

Trek, a leader in bicycle products and accessories, gained more than 30 percent of the worldwide market by streamlining operations through the implementation of several IT systems. According to Jeff Stang, director of IT and operational accounting, the most significant improvement realized from the new systems was the ability to obtain key management information to drive business decisions in line with the company's strategic goals. Other system results included a highly successful website developed for the 1,400 Trek dealers where they could enter orders directly, check stock availability, and view accounts receivable and credit summaries. Tonja Green, Trek channel manager for North America, stated, "We wanted to give our dealers an easier and quicker way to enter their orders and get information. Every week the number of web orders increases by 25 to 30 percent due to the new system."

A **supply chain** includes all parties involved, directly or indirectly, in obtaining raw materials or a product. To understand a supply chain, consider a customer purchasing a Trek bike from a dealer. On one end, the supply chain has the customer placing an order for the bike with the dealer. The dealer purchases the bike from the manufacturer, Trek. Trek purchases raw materials such as packaging material, metal, and accessories from many different suppliers to make the bike. The supply chain for Trek encompasses every activity and party involved in the process of fulfilling the order from the customer for the new bike. Figure 3.7 displays a typical supply chain for a bike manufacturer including all processes and people required to fulfill the customer's order. Figure 3.8 highlights the five basic supply chain activities a company undertakes to manufacture and distribute products. To automate and enable sophisticated decision making in these critical areas, companies are turning to systems that provide demand forecasting, inventory control, and information flows between suppliers and customers.

Supply chain management (SCM) is the management of information flows between and among activities in a supply chain to maximize total supply chain effectiveness and corporate profitability. In the past, manufacturing efforts focused primarily on quality improvement efforts within the company; today these efforts reach across the entire supply chain, including customers, customers' customers, suppliers, and suppliers' suppliers. Today's supply chain is an intricate network of business partners linked through communication channels and relationships. Supply chain management systems manage and enhance these relationships with the primary goal of creating a fast, efficient, and low-cost network of business relationships that take products from concept to market. SCM systems create the integrations or tight process and information linkages between all participants in the supply chain.

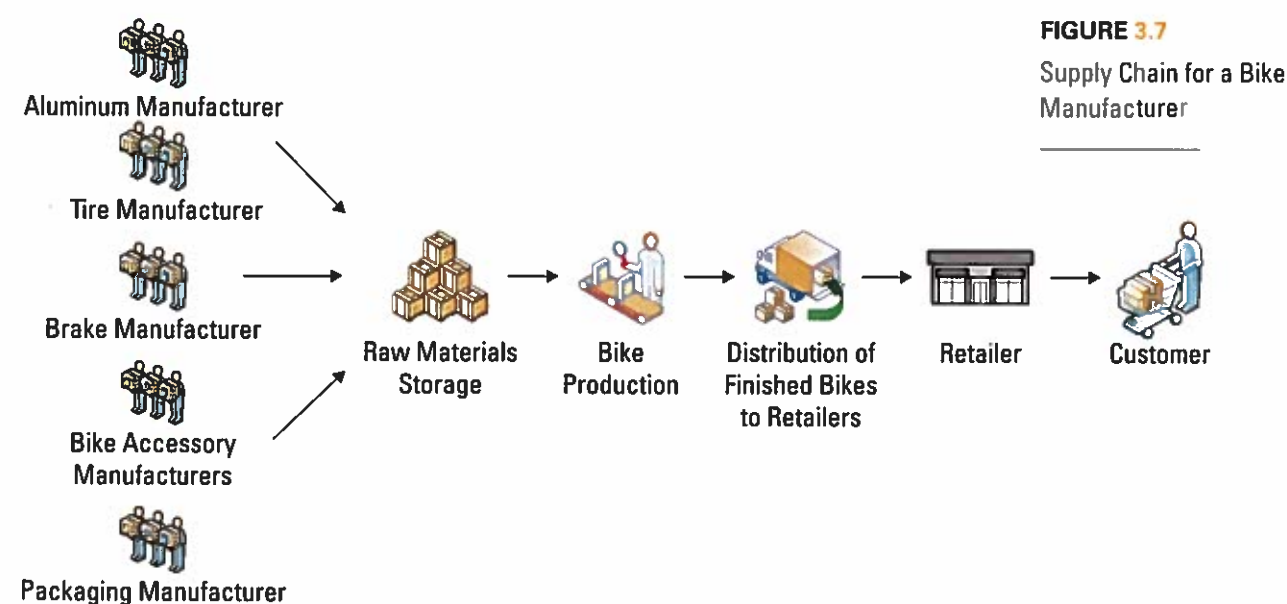


FIGURE 3.7
Supply Chain for a Bike
Manufacturer

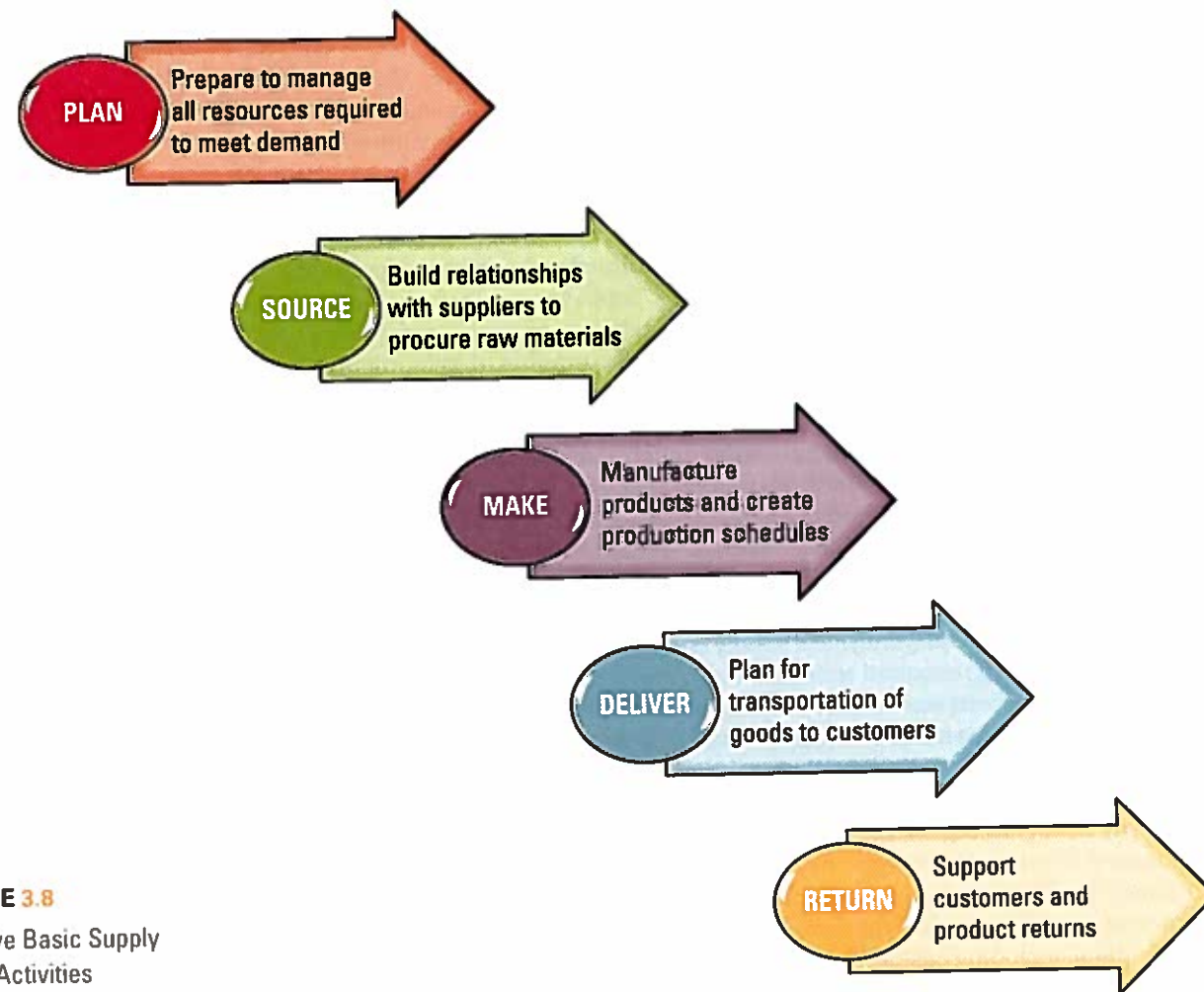


FIGURE 3.8
The Five Basic Supply Chain Activities

Dozens of steps are required to achieve and carry out each of the preceding components. SCM software can enable an organization to generate efficiencies within these steps by automating and improving the information flows throughout and among the different supply chain components.

Walmart and Procter & Gamble (P&G) implemented a tremendously successful SCM system. The system linked Walmart distribution centers directly to P&G's manufacturing centers. Every time a Walmart customer purchases a P&G product, the system sends a message directly to the factory alerting P&G to restock the product. The system also sends an automatic alert to P&G whenever a product is running low at one of Walmart's distribution centers. This real-time information allows P&G to efficiently make and deliver products to Walmart without having to maintain large inventories in its warehouses. The system also generates invoices and receives payments automatically. The SCM system saves time, reduces inventory, and decreases order-processing costs for P&G. P&G passes on these savings to Walmart in the form of discounted prices.¹

Figure 3.9 diagrams the stages of the SCM system for a customer purchasing a product from Walmart. The diagram demonstrates how the supply chain is dynamic and involves the constant flow of information between the different parties. For example, the customer generates order information by purchasing a product from Walmart. Walmart supplies the order information to its warehouse or distributor. The warehouse or distributor transfers the order information to the manufacturer, who provides pricing and availability information to the store and replenishes the product to the store. Payment funds among the various partners are transferred electronically.

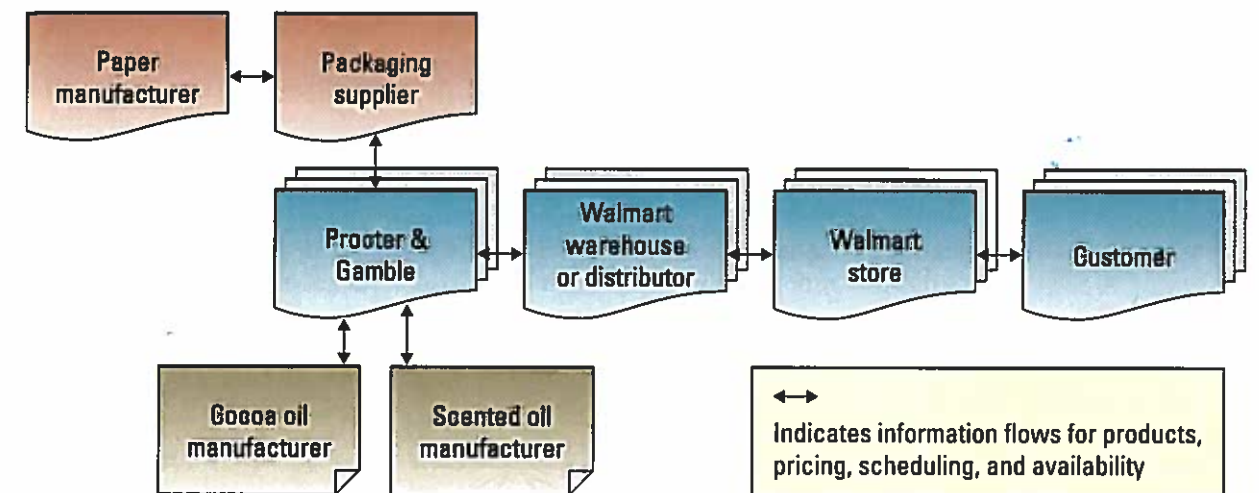


FIGURE 3.9
Supply Chain for a Product Purchased from Walmart

- Effective and efficient supply chain management systems can enable an organization to:
- Decrease the power of its buyers.
 - Increase its own supplier power.
 - Increase switching costs to reduce the threat of substitute products or services.
 - Create entry barriers thereby reducing the threat of new entrants.
 - Increase efficiencies while seeking a competitive advantage through cost leadership (see Figure 3.10).

Customer Relationship Management

Today, most competitors are simply a mouse-click away. This intense marketplace has forced organizations to switch from being sales focused to being customer focused.

Charles Schwab recouped the cost of a multimillion-dollar customer relationship management system in less than two years. The system, developed by Siebel, allows the brokerage firm to trace each interaction with a customer or prospective customer and then provide services (retirement planning, for instance) to each customer's needs and interests. The system gives Schwab a better and more complete view of its customers, which it can use to determine which customers are serious investors and which ones are not. Automated deposits from paychecks, for example, are a sign of a serious investor, while stagnant balances signal a nonserious investor. Once Schwab is able to make this determination, the firm allocates its resources accordingly, saving money by not investing time or resources in subsidizing nonserious investors.²

Customer relationship management (CRM) involves managing all aspects of a customer's relationship with an organization to increase customer loyalty and retention and an organization's profitability. CRM allows an organization to gain insights into customers' shopping and buying behaviors in order to develop and implement enterprisewide

LO 3.3 Explain customer relationship management systems and how they can help organizations understand their customers.

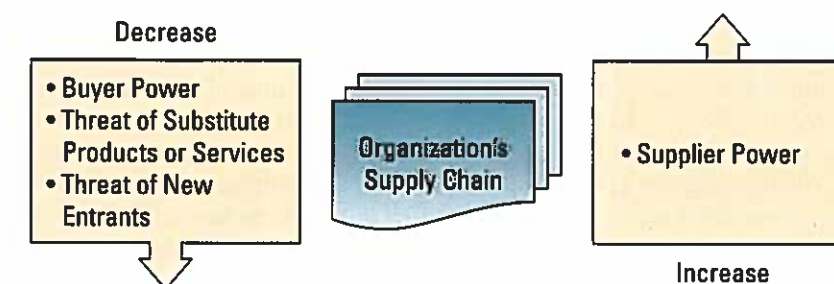
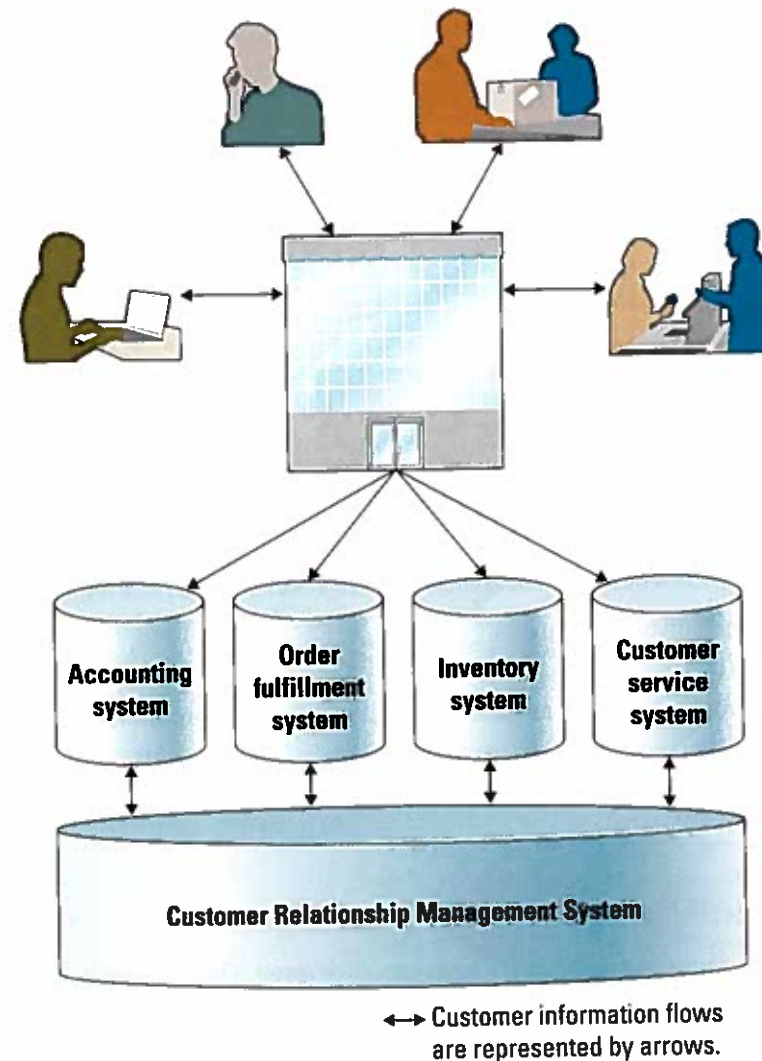


FIGURE 3.10
Effective and Efficient Supply Chain Management's Effect on Porter's Five Forces

FIGURE 3.11
CRM Overview



strategies. Kaiser Permanente undertook a CRM strategy to improve and prolong the lives of diabetics. After compiling CRM information on 84,000 of its diabetic patients among its 2.4 million northern California members, Kaiser determined that only 15 to 20 percent of its diabetic patients were getting their eyes checked routinely. (Diabetes is the leading cause of blindness.) As a result, Kaiser is now enforcing more rigorous eye-screening programs for diabetics and creating support groups for obesity and stress (two more factors that make diabetes even worse). This CRM-based "preventive medicine" approach is saving Kaiser considerable sums of money and saving the eyesight of diabetic patients.³

Figure 3.11 provides an overview of a typical CRM system. Customers contact an organization through various means including call centers, web access, email, faxes, and direct sales. A single customer may access an organization multiple times through many different channels. The CRM system tracks every communication between the customer and the organization and provides access to CRM information within different systems from accounting to order fulfillment. Understanding all customer communications allows the organization to communicate effectively with each customer. It gives the organization a detailed understanding of each customer's products and services record regardless of the customer's preferred communication channel. For example, a customer service representative can easily view detailed account information and history through a CRM system when providing information to a customer such as expected delivery dates, complementary product information, and customer payment and billing information.

Companies that understand individual customer needs are best positioned to achieve success. Of course, building successful customer relationships is not a new business practice; however, implementing CRM systems allows a company to operate more efficiently and effectively in the area of supporting customer needs. CRM moves far beyond technology by identifying customer needs and designing specific marketing campaigns tailored to each. This enables a firm to treat customers as individuals, gaining important insights into their buying preferences and shopping behaviors. Firms that treat their customers well reap the rewards and generally see higher profits and highly loyal customers. Identifying the most valuable customers allows a firm to ensure that these customers receive the highest levels of customer service and are offered the first opportunity to purchase new products. Firms can find their most valuable customers by using the RFM formula—recency, frequency, and monetary value. In other words, an organization must track:

- How *recently* a customer purchased items.
- How *frequently* a customer purchases items.
- The *monetary* value of each customer purchase.

After gathering this initial CRM information, the firm can analyze it to identify patterns and create marketing campaigns and sales promotions for different customer segments. For example, if a customer buys only at the height of the season, the firm should send a special offer during the off-season. If a certain customer segment purchases shoes but never accessories, the firm can offer discounted accessories with the purchase of a new pair of shoes. If the firm determines that its top 20 percent of customers are responsible for 80 percent of the revenue, it can focus on ensuring these customers are always satisfied and receive the highest levels of customer service.

There are three phases of CRM: (1) reporting, (2) analyzing, and (3) predicting. **CRM reporting technologies** help organizations identify their customers across other applications. **CRM analysis technologies** help organizations segment their customers into categories such as best and worst customers. **CRM predicting technologies** help organizations predict customer behavior, such as which customers are at risk of leaving. Figure 3.12 highlights a few of the important questions an organization can answer in these areas by using CRM technologies.

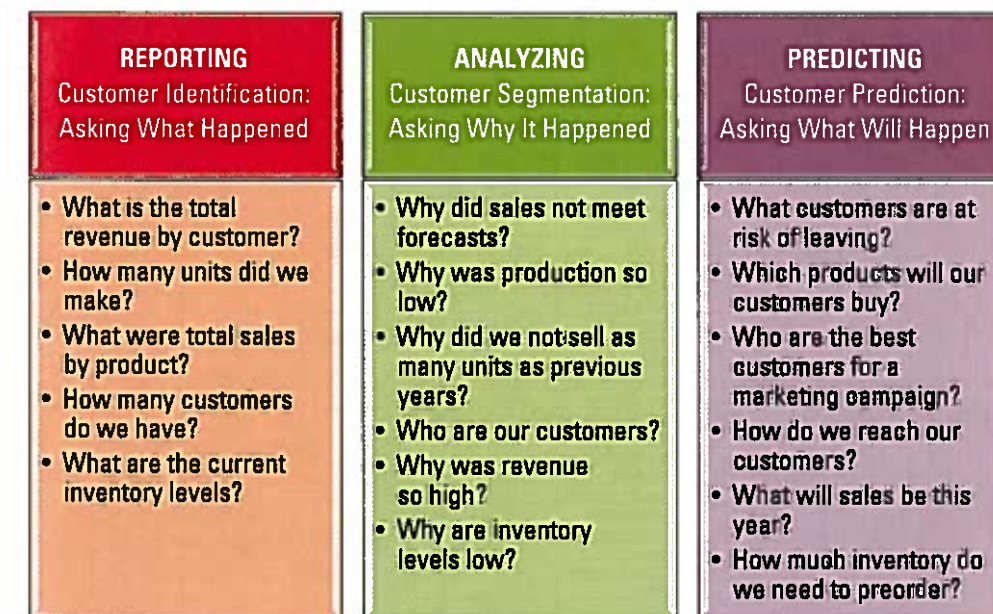


FIGURE 3.12
Three Phases of CRM

Enterprise Resource Planning

Today's business leaders need significant amounts of information to be readily accessible with real-time views into their businesses so that decisions can be made when they need to be, without the added time of tracking data and generating reports. **Enterprise resource planning (ERP)** integrates all departments and functions throughout an organization into a single IT system (or integrated set of IT systems) so that employees can make decisions by viewing enterprisewide information on all business operations.

Many organizations fail to maintain consistency across business operations. If a single department, such as sales, decides to implement a new system without considering the other departments, inconsistencies can occur throughout the company. Not all systems are built to talk to each other and share data, and if sales suddenly implements a new system that marketing and accounting cannot use or is inconsistent in the way it handles information, the company's operations become siloed. Figure 3.13 displays sample data from a sales database, and Figure 3.14 displays samples from an accounting database. Notice the differences in data formats, numbers, and identifiers. Correlating this data would be difficult, and the inconsistencies would cause numerous reporting errors from an enterprisewide perspective.

Los Angeles is a city of 3.5 million, with 44,000 city employees, and a budget of \$4 billion. Yet a few years ago each department conducted its own purchasing. That meant 2,000 people in 600 city buildings and 60 warehouses were ordering material. Some 120,000 purchase orders (POs) and 50,000 checks per year went to more than 7,000 vendors. Inefficiency was rampant.

"There was a lack of financial responsibility in the old system, and people could run up unauthorized expenditures," said Bob Jensen, the city's ERP project manager. Each department maintained its own inventories on different systems. Expense-item mismatches piled up. One department purchased one way, others preferred a different approach. Mainframe-based systems were isolated. The city chose an ERP system as part of a \$22 million project to integrate purchasing and financial reporting across the entire city. The project resulted in cutting the check processing staff in half, processing

FIGURE 3.13
Sales Information Sample

	OrderDate	ProductName	Quantity	Unit Price	Unit Cost	Customer ID	SalesRep ID
1	Monday, January 04, 2015	Mozzarella cheese	41.5	\$ 24.15	\$ 15.35	AC45	EX 107
2	Monday, January 04, 2015	Romaine lettuce	90.65	\$ 15.08	\$ 14.04	AC45	EX 109
3	Tuesday, January 05, 2015	Red onions	27.15	\$ 12.08	\$ 10.32	AC67	EX 104
4	Wednesday, January 06, 2015	Romaine lettuce	67.25	\$ 15.16	\$ 10.54	AC96	EX 109
5	Thursday, January 07, 2015	Black olives	79.26	\$ 12.18	\$ 9.56	AC44	EX 104
6	Thursday, January 07, 2015	Romaine lettuce	46.52	\$ 15.24	\$ 11.54	AC32	EX 104
7	Thursday, January 07, 2015	Romaine lettuce	52.5	\$ 15.26	\$ 11.12	AC84	EX 109
8	Friday, January 08, 2015	Red onions	39.5	\$ 12.55	\$ 9.54	AC103	EX 104
9	Saturday, January 09, 2015	Romaine lettuce	66.5	\$ 15.98	\$ 9.56	AC4	EX 104
10	Sunday, January 10, 2015	Romaine lettuce	58.26	\$ 15.87	\$ 9.50	AC174	EX 104
11	Sunday, January 10, 2015	Pineapple	40.15	\$ 33.54	\$ 22.12	AC45	EX 104
12	Monday, January 11, 2015	Pineapple	71.58	\$ 33.56	\$ 22.05	AC4	EX 104
13	Thursday, January 14, 2015	Romaine lettuce	18.25	\$ 15.00	\$ 10.25	AC174	EX 104
14	Thursday, January 14, 2015	Romaine lettuce	28.15	\$ 15.26	\$ 10.54	AC44	EX 107
15	Friday, January 15, 2015	Pepperoni	33.5	\$ 15.24	\$ 10.25	AC96	EX 109
16	Friday, January 15, 2015	Parmesan cheese	14.26	\$ 8.05	\$ 4.00	AC96	EX 104
17	Friday, January 15, 2015	Parmesan cheese	72.15	\$ 8.50	\$ 4.00	AC103	EX 109
18	Saturday, January 16, 2015	Parmesan cheese	41.5	\$ 24.15	\$ 15.35	AC45	EX 107
19	Monday, January 18, 2015	Romaine lettuce	90.65	\$ 15.08	\$ 14.04	AC45	EX 109
20	Monday, January 18, 2015	Tomatoes	27.15	\$ 12.08	\$ 10.32	AC67	EX 104
21	Wednesday, January 20, 2015	Peppers	67.25	\$ 15.16	\$ 10.54	AC96	EX 109
22	Thursday, January 21, 2015	Mozzarella cheese	79.26	\$ 12.18	\$ 9.56	AC44	EX 104
23	Thursday, January 21, 2015	Black olives	46.52	\$ 15.24	\$ 11.54	AC32	EX 104
24	Saturday, January 23, 2015	Mozzarella cheese	52.5	\$ 15.26	\$ 11.12	AC84	EX 109
25	Sunday, January 24, 2015	Romaine lettuce	39.5	\$ 12.55	\$ 9.54	AC103	EX 104
26	Tuesday, January 26, 2015	Parmesan cheese	66.5	\$ 15.98	\$ 9.56	AC4	EX 104
27	Wednesday, January 27, 2015	Pepperoni	58.26	\$ 15.87	\$ 9.50	AC174	EX 104
28	Thursday, January 28, 2015	Peppers	40.15	\$ 33.54	\$ 22.12	AC45	EX 104
29	Thursday, January 28, 2015	Mozzarella cheese	71.58	\$ 33.56	\$ 22.05	AC4	EX 104
30	Friday, January 29, 2015	Tomatoes	18.25	\$ 15.00	\$ 10.25	AC174	EX 104
31	Friday, January 29, 2015	Peppers					

	OrderDate	ProductName	Quantity	Unit Price	Total Sales	Unit Cost	Total Cost	Profit	Customer	SalesRep
1	04-Jan-15	Mozzarella cheese	41	24	984	18	738	246	The Station	Debbie Fernandez
2	04-Jan-15	Romaine lettuce	90	15	1,350	14	1,260	90	The Station	Roberta Cross
3	05-Jan-15	Red onions	27	12	324	8	216	108	Bert's Bistro	Loraine Schultz
4	06-Jan-15	Romaine lettuce	67	15	1,005	14	938	67	Smoke House	Roberta Cross
5	07-Jan-15	Black olives	79	12	948	6	474	474	Flagstaff House	Loraine Schultz
6	07-Jan-15	Romaine lettuce	46	15	690	14	644	46	Two Bits	Loraine Schultz
7	07-Jan-15	Romaine lettuce	52	15	780	14	728	52	Pierce Arrow	Roberta Cross
8	08-Jan-15	Red onions	39	12	468	8	312	156	Mamma's Pasta Palace	Loraine Schultz
9	09-Jan-15	Romaine lettuce	66	15	990	14	924	66	The Dandelion	Loraine Schultz
10	10-Jan-15	Romaine lettuce	58	15	870	14	812	58	Carmens	Loraine Schultz
11	10-Jan-15	Pineapple	40	33	1,320	28	1,120	200	The Station	Loraine Schultz
12	11-Jan-15	Pineapple	71	33	2,343	28	1,988	355	The Dandelion	Loraine Schultz
13	14-Jan-15	Romaine lettuce	18	15	270	14	252	18	Carmens	Loraine Schultz
14	14-Jan-15	Romaine lettuce	28	15	420	14	392	28	Flagstaff House	Debbie Fernandez
15	15-Jan-15	Pepperoni	33	53	1,749	35	1,155	594	Smoke House	Roberta Cross
16	17-Jan-15	Parmesan cheese	14	8	112	4	56	56	Smoke House	Loraine Schultz
17	18-Jan-15	Parmesan cheese	72	8	576	4	288	288	Mamma's Pasta Palace	Roberta Cross
18	18-Jan-15	Parmesan cheese	10	8	80	4	40	40	Mamma's Pasta Palace	Loraine Schultz
19	18-Jan-15	Romaine lettuce	42	15	630	14	588	42	Smoke House	Roberta Cross
20	20-Jan-15	Tomatoes	48	9	432	7	336	96	Two Bits	Loraine Schultz
21	21-Jan-15	Peppers	29	21	609	12	348	261	The Dandelion	Roberta Cross
22	21-Jan-15	Mozzarella cheese	10	24	240	18	180	60	Mamma's Pasta Palace	Debbie Fernandez
23	23-Jan-15	Black olives	98	12	1,176	6	588	588	Two Bits	Roberta Cross
24	24-Jan-15	Mozzarella cheese	45	24	1,080	18	810	270	Carmens	Loraine Schultz
25	26-Jan-15	Romaine lettuce	58	15	870	14	812	58	Two Bits	Loraine Schultz
26	27-Jan-15	Parmesan cheese	66	8	528	4	264	264	Flagstaff House	Loraine Schultz
27	28-Jan-15	Peppers	85	21	1,785	12	1,020	765	Pierce Arrow	Loraine Schultz
28	28-Jan-15	Mozzarella cheese	12	24	288	18	216	72	The Dandelion	Debbie Fernandez
29	29-Jan-15	Tomatoes	40	9	360	7	280	80	Pierce Arrow	Roberta Cross

FIGURE 3.14
Accounting Information Sample

POs faster than ever, reducing the number of workers in warehousing by 40 positions, decreasing inventories from \$50 million to \$15 million, and providing a single point of contact for each vendor. In addition, \$5 million a year has been saved in contract consolidation.⁴

Figure 3.15 shows how an ERP system takes data from across the enterprise, consolidates and correlates the data, and generates enterprisewide organizational reports. Original ERP implementations promised to capture all information onto one true "enterprise" system, with the ability to touch all the business processes within the organization. Unfortunately, ERP solutions have fallen short of these promises, and typical implementations have penetrated only 15 to 20 percent of the organization. The issue ERP intends to solve is that knowledge within a majority of organizations currently resides in silos that are maintained by a select few, without the ability to be shared across the organization, causing inconsistency across business operations.

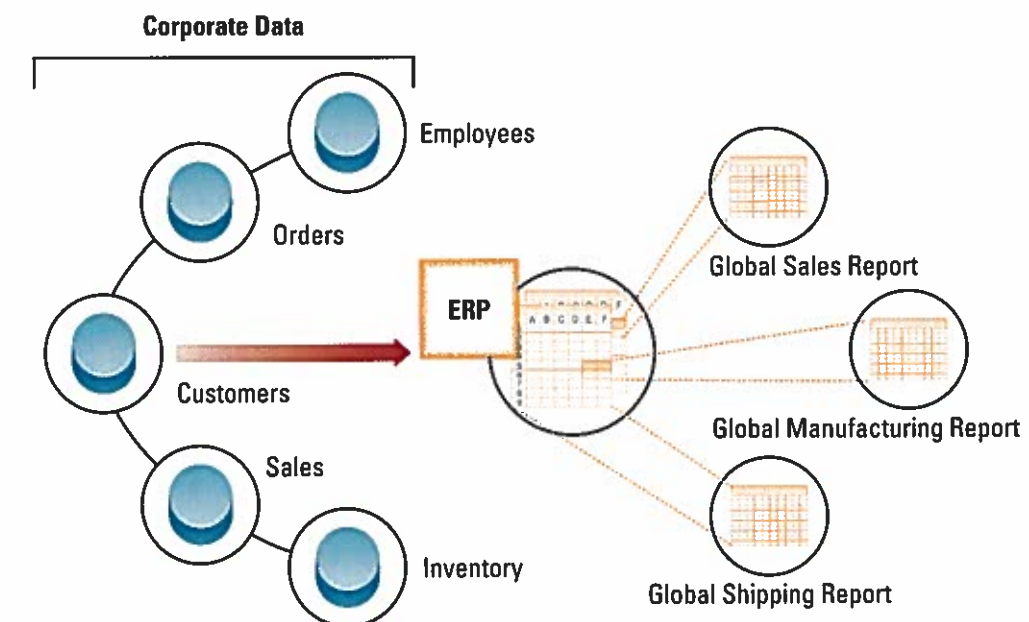


FIGURE 3.15
Enterprise Resource Planning System

OPENING CASE STUDY QUESTIONS

1. Evaluate how Apple can gain business intelligence through the implementation of a customer relationship management system.
2. Create an argument against the following statement: "Apple should not invest any resources to build a supply chain management system."
3. Why would a company like Apple invest in BPR?

Chapter Three Case: Got Milk? It's Good for You—Unless It Is Contaminated!

Dong Lizhong, a farmer and migrant worker dairy farmer in China, bet that being a dairy farmer was his golden ticket out of a factory job. Unfortunately, a contamination crisis shattered his dairy business when babies mysteriously started developing kidney stones from contaminated baby formula. A chemical called melamine—an additive used to make plastic—was discovered in the milk supply of China's third-largest dairy producer. Tragically, four infants died from the contamination and at least 53,000 fell ill. According to the official Xinhua news agency, officials knew about problems with the milk for months before informing the public.

China's four largest dairy organizations, accounting for nearly half the country's milk market, pulled their goods off shelves. More than 20 countries, including France, India, and South Korea, banned not only dairy products from China, but also candies, cookies, and chocolates. "This is a disastrous setback. I estimate that it will take one or two years to rebuild confidence in dairy products," says Luo Yunbo, dean of the College of Food Science and Nutritional Engineering at China Agricultural University.

The local milk-collection station in Dong Lizhong's village has discontinued purchasing milk. Farmers are continuing to milk their cows, but they now drink the milk themselves or "feed the cabbages"—pour the milk in their cabbage fields. Dong estimates that he has already lost \$1,461, or a quarter of his annual income last year, in expenses to feed corn and fresh grass to his 20 dairy cows. "Unless someone starts buying milk, we're going to see a lot of cows being slaughtered very soon," states Dong.

Cutting Corners

Chinese do not traditionally drink milk. However, as the country has grown more affluent over the past few decades, the domestic dairy industry has skyrocketed. China's two largest dairy companies have greatly benefited from this new trend: China Mengniu Dairy and Inner Mongolia Yili Industrial Group. Simultaneously, numerous entrepreneurs—from dairy farmers to milk-collection station owners to milk distributors—have jumped into the supply chain of dairy products to make their fortunes. Due to the fierce competition within China's dairy industry a few companies decided to cut corners to reduce costs, regardless of the consequences.

As Mengniu and Yili expanded at breathtaking speed, they found themselves in the unique position where supply could not keep up with demand. According to KPMG, China consumes 25 million tons of milk yearly, putting its dairy market ahead of France and Germany. In their quest for more raw milk, Mengniu and Yili have expanded outside their base in the

northern province of Inner Mongolia and set up milk production facilities in other parts of China. Not surprisingly, most of the quality problems in milk have been found in dairy farms in Hebei and Inner Mongolia provinces, where the competition for raw milk supplies has been the fiercest.

Most dairy farmers in Hebei province traditionally sold their milk to milk-collection stations established by local heavyweight Sanlu. In recent years, new privately owned milk-collection stations to buy raw milk for Mengniu and Yili started popping up next to existing stations. These new entrants captured raw milk supplies by offering dairy farmers slightly higher prices. "This competition broke the rules. As milk buyers fought over milk supplies, their standards for quality fell," says Roger Liu, vice-chairman of American Dairy (ADY), a Heilongjiang province-based powdered milk company.

Additives to Boost Protein

Many of the milking stations do not have the equipment to test milk for additives. At the Nanxincheng station, 16 households bring their dairy cows in the area to be milked in the red brick farmhouse. The farmers hook up the cows up to a milking machine, which pumps the milk directly into a big vat. "They didn't test the milk here. They sent it to Sanlu for testing," says Du Yanjun, a government inspector posted to monitor the Nanxincheng station after the contamination crisis broke.

The milk is collected from the stations and shipped by middlemen to big dairy companies like Sanlu, which do their own testing and grading. It now appears that unscrupulous middlemen commonly add melamine into the raw milk to increase protein levels in their milk samples, so their milk will be graded higher. Ingesting melamine can cause kidney stones or kidney failure, especially in infants.

Matthew Estes, president and CEO of BabyCare, had looked into switching from Australian and New Zealand sources of milk for the company's infant-formula business in China. BabyCare did extensive testing of possible suppliers and realized it could not locate a suitable supplier in China. "We couldn't find quality that met our standards. We chose to not sell rather than take the risk," he says.

Going to Jail

A Chinese court sentenced two of the primary middlemen to death and a dairy boss to life in prison for their roles in the milk contamination scandal. The swift trial and harsh sentences show Beijing's resolve in tackling the country's stubborn food safety problems and an eagerness by the communist leadership to move past the embarrassing scandal.

Going to Starbucks

Starbucks Corp. has launched a new brand of coffee grown by farmers in China and says it hopes to bring the blend to stores all over the world. The Seattle-based company, which has been closing stores in the U.S. to cut costs, says its new blend is made in China's southwestern province of Yunnan, bordering Vietnam, Laos, and Myanmar. "Our intention is to work with the officials and the farmers in Yunnan province to bring Chinese coffee not (only) to China, but Chinese coffee to the world," Martin Coles, president of Starbucks Coffee International, told the Associated Press. "Ultimately I'd love to see our coffees from China featured on the shelves of every one of our stores in 49 countries around the world," he said. A launch date for foreign distribution hasn't been announced and will depend on how soon farmers can grow enough beans to ensure local and overseas supply.

The company has been working for three years with farmers and officials in the province before the launch, and the coffee will initially combine Arabica beans from Latin America and the Asia-Pacific with local Yunnan beans. But Coles said they hope to develop a source of superpremium Arabica coffee from the province, expanding it to new brand offerings in China, and then internationally. The new blend will be called "South of the Clouds," the meaning of Yunnan in Chinese.⁵

Questions

1. Explain why the supply chain can dramatically impact a company's base performance.
2. List all of the products that could possibly be affected by a problem in the U.S. milk supply chain.
3. How can a CRM system help communicate issues in the supply chain?
4. How could BPR help uncover issues in a company's supply chain?
5. What are the pros and cons for Starbucks of outsourcing the growing of its coffee beans to Chinese farmers?

CHAPTER

4

Measuring the Success of Strategic Initiatives

LEARNING OUTCOMES

4.1. Define critical success factors (CSFs) and key performance indicators (KPIs), and explain how managers use them to measure the success of MIS projects.

4.2. Explain why a business would use metrics to measure the success of strategic initiatives.

Metrics: Measuring Success

A **project** is a temporary activity a company undertakes to create a unique product, service, or result. For example, the construction of a new subway station is a project, as is a movie theater chain's adoption of a software program to allow online ticketing. Peter Drucker, a famous management writer, once said that if you cannot measure something, you cannot manage it. How do managers measure the progress of a complex business project?

Metrics are measurements that evaluate results to determine whether a project is meeting its goals. Two core metrics are critical success factors and key performance indicators. **Critical success factors (CSFs)** are the crucial steps companies perform to achieve their goals and objectives and implement their strategies (see Figure 4.1). **Key performance indicators (KPIs)** are the quantifiable metrics a company uses to evaluate progress toward critical success factors. KPIs are far more specific than CSFs.

It is important to understand the relationship between critical success factors and key performance indicators. CSFs are elements crucial for a business strategy's success. KPIs measure the progress of CSFs with quantifiable measurements, and one CSF can have several KPIs. Of course, both categories will vary by company and industry. Imagine *improve graduation rates* as a CSF for a college. The KPIs to measure this CSF can include:

- Average grades by course and gender.
- Student dropout rates by gender and major.
- Average graduation rate by gender and major.
- Time spent in tutoring by gender and major.

KPIs can focus on external and internal measurements. A common external KPI is **market share**, or the proportion of the market that a firm captures. We calculate it by dividing the firm's sales by the total market sales for the entire industry. Market share measures a firm's external performance relative to that of its competitors. For example, if a firm's total sales (revenues) are \$2 million and sales for the entire industry are \$10 million, the firm has captured 20 percent of the total market ($2/10 = 20\%$) or a 20 percent market share.

A common internal KPI is **return on investment (ROI)**, which indicates the earning power of a project. We measure it by dividing the profitability of a project by the costs. This sounds easy, and for many departments where the projects are tangible and

LO 4.1 Define critical success factors (CSFs) and key performance indicators (KPIs), and explain how managers use them to measure the success of MIS projects.

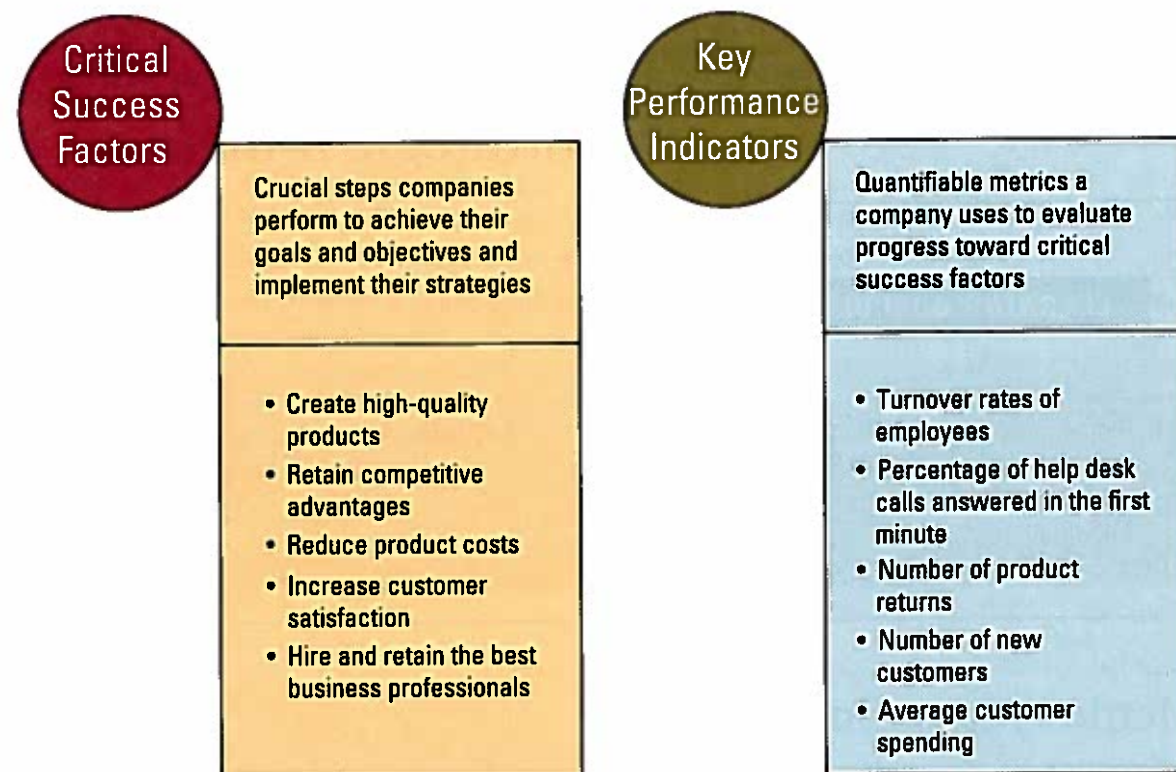


FIGURE 4.1
CSF and KPI Metrics

self-contained it is; however, for projects that are intangible and cross departmental lines (such as MIS projects), ROI is challenging to measure. Imagine attempting to calculate the ROI of a fire extinguisher. If the fire extinguisher is never used, its ROI is low. If the fire extinguisher puts out a fire that could have destroyed the entire building, its ROI is astronomically high.

Creating KPIs to measure the success of an MIS project offers similar challenges. Think about a firm's email system. How could managers track departmental costs and profits associated with company email? Measuring by volume does not account for profitability, because one sales email could land a million-dollar deal while 300 others might not generate any revenue. Non-revenue-generating departments such as human resources and legal require email but will not be using it to generate profits. For this reason, many managers turn to higher-level metrics, such as efficiency and effectiveness, to measure MIS projects. **Best practices** are the most successful solutions or problem-solving methods that have been developed by a specific organization or industry. Measuring MIS projects helps determine the best practices for an industry.

EFFICIENCY AND EFFECTIVENESS METRICS

Efficiency MIS metrics measure the performance of MIS itself, such as throughput, transaction speed, and system availability. **Effectiveness MIS metrics** measure the impact MIS has on business processes and activities, including customer satisfaction and customer conversion rates. Efficiency focuses on the extent to which a firm is using its resources in an optimal way, while effectiveness focuses on how well a firm is achieving its goals and objectives. Peter Drucker offers a helpful distinction between efficiency and effectiveness: Doing things right addresses efficiency—getting the most from each resource. Doing the right things addresses effectiveness—setting the right goals and objectives and ensuring they are accomplished. Figure 4.2 describes a few of the common types of efficiency and effectiveness MIS metrics. KPIs that measure MIS

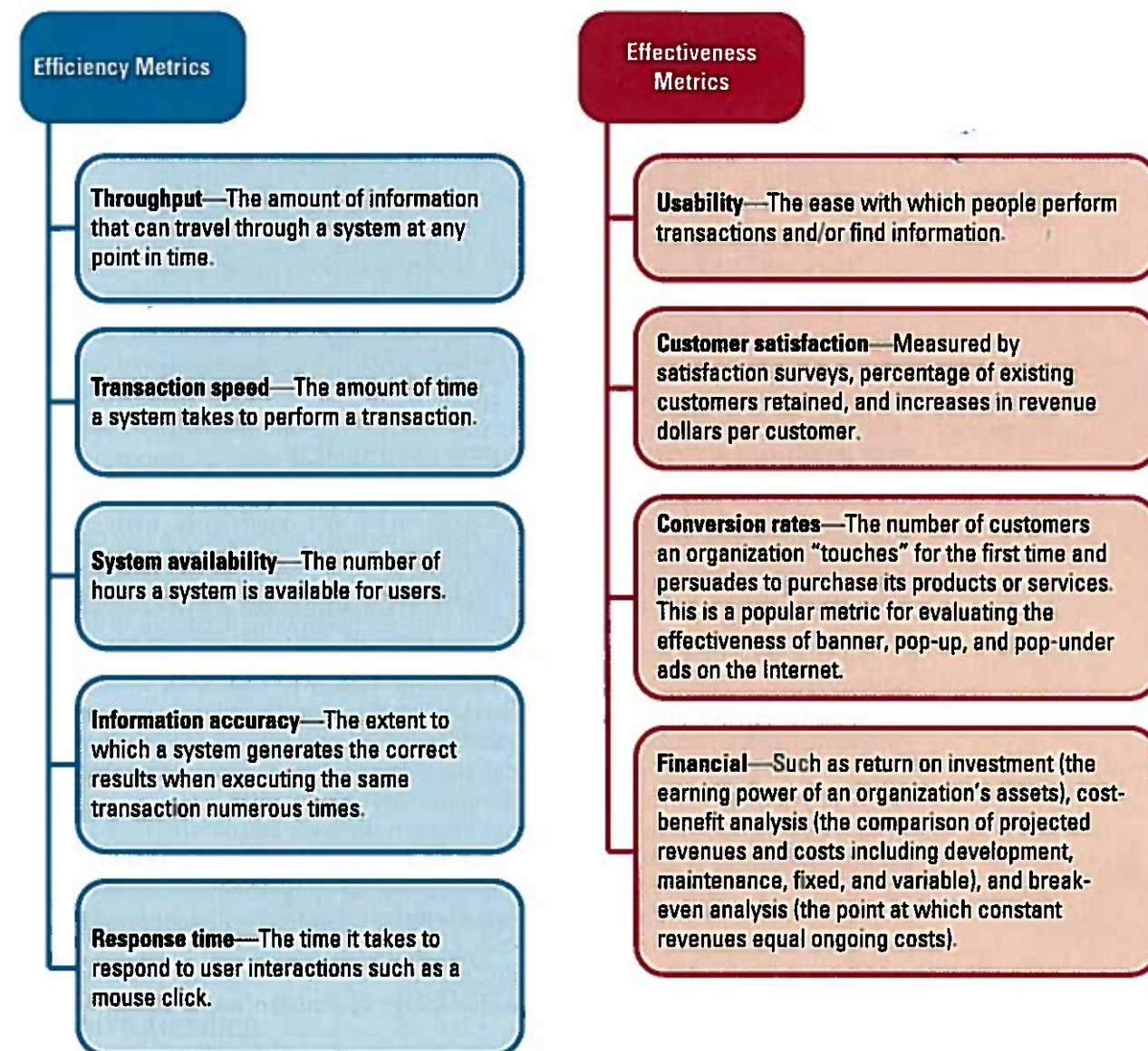


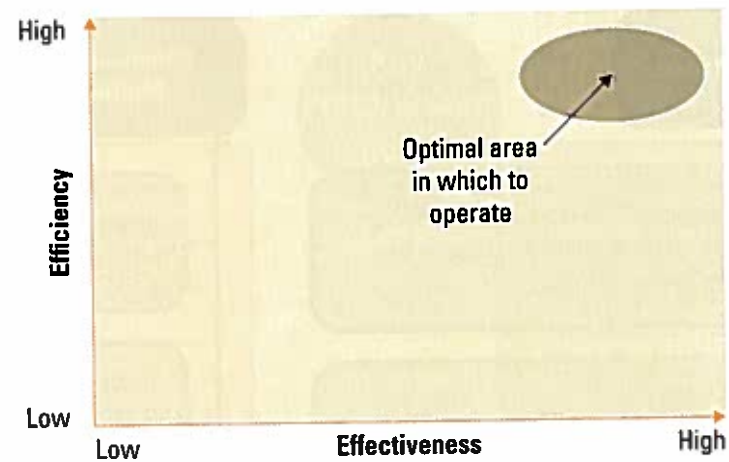
FIGURE 4.2
Common Types of Efficiency and Effectiveness Metrics

projects include both efficiency and effectiveness metrics. Of course, these metrics are not as concrete as market share or ROI, but they do offer valuable insight into project performance.¹

Large increases in productivity typically result from increases in effectiveness, which focus on CSFs. Efficiency MIS metrics are far easier to measure, however, so most managers tend to focus on them, often incorrectly, to measure the success of MIS projects. Consider measuring the success of automated teller machines (ATMs). Thinking in terms of MIS efficiency metrics, a manager would measure the number of daily transactions, the average amount per transaction, and the average speed per transaction to determine the success of the ATM. Although these offer solid metrics on how well the system is performing, they miss many of the intangible or value-added benefits associated with ATM effectiveness. Effectiveness MIS metrics might measure how many new customers joined the bank due to its ATM locations or the ATMs' ease of use. They can also measure increases in customer satisfaction due to reduced ATM fees or additional ATM services such as the sale of stamps and movie tickets, significant time savers and value-added features for customers. Being a great manager means taking the added viewpoint offered by effectiveness MIS metrics to analyze all benefits associated with an MIS project.

FIGURE 4.3

The Interrelationships between Efficiency and Effectiveness



THE INTERRELATIONSHIP BETWEEN EFFICIENCY AND EFFECTIVENESS MIS METRICS

Efficiency and effectiveness are definitely related. However, success in one area does not necessarily imply success in the other. Efficiency MIS metrics focus on the technology itself. While these efficiency MIS metrics are important to monitor, they do not always guarantee effectiveness. Effectiveness MIS metrics are determined according to an organization's goals, strategies, and objectives. Here, it becomes important to consider a company's CSFs, such as a broad cost leadership strategy (Walmart, for example), as well as KPIs such as increasing new customers by 10 percent or reducing new-product development cycle times to six months. In the private sector, eBay continuously benchmarks its MIS projects for efficiency and effectiveness. Maintaining constant website availability and optimal throughput performance are CSFs for eBay.

Figure 4.3 depicts the interrelationships between efficiency and effectiveness. Ideally, a firm wants to operate in the upper right-hand corner of the graph, realizing both significant increases in efficiency and effectiveness. However, operating in the upper left-hand corner (minimal effectiveness with increased efficiency) or the lower right-hand corner (significant effectiveness with minimal efficiency) may be in line with an organization's particular strategies. In general, operating in the lower left-hand corner (minimal efficiency and minimal effectiveness) is not ideal for the operation of any organization.

Benchmarks

Regardless of what process is measured, how it is measured, and whether it is performed for the sake of efficiency or effectiveness, managers must set **benchmarks**, or baseline values the system seeks to attain. **Benchmarking** is a process of continuously measuring system results, comparing those results to optimal system performance (benchmark values), and identifying steps and procedures to improve system performance. Benchmarks help assess how an MIS project performs over time. For instance, if a system held a benchmark for response time of 15 seconds, the manager would want to ensure response time continued to decrease until it reached that point. If response time suddenly increased to 1 minute, the manager would know the system was not functioning correctly and could start looking into potential problems. Continuously measuring MIS projects against benchmarks provides feedback so managers can control the system.

Metrics for Strategic Initiatives

What is a metric? A metric is nothing more than a standard measure to assess performance in a particular area. Metrics are at the heart of a good, customer-focused management system and any program directed at continuous improvement. A focus on customers and performance standards shows up in the form of metrics that assess the ability to meet customers' needs and business objectives.

LO 4.2 Explain why a business would use metrics to measure the success of strategic initiatives.

Business leaders want to monitor key metrics in real time to actively track the health of their business. Most business professionals are familiar with financial metrics. Different financial ratios are used to evaluate a company's performance. Companies can gain additional insight into their performance by comparing financial ratios against other companies in their industry. A few of the more common financial ratios include:

- Internal rate of return (IRR)—the rate at which the net present value of an investment equals zero.
- Return on investment (ROI)—indicates the earning power of a project and is measured by dividing the benefits of a project by the investment.
- Payback method—number of years to recoup the cost of an initiative based on projected annual net cash flow.
- Break-even analysis—determines the volume of business required to make a profit at the current prices charged for the products or services. For example, if a promotional mailing costs \$1,000 and each item generates \$50 in revenue, the company must generate 20 sales to break even and cover the cost of the mailing. The break-even point is the point at which revenues equal costs. The point is located by performing a break-even analysis. All sales over the break-even point produce profits; any drop in sales below that point will produce losses (see Figure 4.4).

Most managers are familiar with financial metrics but unfamiliar with information system metrics. The following metrics will help managers measure and manage their strategic initiatives:

- Website metrics.
- Supply chain management (SCM) metrics.
- Customer relationship management (CRM) metrics.
- Business process reengineering (BPR) metrics.
- Enterprise resource planning (ERP) metrics.

WEBSITE METRICS

Most companies measure the traffic on a website as the primary determinant of the website's success. However, heavy website traffic does not necessarily indicate large sales. Many organizations with lots of website traffic have minimal sales. A company can use web traffic analysis or web analytics to determine the revenue generated, the number of new customers acquired, any reductions in customer service calls, and so on. The Yankee Group reports that 66 percent of companies determine website success solely by measuring the amount of traffic. New customer acquisition ranked second on the list at 34 percent, and revenue generation ranked third at 23 percent. Figure 4.5 displays a few metrics managers should be familiar with to help measure website success along with an organization's strategic initiatives. A web-centric metric is a measure of the success of web and ebusiness initiatives. Of the hundreds of web-centric metrics available, some are general to almost any web or ebusiness initiative and others are dependent on the particular initiative.²

SUPPLY CHAIN MANAGEMENT (SCM) METRICS

Supply chain management metrics can help an organization understand how it's operating over a given time period. Supply chain measurements can cover many areas including procurement, production, distribution, warehousing, inventory, transportation, and customer service. However, a good performance in one part of the supply

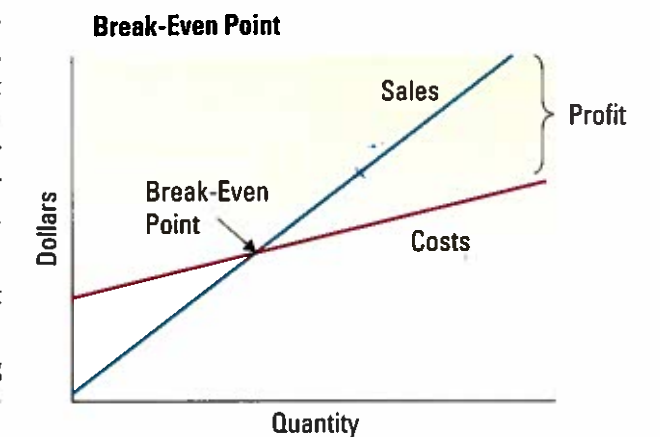


FIGURE 4.4

Break-Even Analysis

FIGURE 4.5
Website Metrics

Website Metrics
■ Abandoned registrations: Number of visitors who start the process of completing a registration page and then abandon the activity.
■ Abandoned shopping carts: Number of visitors who create a shopping cart and start shopping and then abandon the activity before paying for the merchandise.
■ Click-through: Count of the number of people who visit a site, click on an ad, and are taken to the site of the advertiser.
■ Conversion rate: Percentage of potential customers who visit a site and actually buy something.
■ Cost-per-thousand (CPM): Sales dollars generated per dollar of advertising. This is commonly used to make the case for spending money to appear on a search engine.
■ Page exposures: Average number of page exposures to an individual visitor.
■ Total hits: Number of visits to a website, many of which may be by the same visitor.
■ Unique visitors: Number of unique visitors to a site in a given time. This is commonly used by Nielsen/Net ratings to rank the most popular websites.

chain is not sufficient. A supply chain is only as strong as its weakest link. The solution is to measure all key areas of the supply chain. Figure 4.6 displays common supply chain management metrics.³

CUSTOMER RELATIONSHIP MANAGEMENT (CRM) METRICS

Wondering what CRM metrics to track and monitor using reporting and real-time performance dashboards? Best practice is no more than seven (plus or minus two) metrics out of the hundreds possible should be used at any given management level. Figure 4.7 displays common CRM metrics tracked by organizations.⁴

BUSINESS PROCESS REENGINEERING (BPR) AND ENTERPRISE RESOURCE PLANNING (ERP) METRICS

Business process reengineering and enterprise resource planning are large, organizationwide initiatives. Measuring these types of strategic initiatives is extremely difficult. One of the best methods is the balanced scorecard. This approach to strategic management was developed in the early 1990s by Drs. Robert Kaplan of the Harvard Business School and David Norton. Addressing some of the weaknesses and vagueness of previous measurement techniques, the balanced scorecard approach provides a clear prescription as to what companies should measure in order to balance the financial perspective.

FIGURE 4.6
Supply Chain Management Metrics

Supply Chain Management Metrics
■ Back order: An unfilled customer order. A back order is demand (immediate or past due) against an item whose current stock level is insufficient to satisfy demand.
■ Customer order promised cycle time: The anticipated or agreed upon cycle time of a purchase order. It is a gap between the purchase order creation date and the requested delivery date.
■ Customer order actual cycle time: The average time it takes to actually fill a customer's purchase order. This measure can be viewed on an order or an order line level.
■ Inventory replenishment cycle time: Measure of the manufacturing cycle time plus the time included to deploy the product to the appropriate distribution center.
■ Inventory turns (inventory turnover): The number of times that a company's inventory cycles or turns over per year. It is one of the most commonly used supply chain metrics.

FIGURE 4.7
CRM Metrics

Sales Metrics	Service Metrics	Marketing Metrics
■ Number of prospective customers	■ Cases closed same day	■ Number of marketing campaigns
■ Number of new customers	■ Number of cases handled by agent	■ New customer retention rates
■ Number of retained customers	■ Number of service calls	■ Number of responses by marketing campaign
■ Number of open leads	■ Average number of service requests by type	■ Number of purchases by marketing campaign
■ Number of sales calls	■ Average time to resolution	■ Revenue generated by marketing campaign
■ Number of sales calls per lead	■ Average number of service calls per day	■ Cost per interaction by marketing campaign
■ Amount of new revenue	■ Percentage compliance with service-level agreement	■ Number of new customers acquired by marketing campaign
■ Amount of recurring revenue	■ Percentage of service renewals	■ Customer retention rate
■ Number of proposals given	■ Customer satisfaction level	■ Number of new leads by product

The **balanced scorecard** is a management system, in addition to a measurement system, that enables organizations to clarify their vision and strategy and translate them into action. It provides feedback around both the internal business processes and external outcomes in order to continuously improve strategic performance and results. When fully deployed, the balanced scorecard transforms strategic planning from an academic exercise into the nerve center of an enterprise. Kaplan and Norton describe the innovation of the balanced scorecard as follows:

The balanced scorecard retains traditional financial measures. But financial measures tell the story of past events, an adequate story for industrial age companies for which investments in long-term capabilities and customer relationships were not critical for success. These financial measures are inadequate, however, for guiding and evaluating the journey that information age companies must make to create future value through investment in customers, suppliers, employees, processes, technology, and innovation.⁵

The balanced scorecard views the organization from four perspectives, and users should develop metrics, collect data, and analyze their business relative to each of these perspectives:

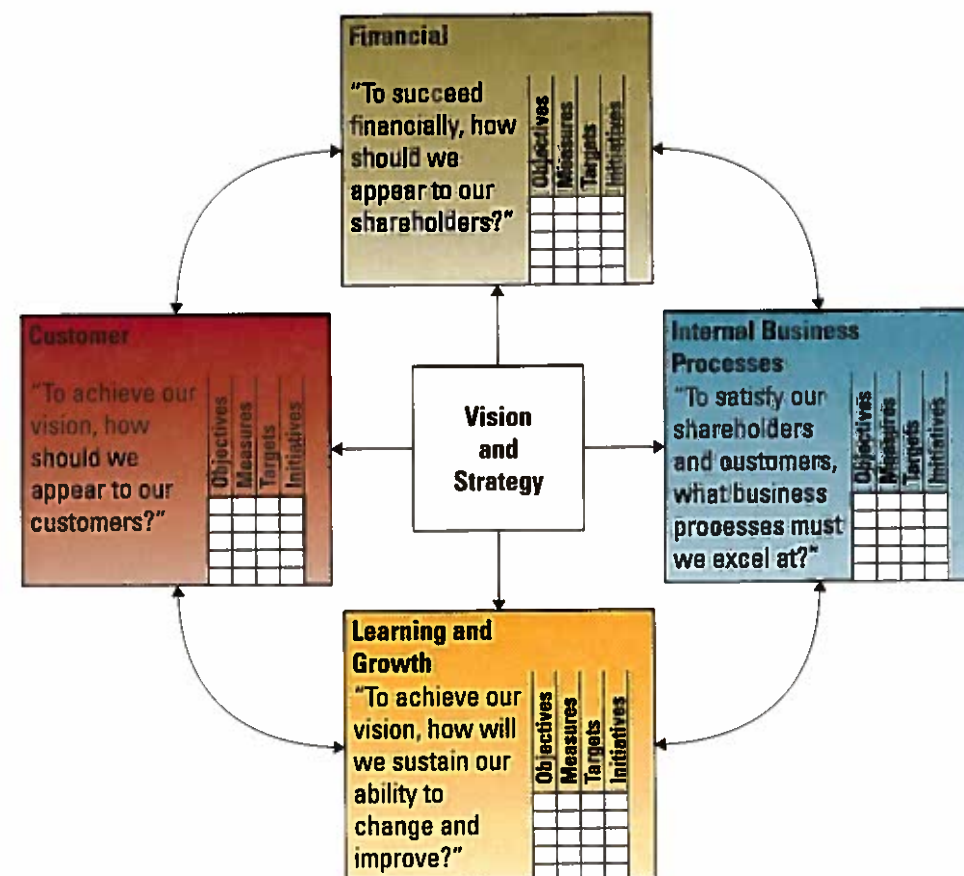
- The learning and growth perspective.
- The internal business process perspective.
- The customer perspective.
- The financial perspective (see Figure 4.8).

Recall that companies cannot manage what they cannot measure. Therefore, metrics must be developed based on the priorities of the strategic plan, which provides the key business drivers and criteria for metrics that managers most desire to watch.

One warning regarding metrics—do not go crazy. The trick is to find a few key metrics to track that provide significant insight. Remember to tie metrics to other financial and business objectives in the firm. The key is to get good insight without becoming a slave to metrics. The rule of thumb is to develop seven key metrics, plus or minus two.

FIGURE 4.8

The Four Primary Perspectives of the Balanced Scorecard



OPENING CASE STUDY QUESTIONS

1. Formulate a strategy describing how Apple can use efficiency MIS metrics to improve its business.
2. Formulate a strategy describing how Apple can use effectiveness MIS metrics to improve its business.
3. List three CRM metrics Apple should track, along with the reasons these metrics will add value to Apple's business strategy.
4. List three SCM metrics Apple should track, along with the reasons these metrics will add value to Apple's business strategy.
5. How can Apple use the balanced scorecard to make its business more efficient?

Chapter Four Case: Manipulating the Data to Find Your Version of the Truth

How can global warming be real when there is so much snow and cold weather? That's what some people wondered after a couple of massive snowstorms buried Washington, DC, in the winter of 2009–2010. Politicians across the capital made jokes and built igloos as they disputed the existence of climate change. Some concluded the planet simply could not be warming with all the snow on the ground.

These comments frustrated Joseph Romm, a physicist and climate expert with the Center for American Progress. He spent weeks turning data into information and graphs to educate anyone who would listen as to why this reasoning was incorrect. Climate change is all about analyzing data, turning it into information to detect trends. You cannot observe climate change by looking out the window; you have to review decades of weather data with advanced tools to really understand the trends.

Increasingly we see politicians, economists, and newscasters taking tough issues and boiling them down to simplistic arguments over what the data mean, each interpreting the data and spinning the data to support their views and agendas. You need to understand the data and turn them into useful information or else you will not understand when someone is telling the truth and when you are being lied to.

Brainstorm two or three types of data economists use to measure the economy.⁶

Questions

1. How do they turn the data into information?
2. What issues do they encounter when attempting to measure the economy?
3. As a manager, what do you need to understand when reading or listening to economic and business reports?