

Exhibit 11.5

A QR code



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You can see QR codes in magazine advertisements and on billboards, restaurant menus, Web pages, blogs, and social networking sites—even on T-shirts and sporting gear. In fact, a major reason for their popularity is that they can store (and digitally present) much more

data, including URL links, geo coordinates, and text. Businesses, too, may start using more QR codes—on their business cards, coffee mugs, Web sites, pop-up banners, and so forth—to convey information to their business partners. In other words, business employees will no longer need to carry paper documents around with them. QR codes could also be used in trade shows to attract customers to a business's Web site.²⁷

QR codes could offer some challenges. Some users do not scan them for important information such as nutritional facts. According to a recent study conducted at the University of Delaware, only 1 percent of consumers used their smartphones to scan the QR code to access extra information. Another 20 percent clicked a link, and about 50 percent used the QR code when a separate scanning device was offered to them.²⁸

You can create a QR code online for free. One way would be to use the Google URL shortener (<http://goo.gl>), which automatically creates a QR code for a Web page each time a URL is shortened.²⁹ Other Web sites create QR codes for free as well—for example, invx.com. The information box “QR Codes in Action” highlights several companies that are using QR codes as a marketing tool.

QR Codes in Action

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Sacre Bleu Wine, headquartered in Prior Lake, Minnesota, employs social media—including Facebook, Twitter, and YouTube—for its advertising campaigns. And now the company has added a QR code to the labels on its two types of wines: Cabernet Sauvignon and Sauvignon Blanc. The QR code enables the company to deliver important information to its consumers when they purchase its wines. Customers who scan the QR code with their smartphones are transferred to a Web site that includes information on promotions, special offers, and even recommendations, advice, and tips from top chefs regarding mixing and matching the wine with various foods. This is an inexpensive way for the company to promote its products and create customer loyalty.^{30,31}

Here are other examples of companies that are using QR codes in an effective way:

- Best Buy uses QR codes to keep a record of what its customers are scanning in its stores.³²
- Calvin Klein used QR codes for billboards in 2010.³³
- Dell Computer has used QR codes for an online contest in which entrants could win a new laptop.³⁴
- McDonald’s uses QR codes to display nutritional information.³⁵
- Pepsi uses QR codes to push video content.³⁶
- Ralph Lauren uses QR codes to draw consumers into its store locations.³⁷
- Starbucks uses QR codes as a payment method.³⁸



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Questions and Discussions

1. What are two examples of companies that are using QR codes? For which purpose are they using them?
2. What are two advantages of using QR codes as a marketing tool? What are some potential challenges of this approach?

11-1b Global Supply Chain Management

Global supply chain management incorporates management processes around the globe that integrates the network of suppliers, manufacturers, warehouses, and retail outlets in order to source high-quality raw materials, efficiently convert them to finished goods, and ship them in the right quantities to the right locations in a timely manner with the highest possible quality. Similar to domestic SCM, for successful integration of a global supply chain, communication must take place among the following three areas.³⁹

- Flows of information: purchase orders, shipping notices, and invoices
- Flows of materials: raw and finished products
- Flows of finances: payments and refunds

For a successful implementation of a global supply chain management system, three key factors should be properly integrated: people (with skills and knowledge of the supply chain), processes (sourcing, distribution, transportation, warehousing, sales, and customer service), and SCM technologies including EDI, the Internet, e-marketplaces, online auctions, CPFR, 3D and 4D printing, IoT, RFID, and QR codes.

Most of the benefits and drawbacks of global information systems discussed in Module 9 apply to global supply chain management. Specific benefits and drawbacks of global supply chain management are listed below:⁴⁰

Benefits

- It will expand sourcing opportunities. Organizations will have a broad selection of workers, materials, and products. This could lead to higher-quality products with lower cost.
- It will enhance and increase access to new customers in new markets and possibly with new needs. This will improve the organization's top line as well as bottom line.
- It will extend growth opportunity as a result of accessing new markets.

Drawbacks

- It will create large-scale and challenging management issues including inventory management and distribution issues.

- It will involve high risks such as natural disasters, port closures, and political uprisings.
- It will involve global competition with other players that are competing for the same resources.
- It will face challenges for information collection because the key elements of the supply chain network are scattered throughout the world.
- It will face legal issues related to business practices, privacy, and transborder data flow.

Global supply chain management

Global supply chain management incorporates management processes around the globe that integrates the network of suppliers, manufacturers, warehouses, and retail outlets in order to source high-quality raw materials, efficiently converted to finished goods, and shipped in the right quantities to the right locations in a timely manner with the highest possible quality.

Customer relationship management (CRM)

Customer relationship management (CRM) consists of the processes a company uses to track and organize its contacts with customers. It improves services offered to customers and uses customer contact information for targeted marketing.

11-2 CUSTOMER RELATIONSHIP MANAGEMENT

Customer relationship management (CRM) consists of the processes a company uses to track and organize its contacts with customers. The main goal of a CRM system is to improve services offered to customers and use customer contact information for targeted marketing. Businesses know that keeping and maintaining current customers is less expensive than attracting new customers, and an effective CRM system is useful in meeting this goal.

Marketing strategies in a CRM system focus on long-term relationships with customers instead of transactions. These strategies include identifying customer segments, improving products and services to meet customers' needs, improving customer retention, and identifying a company's most profitable (and loyal) customers. To get the most out of these strategies, a CRM system helps organizations make better use of data, information, and

knowledge to understand their customers.⁴¹ A CRM system captures information about customer interactions for sales personnel and customer service representatives so they can perform their jobs more effectively and efficiently. This information can include customers' preferences, background, income, gender, and education.

CRM is more than just tracking and organizing contacts with customers. It gives organizations more complete pictures of their customers. CRM systems include tools for conducting complex analyses on customer data, such as a data warehouse and data-mining tools, discussed in Module 3. With these systems, organizations can integrate demographic and other external data with customers' transaction data to better understand customer behavior. Based on this analysis, organizations can better target products to customers and manage customer issues, which increases customer satisfaction and retention. In addition, organizations can classify customers based on how valuable they are to the organization and manage them accordingly.

A grocery store offering loyalty cards with discounts to its customers is an example of how transaction data can be used in a CRM system. Knowing that a customer bought four gallons of milk the previous week does not give a grocery store much information, but with loyalty cards, the store can track all sorts of information on specific customers. When customers apply for loyalty cards, for example, they can be asked to give demographic information, such as name, age, marital status, and address. So, instead of knowing that "Customer 49 bought four gallons of milk last week," a store can learn that "James Smith, 35 years old, married, and residing in zip code 11223, bought four gallons of milk last week." With this information, the store can assume James Smith has young children (or clearly is not lactose intolerant!). In addition, if James Smith purchases no cereal that same week, the store can assume he is buying cereal from another store (because with the purchase of that amount of milk and the assumption that he has young children, it is likely his children are eating cereal). Therefore, the store decides to send coupons for discounts on cereal to James Smith. This is referred to as "cross-selling"—getting the customer to buy additional products. The store might also send James Smith coupons for a more expensive brand of milk, in the hope that his family will decide it prefers that brand. This practice is called "upselling."

Organizations can also pay external agencies for additional data about their potential customers. This data might be public or semiprivate, such as whether they own their homes, the value of their homes, and their

estimated mortgage or rent payments. This gives organizations more information to analyze.

With a CRM system, an organization can do the following:⁴²

- Provide services and products that meet customers' needs.
- Offer better customer service through multiple channels (traditional as well as the Internet).
- Increase cross-selling and upselling of products to increase revenue from existing customers.
- Help sales personnel close deals faster by offering data on customers' backgrounds.
- Retain existing customers and attract new ones.

Several IT tools discussed throughout this book are used to improve customer service. For example, e-mail, the Internet, Web portals, and automated call centers have played a major role in CRM systems. E-commerce sites use e-mail to confirm items purchased, confirm shipping arrangements, and send notifications on new products and services. Web portals and extranets, such as *FedEx.com*, allow customers to perform tasks, such as checking the status of shipments and arranging a package pickup. Database systems, data warehouses, and data-mining tools are effective in tracking and analyzing customers' buying patterns, which help businesses meet customers' needs. Yet this information could be used to generate predictive analytics that an organization can use for future planning in offering new products and services. The emergence of big data and the Internet of Everything may open up additional channels for reaching customers for increasing revenue and improving customer service. A CRM system includes the following activities:

- Sales automation
- Order processing
- Marketing automation
- Customer support
- Knowledge management
- Personalization technology

These activities, performed by CRM software, are discussed in more detail in the following sections. The "CRM at Delta Air Lines" box highlights CRM applications at Delta Air Lines.

11-2a CRM Applications

Typically, CRM applications are implemented with one of two approaches: on-premises CRM or Web-based CRM. Organizations with an established IT infrastructure often choose on-premises CRM, which is implemented much

like any other IT system. With Web-based CRM, the company accesses the application via a Web interface instead of running the application on its own computers and pays to use CRM software as a service (SaaS), which is similar to Web-hosting services. The SaaS vendor also handles technical issues. (SaaS is covered in more detail in Module 14.) Several software packages are available for setting up a CRM system, including Amdocs CRM (www.amdocs.com/About/Pages/default.aspx), Optima Technologies ExSellence (www.optima-tech.com), Infor CRM (www.infor.com/solutions/crm), and SAP CRM, (<http://help.sap.com/CRM>). Although these packages vary in capabilities, they share the following features:

- *Salesforce automation*—Assists with such tasks as controlling inventory, processing orders, tracking customer interactions, and analyzing sales forecasts and performance. It also assists with collecting, storing, and managing sales contacts and leads.
- *eCRM or Web-based CRM*—Allows Web-based customer interaction and is used to automate e-mail, call logs, Web site analytics, and campaign management. Companies use campaign management

to customize marketing campaigns, such as designing a marketing campaign tailored to customers in Southern California or customers in the 18 to 35 age bracket.

- *Survey management*—Automates electronic surveys, polls, and questionnaires, which is useful for gathering information on customers' preferences.
- *Automated customer service*—Used to manage call centers and help desks and can sometimes answer customers' queries automatically.

The integration of CRM, IoT, social media, and analytics has created an environment for CRM that is able to do the following in order to attract new customers and better serve existing customers:⁴³

- Social CRM—interaction with customers through the Internet and social media.
- Individuation of messaging to customers through analytics using customers' social media information.
- Hypertargeting—delivery of highly customized content to highly specific customer subgroups of the total customer population. This creates personal communication that makes the customer feel special.

CRM at Delta Air Lines

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Delta Air Lines serves more than 180 million customers each year. It offers service to 323 destinations in 57 countries on six continents.⁴⁴

Using Salesforce, Delta has implemented a CRM to assist and improve communication and collaboration among its sales teams. One of the major tasks for which the company needed this program was to enable global sales representatives to share account information and address customers' needs.

Delta used Sales Cloud for account, activity, and contact information. The system provides essential information when sales representatives call on existing accounts or offer services to new customers. An app automates corporate and agency programs and assists sales representatives to track any request.

According to Kristen Shovlin, vice president of Sales Operations, the system gives Delta complete visibility into opportunities and programs across the globe. Sales teams are now able to access the system using their mobile devices and offer customer service anytime and from anywhere. Delta also implemented a Chatter social network for further improving collaboration among the team members. This platform helps employees share files and find needed information in a timely manner. Chatter has made real-time collaboration a reality at Delta.⁴⁵

Questions and Discussions

1. What are the applications of CRM at Delta Air Lines?
2. How does Chatter help improve customer service?



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Personalization is the process of satisfying customers' needs, building customer relationships, and increasing profits by designing goods and services that meet customers' preferences better. It involves not only customers' requests, but also the interaction between customers and the company.

Customization allows customers to modify the standard offering, such as selecting a different home page to be displayed each time you open your Web browser.

Collaborative filtering (CF) is a search for specific information or patterns using input from multiple business partners and data sources. It identifies groups of people based on common interests and recommends products or services based on what members of the group purchased or did not purchase.

Customization, which is somewhat different from personalization, allows customers to modify the standard offering, such as selecting a different home page to be displayed each time a browser is opened. As another example, after registering with Yahoo!, a user can customize the start page by choosing preferred layout, content, and colors. There are many examples of customization in retail, too, such as Build-A-Bear Workshops, where children can design their own teddy bears, or Nike, which allows customers to create their own shoes by selecting styles and colors.⁴⁶

Because personalization and customization help companies meet customers' preferences and needs, customers often experience a more efficient shopping process and, as a result, are less likely to switch to competitors to get similar products or services. However, using personalization requires gathering a lot of information about customers' preferences and shopping patterns, and some customers get impatient with answering long surveys about their preferences. In addition, collecting this information might affect customers' sense of privacy. For example, drug-store customers might be concerned that the drug store has their prescription histories, that the information might be misused and even affect their insurance coverage.

11-2b Personalization Technology

Personalization is the process of satisfying customers' needs, building customer relationships, and increasing profits by designing goods and services that meet customers' preferences better. It involves not only customers' requests but also the interaction between customers and the company. You are probably familiar with Web sites that tailor content based on interests and preferences. Amazon, for example, suggests products users might enjoy based on past browsing and purchasing habits.

To ease these concerns, companies should include clear privacy policies on their Web sites stating how personal information is collected and used.

Amazon is known for using personalization to recommend products to customers with the message "Customers who bought this item also bought" followed by a list of suggestions. Amazon's recommendation system is made up of a huge database containing customers' previous purchases and a recommendation algorithm. When a customer logs on to Amazon, the recommendation system first checks the customer's purchase history and that of similar customers. Using this information, a list of recommended products is displayed, based on the customer's shopping history and choices by other customers who have similar purchase histories. In addition, Amazon gives customers an opportunity to rate the recommendations. The more items the customer purchases and the more recommendations the customer rates, the better the recommendations are tailored to the customer.⁴⁷

Many other companies use personalization technology to improve customer service. For example, if you buy a suit from *Nordstrom.com*, the site might suggest shoes or a tie that goes with the suit or a similar suit in the same category. If you buy a song from Apple iTunes, other songs purchased by listeners like you are suggested. Google also provides personalized services for Google account holders. Users can get personalized search results that are reordered based on their searching histories. Avni Shah, Google's product manager, has explained that if a user has "fly fishing" in his or her search history and then searches on "bass," more weight is given to search results that point to Web pages about fish rather than pages about musical instruments. Google also has a bookmark feature so users can save useful search results for later use. Unlike Yahoo!'s MyWeb feature, which saves the text of Web pages, this feature simply saves the link to the page.⁴⁸

Customization, which is somewhat different from personalization, allows customers to modify the standard offering, such as selecting a different home page to be displayed each time a browser is opened.

To implement a personalization system, several IT tools are needed, including the Internet, databases, data warehouse/data marts, data-mining tools, mobile networks, and collaborative filtering. **Collaborative filtering (CF)** is a search for specific information or patterns using input from multiple business partners and data sources. It identifies groups of people based on common interests and recommends products or services based on what members of the group purchased or did not purchase. It works well for a single product category, such as books, computers, and so forth. One drawback of CF is that it needs a large sample of users and content to work well. In addition, it is not useful for making recommendations across unrelated categories, such as predicting that customers who liked a particular song would also like a particular computer.⁴⁹

One application of collaborative filtering is making automatic predictions about customers' preferences and interests based on similar users. For example, if a user rates several movies and is then added to a database that contains other users' ratings, a CF system can predict the user's ratings for movies he or she has not evaluated. You may have seen this feature used on *Netflix*



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.com, where lists of other movies you might like are displayed. Recently, Netflix paid \$1 million to the team that won a contest to come up with the best algorithm for improving the accuracy of the Netflix recommendation system. Other Web sites that use CF systems to improve customer service are Amazon, Barnes and Noble, and Netflix.

The information box “Amazon’s Personalization Assists Sellers on Its Marketplace” explains how Amazon uses personalization technologies to increase the efficiency and effectiveness of its marketplace.

Amazon’s Personalization Assists Sellers on Its Marketplace

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Amazon was one of the first companies to use data-mining tools and personalization technologies to tailor goods and services to its customers' purchasing habits. Since 2009, the company has also been using its personalization technologies to assist the third-party sellers that provide goods and services in Amazon's various marketplaces around the world. Amazon Marketplace was launched in November 2000. It allows sellers to offer new and used products right next to Amazon's own offerings using Amazon's infrastructure. Today, Amazon has over 2 million sellers in Amazon marketplaces based in 10 countries, serving more than 200 million customers worldwide.

Amazon uses its personalization technologies to offer predictive data-driven recommendations to all of its sellers. Personalization technologies help these sellers manage all aspects of their inventories, including how much to carry, what to carry, and how to expand into new markets and geographical locations. Managing inventory during seasonal changes and managing product offerings during the holidays are challenging tasks. Amazon makes these recommendations by using customer data on its site and the data available on social media. Recently, Amazon began recommending products to its sellers that they can sell outside their home countries.⁵⁰

Questions and Discussions

1. How is Amazon's personalization technology helping its sellers?
2. Why does Amazon invest in personalization for its sellers?

11-3 KNOWLEDGE MANAGEMENT

Knowledge management (KM) draws on concepts of organizational learning, organizational culture, and best practices to convert tacit knowledge into explicit knowledge, creates a knowledge-sharing culture in an organization, and eliminates obstacles to sharing knowledge.

Knowledge management (KM) is a technique used to improve CRM systems (and many other systems) by identifying, storing, and disseminating “know-how”—facts about how to perform tasks. Know-how can be explicit knowledge (formal, written procedures) or tacit

knowledge (personal or informal knowledge). Knowledge is an asset that should be shared throughout an organization to generate business intelligence and maintain a competitive advantage in the marketplace. Knowledge management, therefore, draws on concepts of organizational learning, organizational culture, and best practices to convert tacit knowledge into explicit knowledge, create a knowledge-sharing culture in an organization, and eliminate obstacles to sharing knowledge. In this respect, knowledge management shares many of the goals of information management but is broader in scope because information management tends to focus on just explicit knowledge.

Knowledge is more than information and data. It is also contextual. Explicit knowledge, such as how to close a sale, can be captured in data repositories and shared. Expert salespeople can document how they close sales successfully, and this documentation can be used to train new salespeople or those who are struggling with closing sales. Tacit knowledge, however, cannot be captured as easily. Knowledge that someone has gained through experience might vary depending on the situation in which it was used—the context. Typically, the best way to gather this information is interactively, such as asking the employee specific questions about how he or she would handle an issue. Because interaction is a key part of managing tacit knowledge, a knowledge management system must encourage open communication and the exchange of ideas, typically via e-mails, instant messaging, internal company wikis, video conferencing, and tools such as WebEx or GoToMeeting, which create virtual instructional environments.

By storing knowledge captured from experts, a knowledge repository can be created for employees to refer to when needed. The most common example is creating a knowledge base of typical customer complaints and solutions. Dell Computer uses this type of knowledge base, so when customers call about problems their computers are

having, the steps for solving the problem are documented and readily accessible, which shortens response times.

A knowledge management system can track how often an employee participates in knowledge-sharing interactions with other employees and track any resulting improvements in performance.

Knowledge bases can also be used when new products are being designed. A company can store past experiences with similar designs, mistakes made in testing, and so forth to help speed up the delivery timetable and avoid making the same mistakes. This use of knowledge bases is particularly helpful in designing software products and services.

Employees might be reluctant to share their expertise because, once everybody knows what they know, their value to the organization would be diminished. To motivate them to share knowledge, rewards must be offered. A knowledge management system can track how often an employee participates in knowledge-sharing interactions with other employees and track any resulting improvements in performance. This information can be used to reward employees for sharing tacit knowledge. Reward systems can be set up for sharing explicit knowledge, too—by tracking how often an employee contributes to a company’s internal wiki, for example.

A simple knowledge management system might consist of using collaboration software (discussed in Module 12), such as Google Apps for Work or Microsoft SharePoint Server, to create, manage, and distribute documents in an organization. These documents include the kind of information discussed previously, such as outlines of procedures for customer service representatives or reports of past design efforts. Other tools and technologies might include database management systems, data-mining tools, and decision support systems (discussed in Module 12). Knowledge management plays a key role in the success of a CRM system because it helps businesses use their knowledge assets to improve customer service and productivity, reduce costs, and generate more revenue. A knowledge management system should help an organization do one or more of the following:⁵¹

- Promote innovation by encouraging the free exchange of ideas.
- Improve customer service by reducing response time.

- Increase revenue by reducing the delivery time for products and services.
- Improve employee retention rates by rewarding employees for their knowledge.

Because of the importance of knowledge, knowledge management, and knowledge management systems, some organizations have created an executive position called chief knowledge officer (CKO). This individual is responsible for overseeing knowledge management within an organization. He or she makes sure that key knowledge resources are properly collected, stored, and disseminated among the key decision makers and also makes sure that the organization profits from knowledge resources, including its employees, its processes, and its intellectual property. Finally, the CKO tries to maximize the return on investment (ROI) related to knowledge management, knowledge management systems, and processes.

The information box “Knowledge Management in Action” highlights the applications of knowledge management at the Goodwin Procter law firm.

11-4 ENTERPRISE RESOURCE PLANNING

Enterprise resource planning (ERP) is an integrated system that collects and processes data and manages and coordinates resources, information, and functions throughout an organization. A typical ERP system has many components, including hardware,

software, procedures, and input from all functional areas. To integrate information for the entire organization, most ERP systems use a unified database to store data for various functions (see Exhibit 11.6). Table 11.2 summarizes the functions of these components.

A well-designed ERP system offers the following benefits:

- Increased availability and timeliness of integrated information
- Increased data accuracy and improved response time
- Improved customer satisfaction
- Improved employee satisfaction
- Improved planning and scheduling
- Improved supplier relationship
- Improved reliability of information
- Reduction in inventory costs
- Reduction in labor costs
- Reduction in order-to-fulfillment time

Along with all its advantages, an ERP system also has drawbacks, such as high cost, difficulties in installation, a need for extensive training, and compatibility problems with legacy systems.

The “ERP Streamlines Operations at Naghi Group” box summarizes some of the benefits in operational efficiency that Naghi Group gained from an ERP system.

Knowledge Management in Action

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Goodwin Procter was a big law firm, but it had a big problem. With eight offices and 850 attorneys and staff members, it was billing clients to the tune of \$611 million a year, but the firm was spending too much time putting together documents and pulling information from different sources. It needed a system to manage 2 terabytes of data, 60,000 cases, and nearly 10 million documents. Using Microsoft SharePoint, it developed a knowledge management system called Matter Page System—a hub through which attorneys could access business data and client information. With this platform, attorneys at all eight offices are able to share their work with one another. Before having this system, they would spend hours answering a client’s question because multiple files and file systems had to be searched. The new system enables them to share past experiences when working on a case.⁵²

Questions and Discussions

1. What benefits does knowledge management offer to Goodwin Procter?
2. What risks might have resulted if Goodwin Procter had not invested in a knowledge management system?

Enterprise resource planning (ERP) is an integrated system that collects and processes data and manages and coordinates resources, information, and functions throughout an organization.

Exhibit 11.6
ERP configuration

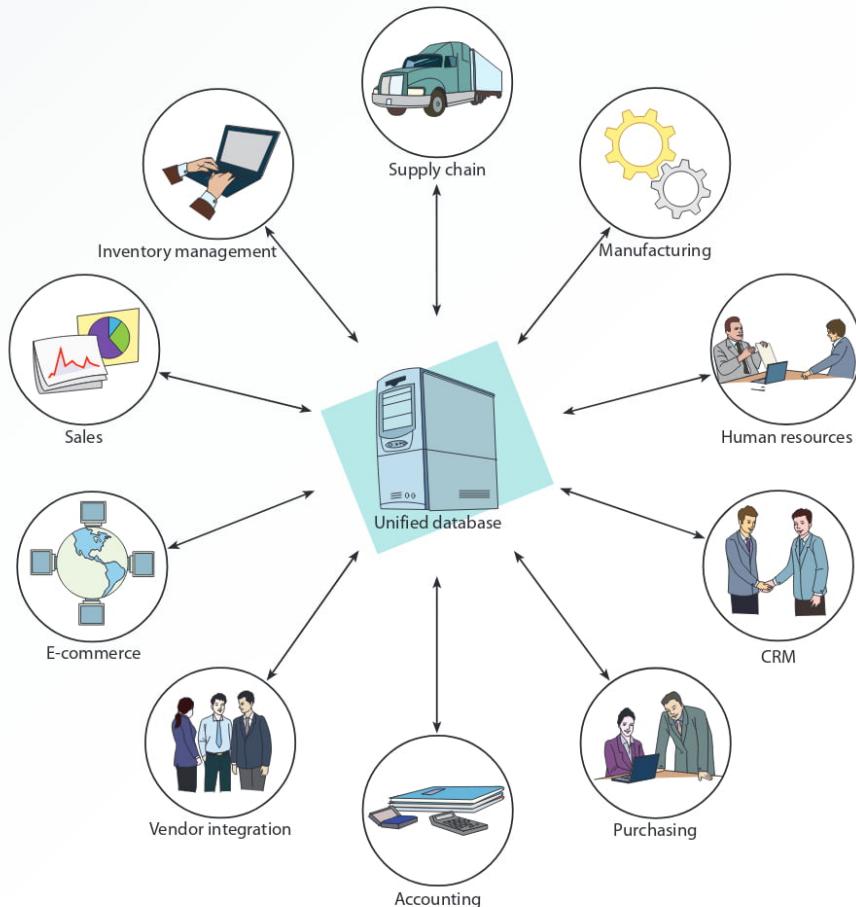


TABLE 11.2 ERP COMPONENTS

Components	Functions
Unified database	Collects and analyzes relevant internal and external data and information needed by other functions
Inventory management	Provides inventory status and inventory forecasts
Supply chain	Provides information on supply chain members, including suppliers, manufacturing, distribution, and customers
Manufacturing	Provides information on production costs and pricing
Human resources	Provides information on assessing job candidates, scheduling and assigning employees, and predicting future personnel needs
CRM	Provides information on customers and their needs and preferences
Purchasing	Provides information related to the purchasing function, including e-procurement
Accounting	Tracks financial information, such as budget allocations and debits and credits
Vendor integration	Integrates information for vendors, such as offering automated downloads of data on product pricing, specifications, and availability
E-commerce	Provides B2C information related to order status and B2B information related to suppliers and business partners
Sales	Provides information on sales and marketing