

# 2

## Global E-business and Collaboration

### LEARNING OBJECTIVES

After reading this chapter, you will be able to answer the following questions:

- 2-1** What are business processes? How are they related to information systems?
- 2-2** How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance?
- 2-3** Why are systems for collaboration and social business so important, and what technologies do they use?
- 2-4** What is the role of the information systems function in a business?
- 2-5** How will MIS help my career?

### CHAPTER CASES

- Enterprise Social Networking Transforms Sharp Corporation into a More Innovative Connected Organization
- The City of Mississauga Goes Digital
- Higher Education Redefined: Virtual Education at Ahlia University
- Is Social Business Good Business?

### VIDEO CASES

- IS in Action: VisionX Lighting Grows with Business One
- CEMEX: Becoming a Social Business

### MyLab MIS

Discussion Questions: 2-5, 2-6, 2-7; Hands-On MIS Projects: 2-8, 2-9, 2-10, 2-11;  
eText with Conceptual Animations

## Enterprise Social Networking Transforms Sharp Corporation into a More Innovative Connected Organization

**S**harp Corporation is a Japanese multinational corporation that manufactures and sells telecommunications equipment, electric and electronic equipment, and electronic components, including LCDs (liquid crystal displays), multifunction printing devices, calculators, radios, microwave ovens, and sensors. Sharp's business philosophy emphasizes that the company does not merely strive to increase business volume, but is also dedicated to using unique innovative technology to contribute to the culture and welfare of people throughout the world. Since 2016 Sharp has been a subsidiary of Taiwan-based Foxconn Group and employs more than 52,000 people worldwide. Collaboration and sharing information are essential for the company's ongoing innovation and business success.

Despite an impressive product lineup, Sharp ran into financial trouble as new Asian competitors challenged its consumer electronics business. The company's core electronic manufacturing service was based on razor-thin profit margins. Foxconn has been working with Sharp's management to diversify Sharp's business portfolio and reorganize the company to be more effective and profitable.

Sharp management believed that to strengthen its global business, the company needed to change the way it worked—both its business processes and its organizational culture. In the past employees had to follow decisions made from the top down. Directives flowed downward. Sharp needed to move to an organizational culture based on two-way dialogue where lower-level employees as well as upper management could play leadership roles. The company's younger employees were looking for systems where they could share ideas and opinions freely with each other.

Sharp implemented Microsoft Yammer for this purpose. Microsoft Yammer is an enterprise social networking platform for internal business uses, although it can also create external networks linking to suppliers, customers, and others outside the organization. Yammer enables employees to create groups to collaborate on projects and share and edit documents, and it includes a news feed to find out what's happening within the



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company. A People Directory provides a searchable database of contact information, skills, and expertise. Yammer can be accessed through the web, desktop, and mobile devices and can be integrated with other Microsoft tools such as SharePoint and Office 365 to make other applications more “social.” (SharePoint is Microsoft’s platform for collaboration, document sharing, and document management. Office 365 is Microsoft’s online service for its desktop productivity applications such as word processing, spreadsheet, electronic presentations, and data management.)

Sharp created a pilot Yammer program in February 2013, with employee adoption voluntary and employees allowed to write about hobbies and interests as well as work-related topics. Within months there were 6,000 adopters, and the number of Yammer users within the company has passed 10,000. Sharp wants to deploy Yammer to all domestic employees in Japan and eventually to overseas offices.

Yammer has improved the flow of information between senior management and rank-and-file employees. Communication among employees themselves has increased appreciably, with some conversations occurring among different departments and different regions. For example, smartphone developers are able to share opinions about functions and user-friendliness throughout the company and also learn about activities in other departments that they would not normally hear about by reading Yammer postings.

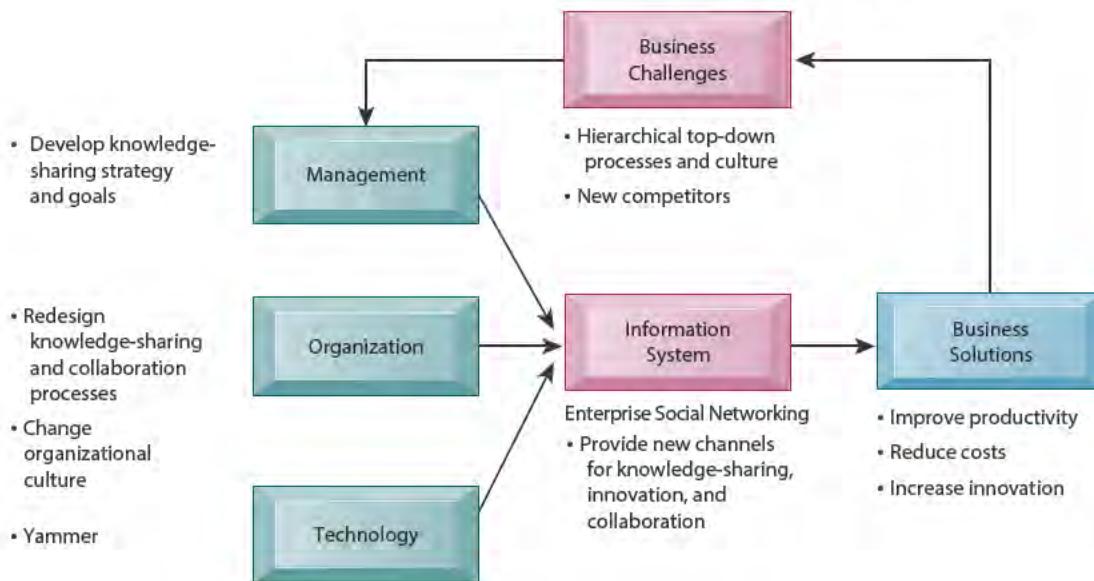
Some department leaders use Yammer to solicit ideas from their staff on how to use the latest technology in the business. Sharp is able to incorporate such feedback into product development and company policies. This ability to collect dispersed information from all over the company and have managers freely exchange ideas and learn from employees represents a major cultural change for the company.

**Sources:** “Sharp: A Culture Reborn Through Enterprise Social,” [www.microsoft.com](http://www.microsoft.com), accessed February 12, 2020; [www.globalsharp.com](http://www.globalsharp.com), accessed January 21, 2020; and Sharp Corporation, “Sharp Is Back With Big Screens,” Hexus, February 5, 2019.

Sharp’s experience illustrates how much organizations today rely on information systems to improve their performance and remain competitive. It also shows how much systems supporting collaboration and teamwork make a difference in an organization’s ability to innovate, execute, grow profits, and remain competitive.

The chapter-opening diagram calls attention to important points raised by this case and this chapter. Sharp Corporation is a knowledge-intensive technology company that depends on innovation, but it was hampered by hierarchical top-down processes and a culture that prevented employees and managers from freely sharing information and innovating. This impacted the company’s ability to create and deliver new leading-edge products, maintain high profit margins, and fend off increasing competition from other companies.

Sharp management found that the best solution was to deploy new technology to help the company move from a hierarchical corporate knowledge and work environment to one that was more democratized. Enterprise social networking actively engaged employees and enabled them to obtain more knowledge from colleagues and managers. The company took advantage of Microsoft



Yammer's social tools to increase employee collaboration and engagement and to open up dialogues with management. There is now more effective sharing of employee knowledge, and the company has become more innovative and effective.

New technology alone would not have solved Sharp Corporation's problem. To make the solution effective, Sharp had to change its organizational culture and business processes for knowledge dissemination and collaborative work, and the new technology made these changes possible.

Here are some questions to think about: How are collaboration and employee engagement helping Sharp Corporation to be more competitive? How did using Yammer change corporate culture and the way work was performed at Sharp Corporation?

## 2-1 What are business processes? How are they related to information systems?

In order to operate, businesses must deal with many different pieces of information about suppliers, customers, employees, invoices, payments, and of course their products and services. They must organize work activities that use this information to operate efficiently and enhance the overall performance of the firm. Information systems make it possible for firms to manage all their information, make better decisions, and improve the execution of their business processes.

### Business Processes

Business processes, which we introduced in Chapter 1, refer to the manner in which work is organized, coordinated, and focused to produce a valuable product or service. Business processes are the collection of activities required to produce a product or service. These activities are supported by flows of material, information, and knowledge among the participants in business processes. Business processes also refer to the unique ways in which organizations

coordinate work, information, and knowledge, and the ways in which management chooses to coordinate work.

To a large extent, the performance of a business firm depends on how well its business processes are designed and coordinated. A company's business processes can be a source of competitive strength if they enable the company to innovate or to execute better than its rivals. Business processes can also be liabilities if they are based on inefficient ways of working that impede organizational responsiveness and efficiency. The chapter-opening case describing Sharp Corporation's improvements in knowledge-sharing processes clearly illustrates these points, as do many of the other cases in this text.

Every business can be seen as a collection of business processes, some of which are part of larger encompassing processes. For instance, uses of mentoring, wikis, blogs, and videos are all part of the overall knowledge management process. Many business processes are tied to a specific functional area. For example, the sales and marketing function is responsible for identifying customers, and the human resources function is responsible for hiring employees. Table 2.1 describes some typical business processes for each of the functional areas of business.

Other business processes cross many different functional areas and require coordination across departments. For instance, consider the seemingly simple business process of fulfilling a customer order (see Figure 2.1). Initially, the sales department receives a sales order. The order passes first to accounting to ensure the customer can pay for the order either by a credit verification or request for immediate payment prior to shipping. Once the customer credit is established, the production department pulls the product from inventory or produces the product. Then the product is shipped (and this may require working with a logistics firm, such as UPS or FedEx). A bill or invoice is generated by the accounting department, and a notice is sent to the customer indicating that the product has shipped. The sales department is notified of the shipment and prepares to support the customer by answering calls or fulfilling warranty claims.

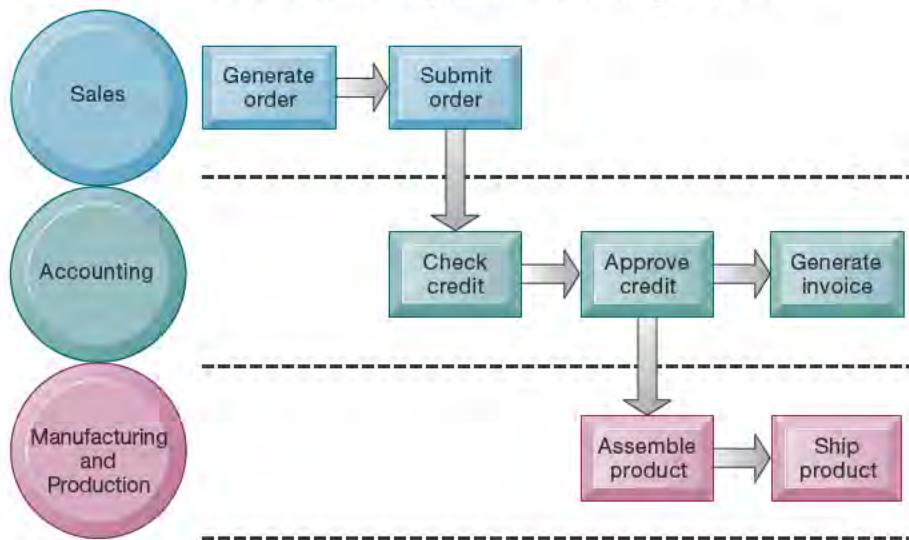
What at first appears to be a simple process, fulfilling an order, turns out to be a very complicated series of business processes that require the close

**TABLE 2.1 EXAMPLES OF FUNCTIONAL BUSINESS PROCESSES**

FUNCTIONAL AREA	BUSINESS PROCESS
Manufacturing and production	Assembling the product Checking for quality Producing bills of materials
Sales and marketing	Identifying customers Making customers aware of the product Selling the product
Finance and accounting	Paying creditors Creating financial statements Managing cash accounts
Human resources	Hiring employees Evaluating employees' job performance Enrolling employees in benefits plans

**FIGURE 2.1 THE ORDER FULFILLMENT PROCESS**

Fulfilling a customer order involves a complex set of steps that requires the close coordination of the sales, accounting, and manufacturing functions.



coordination of major functional groups in a firm. Moreover, to efficiently perform all these steps in the order fulfillment process requires a great deal of information. The required information must flow rapidly within the firm from one decision maker to another; with business partners, such as delivery firms; and with the customer. Computer-based information systems make this possible.

## How Information Technology Improves Business Processes

Exactly how do information systems improve business processes? Information systems automate many steps in business processes that were formerly performed manually, such as checking a client's credit or generating an invoice and shipping order. But today, information technology can do much more. New technology can actually change the flow of information, making it possible for many more people to access and share information, replacing sequential steps with tasks that can be performed simultaneously, and eliminating delays in decision making. New information technology frequently changes the way a business works and supports entirely new business models. Downloading a Kindle e-book from Amazon, buying a computer online at Scan UK, and streaming a music track from Apple Music are entirely new business processes based on new business models that would be inconceivable without today's information technology.

That's why it's so important to pay close attention to business processes, both in your information systems course and in your future career. By analyzing business processes, you can achieve a very clear understanding of how a business actually works. Moreover, by conducting a business process analysis, you will also begin to understand how to change the business by improving its processes to make it more efficient or effective. Throughout this book, we examine business processes with a view to understanding how they might be improved by using information technology to achieve greater efficiency, innovation, and customer service.

## 2-2 How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance?

Now that you understand business processes, it is time to look more closely at how information systems support the business processes of a firm. Because there are different interests, specialties, and levels in an organization, there are different kinds of systems. No single system can provide all the information an organization needs.

A typical business organization has systems supporting processes for each of the major business functions—sales and marketing, manufacturing and production, finance and accounting, and human resources. You can find examples of systems for each of these business functions in the Learning Tracks for this chapter. Functional systems that operate independently of each other are becoming a thing of the past because they cannot easily share information to support cross-functional business processes. Many have been replaced with large-scale cross-functional systems that integrate the activities of related business processes and organizational units. We describe these integrated cross-functional applications later in this section.

A typical firm also has different systems supporting the decision-making needs of each of the main management groups we described in Chapter 1. Operational management, middle management, and senior management each use systems to support the decisions they must make to run the company. Let's look at these systems and the types of decisions they support.

### Systems for Different Management Groups

A business firm has systems to support different groups or levels of management. These systems include transaction processing systems and systems for business intelligence.

#### Transaction Processing Systems

Operational managers need systems that keep track of the elementary activities and transactions of the organization, such as sales, receipts, cash deposits, payroll, credit decisions, and the flow of materials in a factory. **Transaction processing systems (TPS)** provide this kind of information. A transaction processing system is a computerized system that performs and records the daily routine transactions necessary to conduct business, such as sales order entry, hotel reservations, payroll, employee record keeping, and shipping.

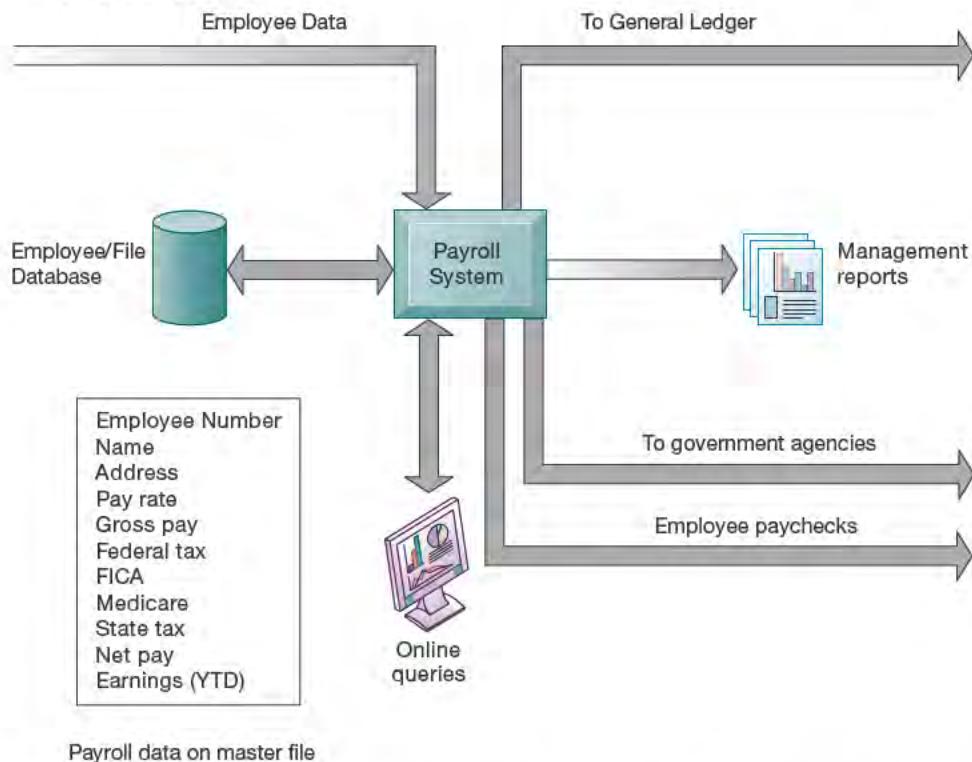
The principal purpose of systems at this level is to answer routine questions and to track the flow of transactions through the organization. How many parts are in inventory? What happened to Mr. Smith's payment? To answer these kinds of questions, information generally must be easily available, current, and accurate.

At the operational level, tasks, resources, and goals are predefined and highly structured. The decision to grant credit to a customer, for instance, is made by a lower-level supervisor according to predefined criteria. All that must be determined is whether the customer meets the criteria.

Figure 2.2 illustrates a TPS for payroll processing. A payroll system keeps track of money paid to employees. An employee time sheet with the employee's name, social security number, and number of hours worked per week

### FIGURE 2.2 A PAYROLL TPS

A TPS for payroll processing captures employee payment transaction data (such as a time card). System outputs include online and hard-copy reports for management and employee paychecks.



represents a single transaction for this system. Once this transaction is input into the system, it updates the system's master file (or database—see Chapter 6) that permanently maintains employee information for the organization. The data in the system are combined in different ways to create reports of interest to management and government agencies and to send paychecks to employees.

Managers need TPS to monitor the status of internal operations and the firm's relations with the external environment. TPS are also major producers of information for the other systems and business functions. For example, the payroll system illustrated in Figure 2.2, along with other accounting TPS, supplies data to the company's general ledger system, which is responsible for maintaining records of the firm's income and expenses and for producing reports such as income statements and balance sheets. It also supplies employee payment history data for insurance, pension, and other benefits calculations to the firm's human resources function and employee payment data to government agencies.

Transaction processing systems are often so central to a business that TPS failure for a few hours can lead to a firm's demise and perhaps that of other firms linked to it. Imagine what would happen to UPS if its package tracking system was not working! What would the airlines do without their computerized reservation systems?

### Systems for Business Intelligence

Firms also have business intelligence systems that focus on delivering information to support management decision making. **Business intelligence** is a contemporary term for data and software tools for organizing, analyzing, and

providing access to data to help managers and other enterprise users make more informed decisions. Business intelligence addresses the decision-making needs of all levels of management. This section provides a brief introduction to business intelligence. You'll learn more about this topic in Chapters 6 and 12.

Business intelligence systems for middle management help with monitoring, controlling, decision-making, and administrative activities. In Chapter 1, we defined management information systems as the study of information systems in business and management. The term **management information systems (MIS)** also designates a specific category of information systems serving middle management. MIS provide middle managers with reports on the organization's current performance. This information is used to monitor and control the business and predict future performance.

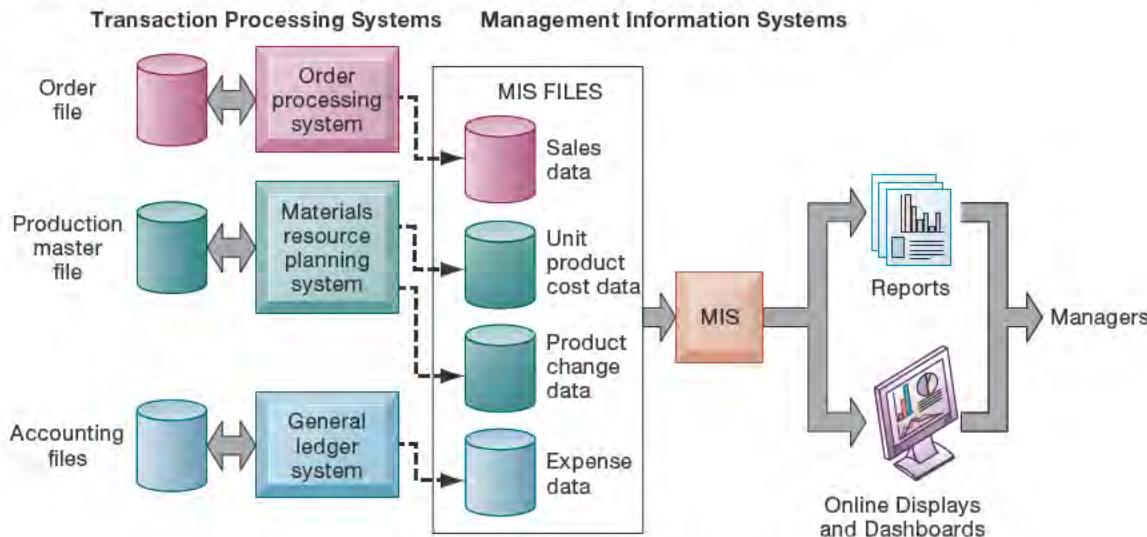
MIS summarize and report on the company's basic operations using data supplied by transaction processing systems. The basic transaction data from TPS are compressed and usually presented in reports that are produced on a regular schedule. Today, many of these reports are delivered online. Figure 2.3 shows how a typical MIS transforms transaction-level data from inventory, production, and accounting into MIS files that are used to provide managers with reports. Figure 2.4 shows a sample report from this system.

MIS typically provide answers to routine questions that have been specified in advance and have a predefined procedure for answering them. For instance, MIS reports might list the total pounds of lettuce used this quarter by a fast-food chain or, as illustrated in Figure 2.4, compare total annual sales figures for specific products to planned targets. These systems generally are not flexible and have little analytical capability. Most MIS use simple routines, such as summaries and comparisons, as opposed to sophisticated mathematical models or statistical techniques.

Other types of business intelligence systems support more nonroutine decision making. **Decision-support systems (DSS)** focus on problems that are unique and rapidly changing, for which the procedure for arriving at a solution may not be fully predefined in advance. They try to answer questions such as

**FIGURE 2.3 HOW MANAGEMENT INFORMATION SYSTEMS OBTAIN THEIR DATA FROM THE ORGANIZATION'S TPS**

In the system illustrated by this diagram, three TPS supply summarized transaction data to the MIS reporting system at the end of the time period. Managers gain access to the organizational data through the MIS, which provides them with the appropriate reports.



#### FIGURE 2.4 SAMPLE MIS REPORT

This report, showing summarized annual sales data, was produced by the MIS in Figure 2.3.

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2020

PRODUCT CODE	PRODUCT DESCRIPTION	SALES REGION	ACTUAL SALES	PLANNED	ACTUAL versus PLANNED
4469	Carpet Cleaner	Northeast	4,066,700	4,800,000	0.85
		South	3,778,112	3,750,000	1.01
		Midwest	4,867,001	4,600,000	1.06
		West	4,003,440	4,400,000	0.91
		TOTAL	16,715,253	17,550,000	0.95
5674	Room Freshener	Northeast	3,676,700	3,900,000	0.94
		South	5,608,112	4,700,000	1.19
		Midwest	4,711,001	4,200,000	1.12
		West	4,563,440	4,900,000	0.93
		TOTAL	18,559,253	17,700,000	1.05

these: What would be the impact on production schedules if we were to double sales in the month of December? What would happen to our return on investment if a factory schedule were delayed for six months?

Although DSS use internal information from TPS and MIS, they often bring in information from external sources, such as current stock prices or product prices of competitors. These systems are employed by “super-user” managers and business analysts who want to use sophisticated analytics and models to analyze data.

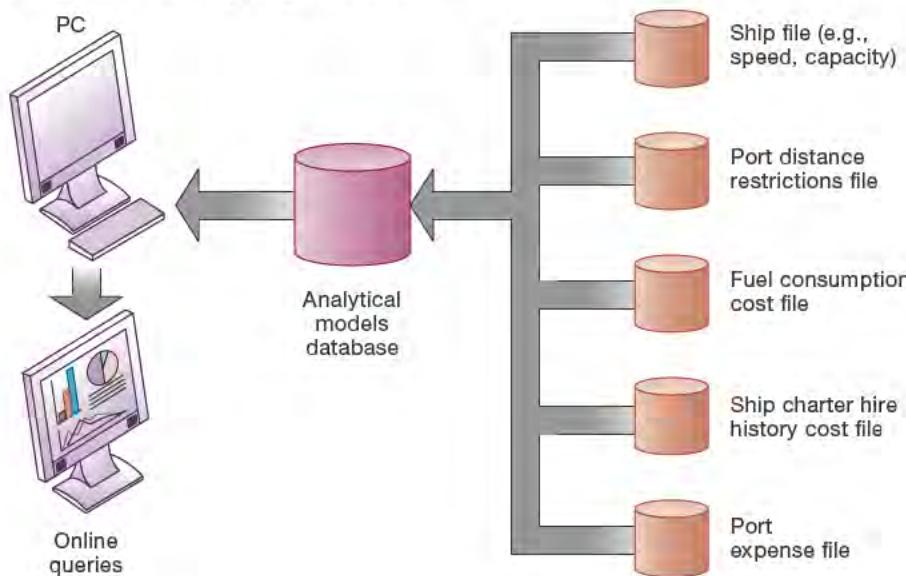
An interesting, small, but powerful DSS is the voyage-estimating system of a large global shipping company that transports bulk cargoes of coal, oil, ores, and finished products. The firm owns some vessels, charters others, and bids for shipping contracts in the open market to carry general cargo. A voyage-estimating system calculates financial and technical voyage details. Financial calculations include ship/time costs (fuel, labor, capital), freight rates for various types of cargo, and port expenses. Technical details include myriad factors, such as ship cargo capacity, speed, port distances, fuel and water consumption, and loading patterns (location of cargo for different ports).

The system can answer questions such as the following: Given a customer delivery schedule and an offered freight rate, which vessel should be assigned at what rate to maximize profits? What is the optimal speed at which a particular vessel can optimize its profit and still meet its delivery schedule? What is the optimal loading pattern for a ship bound for the U.S. West Coast from Malaysia? Figure 2.5 illustrates the DSS built for this company. The system operates on a powerful desktop personal computer, providing a system of menus that makes it easy for users to enter data or obtain information.

The voyage-estimating DSS we have just described draws heavily on models. Other business intelligence systems are more data-driven, focusing instead on extracting useful information from very large quantities of data. For example, large ski resort companies such as Intrawest and Vail Resorts collect and store large amounts of customer data from call centers, lodging and dining reservations, ski schools, and ski equipment rental stores. They use special software to analyze these data to determine the value, revenue potential, and loyalty of each customer to help managers make better decisions about how to target their marketing programs.

### FIGURE 2.5 VOYAGE-ESTIMATING DECISION-SUPPORT SYSTEM

This DSS operates on a powerful PC. It is used daily by managers who must develop bids on shipping contracts.

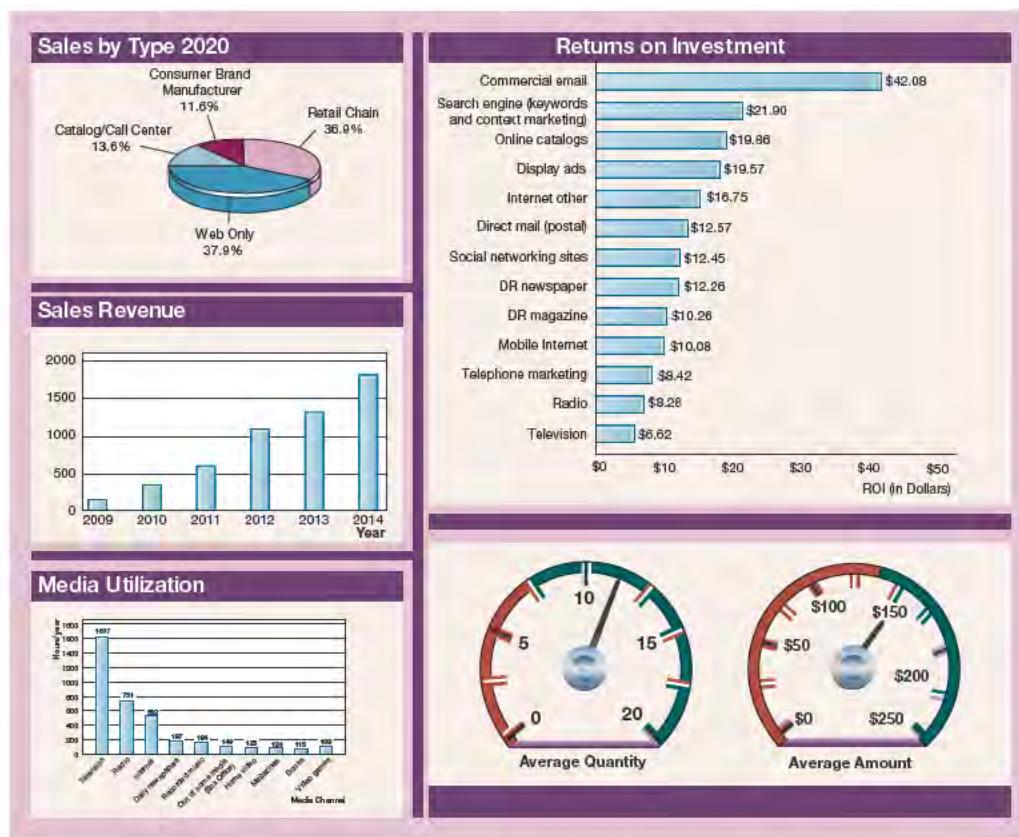


Business intelligence systems also address the decision-making needs of senior management. Senior managers need systems that focus on strategic issues and long-term trends, both in the firm and in the external environment. They are concerned with questions such as: What will employment levels be in five years? What are the long-term industry cost trends? What products should we be making in five years?

**Executive support systems (ESS)** help senior management make these decisions. They address nonroutine decisions requiring judgment, evaluation, and insight because there is no agreed-on procedure for arriving at a solution. ESS present graphs and data from many sources through an interface that is easy for senior managers to use. Often the information is delivered to senior executives through a **portal**, which uses a web interface to present integrated personalized business content.

ESS are designed to incorporate data about external events, such as new tax laws or competitors, but they also draw summarized information from internal MIS and DSS. They filter, compress, and track critical data, displaying the data of greatest importance to senior managers. Increasingly, such systems include business intelligence analytics for analyzing trends, forecasting, and “drilling down” to data at greater levels of detail.

For example, the chief operating officer (COO) and plant managers at Valero, the world's largest independent petroleum refiner, use a Refining Dashboard to display real-time data related to plant and equipment reliability, inventory management, safety, and energy consumption. With the displayed information, the COO and his team can review the performance of each Valero refinery in the United States and Canada in terms of how each plant is performing compared to the production plan of the firm. The headquarters group can drill down from executive level to refinery level and individual system-operator level displays of performance. Valero's Refining Dashboard is an example of a **digital dashboard**, which displays on a single screen graphs and charts of key performance indicators for managing a company. Digital dashboards are becoming an increasingly popular tool for management decision makers.



A digital dashboard delivers comprehensive and accurate information for decision making, often using a single screen. The graphical overview of key performance indicators helps managers quickly spot areas that need attention.

## Systems for Linking the Enterprise

Reviewing all the different types of systems we have just described, you might wonder how a business can manage all the information in these different systems. You might also wonder how costly it is to maintain so many different systems. And you might wonder how all these different systems can share information and how managers and employees are able to coordinate their work. In fact, these are all important questions for businesses today.

### Enterprise Applications

Getting all the different kinds of systems in a company to work together has proven a major challenge. Typically, corporations are put together both through normal “organic” growth and through acquisition of smaller firms. Over a period of time, corporations end up with a collection of systems, most of them older, and face the challenge of getting them all to “talk” with one another and work together as one corporate system. There are several solutions to this problem.

One solution is to implement **enterprise applications**, which are systems that span functional areas, focus on executing business processes across the firm, and include all levels of management. Enterprise applications help businesses become more flexible and productive by coordinating their business processes more closely and integrating groups of processes so they focus on efficient management of resources and customer service.

There are four major enterprise applications: enterprise systems, supply chain management systems, customer relationship management systems, and knowledge management systems. Each of these enterprise applications

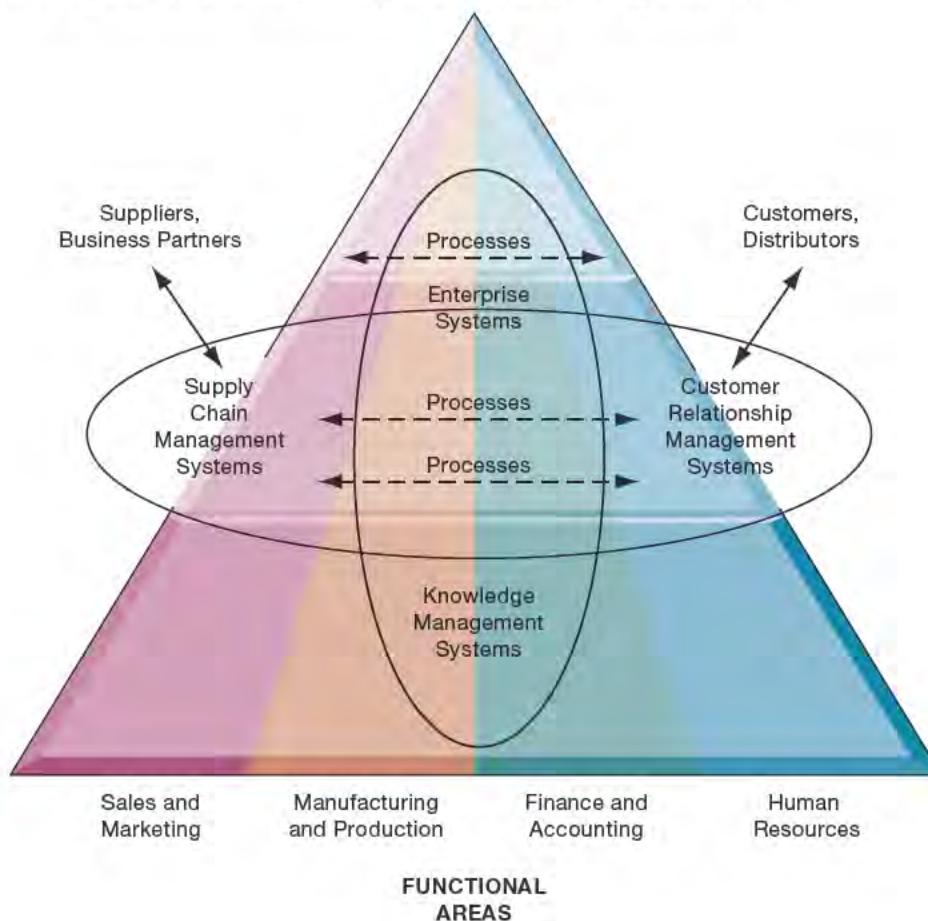
integrates a related set of functions and business processes to enhance the performance of the organization as a whole. Figure 2.6 shows that the architecture for these enterprise applications encompasses processes spanning the entire organization and, in some cases, extending beyond the organization to customers, suppliers, and other key business partners.

**Enterprise Systems** Firms use **enterprise systems**, also known as enterprise resource planning (ERP) systems, to integrate business processes in manufacturing and production, finance and accounting, sales and marketing, and human resources into a single software system. Information that was previously fragmented in many different systems is stored in a single comprehensive data repository where it can be used by many different parts of the business.

For example, when a customer places an order, the order data flow automatically to other parts of the company that are affected by them. The order transaction triggers the warehouse to pick the ordered products and schedule shipment. The warehouse informs the factory to replenish whatever has been depleted. The accounting department is notified to send the customer an invoice. Customer service representatives track the progress of the order through every step to inform customers about the status of their orders. Managers are able to use firmwide information to make more-precise and timely decisions about daily operations and longer-term planning.

**FIGURE 2.6 ENTERPRISE APPLICATION ARCHITECTURE**

Enterprise applications automate processes that span multiple business functions and organizational levels and may extend outside the organization.



**Supply Chain Management Systems** Firms use **supply chain management (SCM) systems** to help manage relationships with their suppliers. These systems help suppliers, purchasing firms, distributors, and logistics companies share information about orders, production, inventory levels, and delivery of products and services so they can source, produce, and deliver goods and services efficiently. The ultimate objective is to get the right amount of their products from their source to their point of consumption in the least amount of time and at the lowest cost. These systems increase firm profitability by lowering the costs of moving and making products and by enabling managers to make better decisions about how to organize and schedule sourcing, production, and distribution.

Supply chain management systems are one type of **interorganizational system** because they automate the flow of information across organizational boundaries. You will find examples of other types of interorganizational information systems throughout this text because such systems make it possible for firms to link digitally to customers and to outsource their work to other companies.

**Customer Relationship Management Systems** Firms use **customer relationship management (CRM) systems** to help manage their relationships with their customers. CRM systems provide information to coordinate all of the business processes that deal with customers in sales, marketing, and service to optimize revenue, customer satisfaction, and customer retention. This information helps firms identify, attract, and retain the most profitable customers; provide better service to existing customers; and increase sales.

**Knowledge Management Systems** Some firms perform better than others because they have better knowledge about how to create, produce, and deliver products and services. This firm knowledge is unique, is difficult to imitate, and can be leveraged into long-term strategic benefits. **Knowledge management systems (KMS)** enable organizations to better manage processes for capturing and applying knowledge and expertise. These systems collect all relevant knowledge and experience in the firm and make it available wherever and whenever it is needed to improve business processes and management decisions. They also link the firm to external sources of knowledge. We examine enterprise systems and systems for supply chain management and customer relationship management in greater detail in Chapter 9. We discuss collaboration systems that support knowledge management in this chapter and cover other types of knowledge management applications in Chapter 11.

## Intranets and Extranets

Enterprise applications create deep-seated changes in the way the firm conducts its business, offering many opportunities to integrate important business data into a single system. They are often costly and difficult to implement. Intranets and extranets deserve mention here as alternative tools for increasing integration and expediting the flow of information within the firm and with customers and suppliers.

Intranets are simply internal company websites that are accessible only by employees. The term *intranet* refers to an internal network, in contrast to the Internet, which is a public network linking organizations and other external networks. Intranets use the same technologies and techniques as the larger Internet, and they often are simply a private access area in a larger company website. Likewise with extranets, which are company websites that are accessible to authorized vendors and suppliers and are often used to coordinate the movement of supplies to the firm's production apparatus.

For example, Six Flags, which operates 18 theme parks throughout North America, maintains an intranet for its 1,900 full-time employees that provides company-related news and information on each park's day-to-day operations,

including weather forecasts, performance schedules, and details about groups and celebrities visiting the parks. The company also uses an extranet to broadcast information about schedule changes and park events to its 30,000 seasonal employees. We describe the technology for intranets and extranets in more detail in Chapter 7.

## E-business, E-commerce, and E-government

The systems and technologies we have just described are transforming firms' relationships with customers, employees, suppliers, and logistic partners into digital relationships using networks and the Internet. So much business is now enabled by or based upon digital networks that we use the terms *electronic business* and *electronic commerce* frequently throughout this text.

**Electronic business, or e-business**, refers to the use of digital technology and the Internet to execute the major business processes in the enterprise. E-business includes activities for the internal management of the firm and for coordination with suppliers and other business partners. It also includes **electronic commerce, or e-commerce**.

E-commerce is the part of e-business that deals with the buying and selling of goods and services over the Internet. It also encompasses activities supporting those market transactions, such as advertising, marketing, customer support, security, delivery, and payment.

The technologies associated with e-business have also brought about similar changes in the public sector. Governments on all levels are using Internet technology to deliver information and services to citizens, employees, and businesses with which they work. **E-government** refers to the application of the Internet and networking technologies to digitally enable government and public sector agencies' relationships with citizens, businesses, and other arms of government.

In addition to improving delivery of government services, e-government makes government operations more efficient and also empowers citizens by giving them easier access to information and the ability to network electronically with other citizens. For example, citizens in some states can renew their driver's licenses or apply for unemployment benefits online, and the Internet has become a powerful tool for instantly mobilizing interest groups for political action and fundraising. The Interactive Session on Organizations describes the Canadian City of Mississauga's e-government program.

## INTERACTIVE SESSION ORGANIZATIONS

### The City of Mississauga Goes Digital

The City of Mississauga, a Toronto suburb, is Canada's sixth-largest city and a leading user of digital technology to improve its operations and services. It tries to integrate technology into its operations and strategic and business planning, with technology roadmaps for each municipal service defined in business plans and budgets.

Mississauga has a vibrant multicultural population and a thriving central business district, with many Canadian and multinational corporations headquartered there. Since 1970, however, the Greater Toronto Area, including Mississauga, has experienced a noticeable increase in low-income families and a similar decrease in middle-income families. Mississauga developed a Smart City Master Plan to provide a vision and framework to guide the city's adoption of digital technology. The city's leaders believe that digital technology should be available for everyone and provide opportunities to startups, schools, and households at risk.

Mississauga has been a leader in technology initiatives such as social media and "bring your own device" (BYOD), which allows employees to use their own mobile devices for their jobs. Mississauga's website and online services are hosted in remote cloud computing centers accessible via the Internet. (Chapter 5 of this text provides a detailed discussion of these technologies.) In deploying these technologies, the city tries to focus on usability, a high-quality customer experience, and making information technology and technology services available to residents of all income and educational levels.

Mississauga is trying as much as possible to go paperless, with meetings and collaboration via videoconferencing where participants can "attend" meetings and share documents remotely. These efforts have significantly reduced paper use and the need to travel via car or airplane to meetings.

Mobile tools have made it possible for city staff, including transit operators and work operations staff in the field, who previously lacked computers, to access employee information and operational data to support real-time operations and decision making. Working with cellular provider Rogers Wireless, Mississauga connected over 600 buses that are collecting information about bus operations and routes,

so that the public has real-time information about bus locations. The bus data collected also are used for timing maintenance, warranty, and mileage routines so that buses can be removed from service at optimal times to minimize service interruption.

Mississauga has additionally connected 700 city vehicles such as fire trucks and vehicles for snow, public works, and parks operations, and facility maintenance to provide real-time location-based information. For example, connected snow vehicles provide real-time snow plow information to the public as well as the expected level of service for snow removal. Onboard sensors track when snow blades are active, where and when salt or sand is applied, and the rate at which these materials are applied. Mississauga recently implemented an Advanced Traffic Management System (ATMS), which connected over 700 traffic intersections using its own high-capacity fiber optic and wireless Wi-Fi networks (see Chapter 7) along with the Rogers cellular network.

A City Hall pilot project created individual workspaces and collaboration units on the fifth floor so that staff can choose where they want to sit and work. Over 90 percent of the staff on that floor have no defined desk or desk phone, but they do have mobile technology to connect anywhere. A mobile working environment has helped the city attract younger employees, and it has transformed the way top management works as well. The city manager, commissioners, and directors are trading desktops for mobile devices.

Partnering with three other municipalities, Mississauga built its own high-speed fiber optic network known as the Public Sector Network (PSN). It is the largest municipally owned fiber optic network in Canada. This supports a citywide high-speed fiber network for transmitting large quantities of data and a wireless Wi-Fi network that supplies wireless connectivity to the public for many city services. Enterprise networking giant Cisco Canada helped the city build an extensive Wi-Fi network for all its community centers, libraries, arenas, and many outdoor locations such as parks and small business areas. This free Wi-Fi network is available as a "virtual campus" to college and university students around

the world. In 2018 over 8 million hours of free public Wi-Fi were used across the City. Providing public Wi-Fi access in so many locations across the city is one way for Mississauga to level the “digital divide” between residents who are technology “haves” and those who are technology “have-nots.”

Mississauga is working with the United Way, Region of Peel, University of Toronto at Mississauga, Sheridan College, and its Business Improvement Areas (BOAs) to build a mobile-friendly ecosystem across the city that can deliver services and digital technology to the entire community. The plan divides Mississauga into 23 defined communities, with one Hub center and 500 mobility kits to residents enrolled in social support programs per community. Each mobility kit consists of a connected laptop. Hubs will be developed jointly with several of the

large technology firms with Canadian headquarters in Mississauga and they will provide coworking spaces where their employees can do their work. Eventually the city will have 100 Hubs. The city is also planning to build 500 “Connects” across its 23 communities that will provide indoor and outdoor spaces with voice-supported digital screens and free Wi-Fi access. A “Connect” could be in a park, beside a bus stop, or inside a mall, and there citizens will find free Wi-Fi, a place to sit, and access to services and programs.

*Sources:* “SMRTCTY Master Plan,” [smartcity.mississauga.ca](http://smartcity.mississauga.ca), accessed February 9, 2020; Sophie Chapman, “Inside the City of Mississauga’s Technology Transformation Journey,” *Gigabit*, February 18, 2019; and Eric Emin Wood, “How the City of Mississauga Uses Mobile Technology to Engage Workers and Citizens Alike,” *IT World Canada*, May 7, 2018.

## CASE STUDY QUESTIONS

1. Describe the problems the City of Mississauga hoped to address using digital technology.
2. What technologies did Mississauga employ for a solution? Describe each of these technologies and the role each played in a solution.
3. What management, organization, and technology issues did the City of Mississauga have to address in developing a solution?
4. How did the technologies in this case improve operations and decision making at the City of Mississauga?

### 2-3 Why are systems for collaboration and social business so important, and what technologies do they use?

With all these systems and information, you might wonder how it is possible to make sense of them. How do people working in firms pull it all together, work toward common goals, and coordinate plans and actions? In addition to the types of systems we have just described, businesses need special systems to support collaboration and teamwork.

#### What Is Collaboration?

**Collaboration** is working with others to achieve shared and explicit goals. Collaboration focuses on task or mission accomplishment and usually takes place in a business or other organization and between businesses. You collaborate with a colleague in Tokyo who has expertise on a topic about which you know nothing. You collaborate with many colleagues in publishing a company blog. If you’re in a law firm, you collaborate with accountants in an accounting firm in servicing the needs of a client with tax problems.

Collaboration can be short-lived, lasting a few minutes, or longer term, depending on the nature of the task and the relationship among participants. Collaboration can be one-to-one or many-to-many.

Employees may collaborate in informal groups that are not a formal part of the business firm's organizational structure, or they may be organized into formal teams. **Teams** have a specific mission that someone in the business assigned to them. Team members need to collaborate on the accomplishment of specific tasks and collectively achieve the team mission. The team mission might be to "win the game" or "increase online sales by 10 percent." Teams are often short-lived, depending on the problems they tackle and the length of time needed to find a solution and accomplish the mission.

Collaboration and teamwork are more important today than ever for a variety of reasons.

- **Changing nature of work.** The nature of work has changed from factory manufacturing and precomputer office work where each stage in the production process occurred independently of one another and was coordinated by supervisors. Work was organized into silos. Within a silo, work passed from one machine tool station to another, from one desktop to another, until the finished product was completed. Today, jobs require much closer coordination and interaction among the parties involved in producing the service or product. For instance, a report from the consulting firm McKinsey & Company estimated that 41 percent of the U.S. labor force is now composed of jobs where interaction (talking, emailing, presenting, and persuading) is the primary value-adding activity (McKinsey Global Institute, 2012). Even in factories, workers today often work in production groups, or pods.
- **Growth of professional work.** "Interaction" jobs tend to be professional jobs in the service sector that require close coordination and collaboration. Professional jobs require substantial education and the sharing of information and opinions to get work done. Each actor on the job brings specialized expertise to the problem, and all the actors need to take one another into account in order to accomplish the job.
- **Changing organization of the firm.** For most of the industrial age, managers organized work in a hierarchical fashion. Orders came down the hierarchy, and responses moved back up the hierarchy. Today, work is organized into groups and teams, and the members are expected to develop their own methods for accomplishing the task. Senior managers observe and measure results but are much less likely to issue detailed orders or operating procedures. In part, this is because expertise and decision-making power have been pushed down in organizations.
- **Changing scope of the firm.** The work of the firm has changed from a single location to multiple locations—offices or factories throughout a region, a nation, or even around the globe. For instance, Henry Ford developed the first mass-production automobile plant at a single Dearborn, Michigan factory. In 2020, Ford employed 199,000 people at 61 plants worldwide. With this kind of global presence, the need for close coordination of design, production, marketing, distribution, and service obviously takes on new importance and scale. Large global companies need to have teams working on a global basis.
- **Emphasis on innovation.** Although we tend to attribute innovations in business and science to great individuals, these great individuals are most likely working with a team of brilliant colleagues. Think of Bill Gates and Steve Jobs (founders of Microsoft and Apple), both of whom are highly regarded innovators and both of whom built strong collaborative teams to nurture and support innovation in their firms. Their initial innovations derived from close collaboration with colleagues and partners. Innovation, in other words, is a group and social process, and most innovations derive from collaboration among individuals in a lab, a business, or government agencies. Strong collaborative practices and technologies are believed to increase the rate and quality of innovation.

- *Changing culture of work and business.* Most research on collaboration supports the notion that diverse teams produce better outputs faster than individuals working on their own. Popular notions of the crowd (“crowdsourcing” and the “wisdom of crowds”) also provide cultural support for collaboration and teamwork.

## What Is Social Business?

Many firms today enhance collaboration by embracing **social business**—the use of social networking platforms, including Facebook, Twitter, and internal corporate social tools—to engage their employees, customers, and suppliers. These tools enable workers to set up profiles, form groups, and “follow” each other’s status updates. The goal of social business is to deepen interactions with groups inside and outside the firm to expedite and enhance information sharing, innovation, and decision making.

A key word in social business is *conversations*. Customers, suppliers, employees, managers, and even oversight agencies continually have conversations about firms, often without the knowledge of the firm or its key actors (employees and managers).

Supporters of social business argue that if firms could tune in to these conversations, they would strengthen their bonds with consumers, suppliers, and employees, increasing their emotional involvement in the firm.

All of this requires a great deal of information transparency. People need to share opinions and facts with others quite directly, without intervention from executives or others. Employees get to know directly what customers and other employees think, suppliers will learn very directly the opinions of supply chain partners, and even managers presumably will learn more directly from their employees how well they are doing. Nearly everyone involved in the creation of value will know much more about everyone else.

If such an environment could be created, it is likely to drive operational efficiencies, spur innovation, and accelerate decision making. If product designers can learn directly about how their products are doing in the market in real time, based on consumer feedback, they can speed up the redesign process. If employees can use social connections inside and outside the company to capture new knowledge and insights, they will be able to work more efficiently and solve more business problems.

Table 2.2 describes important applications of social business inside and outside the firm. This chapter focuses on enterprise social business—its internal corporate uses. Chapters 7 and 10 describe social business applications relating to customers and suppliers outside the company.

**TABLE 2.2 APPLICATIONS OF SOCIAL BUSINESS**

SOCIAL BUSINESS APPLICATION	DESCRIPTION
Social networks	Connect through personal and business profiles
Crowdsourcing	Harness collective knowledge to generate new ideas and solutions
Shared workspaces	Coordinate projects and tasks; cocreate content
Blogs and wikis	Publish and rapidly access knowledge; discuss opinions and experiences
Social commerce	Share opinions about purchasing on social platforms
File sharing	Upload, share, and comment on photos, videos, audio, text documents
Social marketing	Use social media to interact with customers; derive customer insights
Communities	Discuss topics in open forums; share expertise

## Business Benefits of Collaboration and Social Business

Much of the research on collaboration has been anecdotal, but there is a general belief among both business and academic communities that the more a business firm is “collaborative,” the more successful it will be, and that collaboration within and among firms is more essential than in the past. *MIT Sloan Management Review’s* research found that a focus on collaboration is central to how digitally advanced companies create business value and establish competitive advantage (Kiron, 2017). A global survey of business and information systems managers found that investments in collaboration technology produced organizational improvements that returned more than four times the amount of the investment, with the greatest benefits for sales, marketing, and research and development functions (Frost & Sullivan, 2009). McKinsey & Company consultants predict that social technologies used within and across enterprises could potentially raise the productivity of interaction workers by 20 to 25 percent (McKinsey Global Institute, 2012).

Table 2.3 summarizes some of the benefits of collaboration and social business that have been identified. Figure 2.7 graphically illustrates how collaboration is believed to affect business performance.

## Building a Collaborative Culture and Business Processes

Collaboration won’t take place spontaneously in a business firm, especially in the absence of supportive culture or business processes. Business firms, especially large firms, had a reputation in the past for being “command and control” organizations where the top leaders thought up all the really important matters and then ordered lower-level employees to execute senior management plans. The job of middle management supposedly was to pass messages back and forth, up and down the hierarchy.

Command and control firms required lower-level employees to carry out orders without asking too many questions, with no responsibility to improve processes, and with no rewards for teamwork or team performance. If your work group needed help from another work group, that was something for the bosses to figure out. You never communicated horizontally, always vertically, so management could control the process. Together, the expectations of management

**TABLE 2.3 BUSINESS BENEFITS OF COLLABORATION AND SOCIAL BUSINESS**

BENEFIT	RATIONALE
Productivity	People interacting and working together can capture expert knowledge and solve problems more rapidly than the same number of people working in isolation from one another. There will be fewer errors.
Quality	People working collaboratively can communicate errors and corrective actions faster than if they work in isolation. Collaborative and social technologies help reduce time delays in design and production.
Innovation	People working collaboratively can come up with more innovative ideas for products, services, and administration than the same number working in isolation from one another. There are advantages to diversity and the “wisdom of crowds.”
Customer service	People working together using collaboration and social tools can solve customer complaints and issues faster and more effectively than if they were working in isolation from one another.
Financial performance (profitability, sales, and sales growth)	As a result of all of the above, collaborative firms have superior sales, sales growth, and financial performance.

### FIGURE 2.7 REQUIREMENTS FOR COLLABORATION

Successful collaboration requires an appropriate organizational structure and culture along with appropriate collaboration technology.

#### Collaboration Capability

- Open culture
- Decentralized structure
- Breadth of collaboration

#### Collaboration Technology

- Use of collaboration and social technology for implementation and operations
- Use of collaborative and social technology for strategic planning

#### Collaboration Quality

#### Firm Performance

and employees formed a culture, a set of assumptions about common goals and how people should behave. Many business firms still operate this way.

A collaborative business culture and business processes are very different. Senior managers are responsible for achieving results but rely on teams of employees to achieve and implement the results. Policies, products, designs, processes, and systems are much more dependent on teams at all levels of the organization to devise, to create, and to build. Teams are rewarded for their performance, and individuals are rewarded for their performance in a team. The function of middle managers is to build the teams, coordinate their work, and monitor their performance. The business culture and business processes are more “social.” In a collaborative culture, senior management establishes collaboration and teamwork as vital to the organization, and it actually implements collaboration for the senior ranks of the business as well.

## Tools and Technologies for Collaboration and Social Business

A collaborative, team-oriented culture won't produce benefits without information systems in place to enable collaboration, group decision making, and social business. Currently there are hundreds of tools designed to deal with the fact that, in order to succeed in our jobs, we are all much more dependent on one another, our fellow employees, customers, suppliers, and managers. Some of these tools are expensive, but others are available online for free (or with premium versions for a modest fee). Let's look more closely at some of these tools.

### Email and Instant Messaging (IM)

Email and instant messaging (including text messaging) have been major communication and collaboration tools for interaction jobs. Their software operates

on computers, mobile phones, tablets, and other wireless devices and includes features for sharing files as well as transmitting messages. Many instant messaging systems allow users to engage in real-time conversations with multiple participants simultaneously. In recent years, email use has declined, with messaging and social media becoming preferred channels of communication.

## Wikis

Wikis are a type of website that makes it easy for users to contribute and edit text content and graphics without any knowledge of web page development or programming techniques. The most well-known wiki is Wikipedia, the largest collaboratively edited reference project in the world. It relies on volunteers, makes no money, and accepts no advertising.

Wikis are very useful tools for storing and sharing corporate knowledge and insights. Enterprise software vendor SAP AG has a wiki that acts as a base of information for people outside the company, such as customers and software developers who build programs that interact with SAP software. In the past, those people asked and sometimes answered questions in an informal way on SAP online forums, but that was an inefficient system, with people asking and answering the same questions over and over.

## Virtual Worlds

Virtual worlds, such as Second Life, are online 3D environments populated by "residents" who have built graphical representations of themselves known as avatars. Companies like IBM, Cisco, and Intel Corporation have used the online world for meetings, interviews, guest speaker events, and employee training. Real-world people represented by avatars meet, interact, and exchange ideas at these virtual locations using gestures, chat conversations, and voice communication.

## Collaboration and Social Business Platforms

There are now software suites providing multifunction platforms for collaboration and social business among teams of employees who work together from different locations. The most widely used are Internet-based audio conferencing and videoconferencing systems, cloud collaboration services such as Google's online services and tools, corporate collaboration systems such as Microsoft SharePoint and IBM Notes, and enterprise social networking tools such as Salesforce Chatter, Microsoft Yammer, Facebook Workplace, and IBM Connections. Some of these are now being used by educational institutions to deal with the impact of COVID-19 (see the Interactive Session on Technology).

**Virtual Meeting Systems** In an effort to reduce travel expenses and enable people in different locations to meet and collaborate, many companies, both large and small, are adopting videoconferencing and web conferencing technologies. More companies are using these systems to enable their employees to work remotely as well as in the office.

A videoconference allows individuals at two or more locations to communicate simultaneously through two-way video and audio transmissions. High-end videoconferencing systems feature **telepresence** technology, an integrated audio and visual environment that allows a person to give the appearance of being present at a location other than his or her true physical location. Free or low-cost Internet-based systems such as Microsoft Teams, Google Meet, and Amazon Chime are lower quality but improving, and they are very useful for smaller companies. Apple's FaceTime is useful for one-to-one or small group videoconferencing. Zoom has emerged as a powerful videoconferencing tool with many features of high-end systems but is much less expensive and easier to use. Some of these tools are available on mobile devices.

## INTERACTIVE SESSION TECHNOLOGY

### Higher Education Redefined: Virtual Education at Ahlia University

Collaboration in educational institutions usually involves cooperation among students, faculties, sponsors, and universities. Unlike the corporate world, higher education institutions have generally fallen behind in adopting the latest technologies and have continued to rely primarily on face-to-face (F2F) collaboration. F2F learning predominates because of the widespread view that it helps students stay focused, connect with each other, follow a standard timetable, and improve their physical wellness and mental alertness. Faculties believe that it enables them to better understand and assess their students' qualities and shortcomings and to fulfill their roles as mentors. F2F learning enables students to share their perspectives and have their questions addressed with a level of personal interaction that digital learning cannot replicate.

However, the COVID-19 pandemic has forced universities to rethink their assumptions. Although many universities worldwide had already begun to implement virtual learning before the pandemic hit, they were at varying degrees of implementation when the lockdowns began, and many had to rush to catch up.

Ahlia University Bahrain, the country's first private university, has effectively moved the bulk of its operations and services online: teaching, academic advising, career development services, counseling services, digital library services, payment services, document management, internship programs, student activities, and student complaint services. The university prepared itself for the online transition by implementing a series of measures spread over a period of two to three months. This included addressing infrastructural requirements for online education: optimum Internet speed, network upgrades, and licensing of Microsoft and other open-source or affordable software packages. Short videos and manuals on how to use different technologies and e-learning platforms were prepared to help students, faculties, and administrative bodies. Online training and support were provided through a hotline, its official website, virtual training courses, as well as through WhatsApp, other social media, and YouTube videos. The university provided its members with access to Microsoft Office 365 and a library of e-books as well. Security policies were implemented to enhance the protection of information and privacy. Faculty underwent intensive training to strengthen the

educational process itself and ensure that there would be no disruption in the event of an emergency.

Microsoft SharePoint, a web-based cloud collaboration tool for information storage and management, had already been implemented by the university toward the end of 2019. SharePoint is used to share and maintain up-to-date information and to expand awareness of the university's plans, decisions, events, rules, and policies among students and faculty. SharePoint has built cohesion, harnessed collective knowledge, and driven organizational efficiency by sharing common resources. It has also promoted collaboration between the internal units of the university and external bodies.

To conduct classes online, Ahlia University chose Microsoft Teams, a collaborative tool that allows users to chat, make calls, share documents, and conduct meetings. The university's IT team linked time tables and class lists from the university's Student Information System database, which stores and tracks all student information, including grades and attendance records, to Microsoft Teams using application programming interfaces (APIs) to import relevant course details. Using Microsoft Teams has enabled the university to create a secure environment where access to Teams chats and groups is barred to outsiders. All classes are recorded so students can review and recall all that has been taught. Advice, career development, and counseling services for mental health issues have also been made available through Microsoft Teams chats and calls.

The course details and class list from the Student Information System have also been linked with Moodle, an open-source learning management system. This has contributed significantly to mass enrollment and secured authentication. Through Moodle, instructors use quizzes, chat messages, forums, workshops, uploaded course materials, assessments, and surveys with tracking and reminder options to improve their students' efficiency in studying and to ensure the timely completion of assignments and courses.

To conduct online webinars and conferences with industry specialists and other universities, Ahlia University has used Zoom in addition to Microsoft Teams. As of September 2020, the university has participated in 9 webinars, 12 local conferences, and 34 international debates and conferences involving universities and industry specialists from Asia, the United Kingdom, the United States, and the Middle

East. Before the adoption of platforms like Zoom and Microsoft Teams, the number of Ahlia University's international collaborations were limited to only around 11 per year. Moving discussions online has greatly reduced expenses due to travel while facilitating the exchange of knowledge and encouraging academic contributions. The success of these collaborations has

prompted Ahlia University to consider focusing on online platforms even after the pandemic is over.

*Sources:* Ahlia University-Bahrain, "COVID-19," [www.ahlia.edu.bh](http://www.ahlia.edu.bh), accessed December 17, 2020; Ahlia University, "WTUN Webinar Series—Online Learning and Teaching: Lessons Learned from COVID-19-Part 2," [Youtube.com](https://www.youtube.com/watch?v=JyfjwzXWQHk), July 21, 2020; Ahlia University, "WTUN Webinar Series—Online Learning and Teaching: Lessons Learned from COVID-19-Part 1," [Youtube.com](https://www.youtube.com/watch?v=JyfjwzXWQHk), July 21, 2020; Ahlia University, "How Virtual Learning Is Becoming a Key Ingredient in Delivering University Courses," [Facebook.com](https://www.facebook.com/ahliauniversity), April 9, 2020.

## CASE STUDY QUESTIONS

1. How does Microsoft Teams promote efficient collaboration in universities and colleges?
2. What management, organization, and technology-based issues did Ahlia University address before pivoting its operations to deal with the pandemic?

3. What advantages has using collaboration tools provided for Ahlia University?

*Case contributed by Subhashini Bhaskaran,  
Ahlia University*

**Cloud Collaboration Services** Google offers many online tools and services, and some are suitable for collaboration. They include Google Drive, Google Docs, G Suite, and Google Sites. Most are free of charge.

Google Drive is a file storage and synchronization service for cloud storage, file sharing, and collaborative editing. Such web-based online file-sharing services allow users to upload files to secure online storage sites from which the files can be shared with others. Microsoft OneDrive and Dropbox are other leading cloud storage services. They feature both free and paid services, depending on the amount of storage space and administration required. Users are able to synchronize their files stored online with their local PCs and other kinds of devices, with options for making the files private or public and for sharing them with designated contacts.

Google Drive and Microsoft OneDrive are integrated with tools for document creation and sharing. OneDrive provides online storage for Microsoft Office documents and other files and works with Microsoft Office apps, both installed and on the web. It can share to Facebook as well. Google Drive is integrated with Google Docs, Sheets, and Slides (often called Google Docs), a suite of productivity applications that offer collaborative editing on documents, spreadsheets, and presentations. Google's cloud-based productivity suite for businesses, called G Suite, also works with Google Drive. Google Sites allows users to quickly create online team-oriented sites where multiple people can collaborate and share files.

**Microsoft SharePoint and IBM Notes** Microsoft SharePoint is a browser-based collaboration and document management platform, combined with a powerful search engine, that is installed on corporate servers. SharePoint has a web-based interface and close integration with productivity tools such as Microsoft Office. SharePoint software makes it possible for employees to share their documents and collaborate on projects using Office documents as the foundation.

SharePoint can be used to host internal websites that organize and store information in one central workspace to enable teams to coordinate work activities, collaborate on and publish documents, maintain task lists, implement workflows, and share information via wikis and blogs. Users are able to control versions of documents and document security. Because SharePoint stores and organizes information in one place, users can find relevant information

**TABLE 2.4 ENTERPRISE SOCIAL NETWORKING SOFTWARE CAPABILITIES**

SOCIAL SOFTWARE CAPABILITY	DESCRIPTION
Profiles	Ability to set up member profiles describing who individuals are, educational background, interests. Includes work-related associations and expertise (skills, projects, teams).
Content sharing	Share, store, and manage content including documents, presentations, images, and videos.
Feeds and notifications	Real-time information streams, status updates, and announcements from designated individuals and groups.
Groups and team workspaces	Establish groups to share information, collaborate on documents, and work on projects with the ability to set up private and public groups and to archive conversations to preserve team knowledge.
Tagging and social bookmarking	Indicate preferences for specific pieces of content, similar to the Facebook Like button. Tagging lets people add keywords to identify content they like.
Permissions and privacy	Ability to make sure private information stays within the right circles, as determined by the nature of relationships. In enterprise social networks, there is a need to establish who in the company has permission to see what information.

quickly and efficiently while working closely together on tasks, projects, and documents. Enterprise search tools help locate people, expertise, and content. SharePoint now features social tools.

IBM Notes (formerly Lotus Notes) is a collaborative software system with capabilities for sharing calendars, email, messaging, collective writing and editing, shared database access, and online meetings. Notes software installed on desktop or laptop computers obtains applications stored on an IBM Domino server. Notes is web-enabled and offers an application development environment so that users can build custom applications to suit their unique needs. Notes has also added capabilities for blogs, microblogs, wikis, online content aggregators, help desk systems, voice and video conferencing, and online meetings. IBM Notes promises high levels of security and reliability and the ability to retain control over sensitive corporate information.

**Enterprise Social Networking Tools** The tools we have just described include capabilities for supporting social business, but there are also more specialized social tools for this purpose, such as Salesforce Chatter, Microsoft Yammer, Facebook Workplace, and IBM Connections. Enterprise social networking tools create business value by connecting the members of an organization through profiles, updates, and notifications similar to Facebook features but tailored to internal corporate uses. Table 2.4 provides more detail about these internal social capabilities.

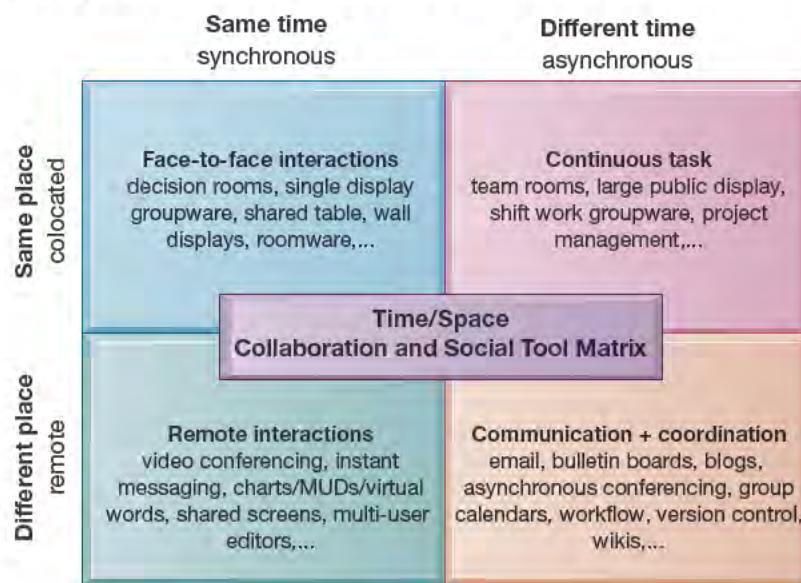
Although companies have benefited from enterprise social networking, internal social networking has not always been easy to implement. The chapter-ending case study addresses this topic.

### Checklist for Managers: Evaluating and Selecting Collaboration and Social Software Tools

With so many collaboration and social business tools and services available, how do you choose the right collaboration technology for your firm? To answer this question, you need a framework for understanding just what problems these tools are designed to solve. One framework that has been helpful for us to talk about collaboration tools is the time/space collaboration and social tool matrix developed in the early 1990s by a number of collaborative work scholars (Figure 2.8).

**FIGURE 2.8 THE TIME/SPACE COLLABORATION AND SOCIAL TOOL MATRIX**

Collaboration and social technologies can be classified in terms of whether they support interactions at the same or different times or places, and whether these interactions are remote or colocated.



The time/space matrix focuses on two dimensions of the collaboration problem: time and space. For instance, you need to collaborate with people in different time zones, and you cannot all meet at the same time. Midnight in New York is noon in Mumbai, so this makes it difficult to have a videoconference (the people in New York are too tired). Time is clearly an obstacle to collaboration on a global scale.

Place (location) also inhibits collaboration in large global or even national and regional firms. Assembling people for a physical meeting is made difficult by the physical dispersion of distributed firms (firms with more than one location), the cost of travel, and the time limitations of managers.

The collaboration and social technologies we have just described are ways of overcoming the limitations of time and space. Using this time/space framework will help you to choose the most appropriate collaboration and teamwork tools for your firm. Note that some tools are applicable in more than one time/place scenario. For example, Internet collaboration suites such as IBM Notes have capabilities for both synchronous (instant messaging, meeting tools) and asynchronous (email, wikis, document editing) interactions.

Here's a "to-do" list to get started. If you follow these six steps, you should be led to investing in the correct collaboration software for your firm at a price you can afford and within your risk tolerance.

1. What are the collaboration challenges facing the firm in terms of time and space? Locate your firm in the time/space matrix. Your firm can occupy more than one cell in the matrix. Different collaboration tools will be needed for each situation.
2. Within each cell of the matrix where your firm faces challenges, exactly what kinds of solutions are available? Make a list of vendor products.

3. Analyze each of the products in terms of its cost and benefits to your firm. Be sure to include the costs of training in your cost estimates and the costs of involving the information systems department, if needed.
4. Identify the risks to security and vulnerability involved with each of the products. Is your firm willing to put proprietary information into the hands of external service providers over the Internet? Is your firm willing to expose its important operations to systems controlled by other firms? What are the financial risks facing your vendors? Will they be here in three to five years? What would be the cost of making a switch to another vendor in the event the vendor firm fails?
5. Seek the help of potential users to identify implementation and training issues. Some of these tools are easier to use than others.
6. Make your selection of candidate tools, and invite the vendors to make presentations.

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## 2-4 What is the role of the information systems function in a business?

We've seen that businesses need information systems to operate today and that they use many different kinds of systems. But who is responsible for running these systems? Who is responsible for making sure the hardware, software, and other technologies used by these systems are running properly and are up to date? End users manage their systems from a business standpoint, but managing the technology requires a special information systems function.

### The Information Systems Department

In all but the smallest of firms, the **information systems department** is the formal organizational unit responsible for information technology services. The information systems department is responsible for maintaining the hardware, software, data storage, and networks that comprise the firm's IT infrastructure. We describe IT infrastructure in detail in Chapter 5.

The information systems department consists of specialists, such as programmers, systems analysts, project leaders, and information systems managers. **Programmers** are highly trained technical specialists who write the software instructions for computers. **Systems analysts** constitute the principal liaisons between the information systems groups and the rest of the organization. It is the systems analyst's job to translate business problems and requirements into information requirements and systems. **Information systems managers** are leaders of teams of programmers and analysts, project managers, physical facility managers, telecommunications managers, or database specialists. They are also managers of computer operations and data entry staff. Also, external specialists, such as hardware vendors and manufacturers, software firms, and consultants, frequently participate in the day-to-day operations and long-term planning of information systems.

In many companies, the information systems department is headed by a **chief information officer (CIO)**. The CIO is a senior manager who oversees the use of information technology in the firm. Today's CIOs are expected to have a strong business background as well as information systems expertise and to play a leadership role in exploring new technologies and integrating technology into the firm's business strategy. Large firms today also have

positions for a chief security officer, chief knowledge officer, chief data officer, and chief privacy officer, all of whom work closely with the CIO.

The **chief security officer (CSO)** is in charge of information systems security for the firm and is responsible for enforcing the firm's information security policy (see Chapter 8). (Sometimes this position is called the chief information security officer [CISO] where information systems security is separated from physical security.) The CSO is responsible for educating and training users and information systems specialists about security, keeping management aware of security threats and breakdowns, and maintaining the tools and policies chosen to implement security.

Information systems security and the need to safeguard personal data have become so important that corporations collecting vast quantities of personal data have established positions for a **chief privacy officer (CPO)**. The CPO is responsible for ensuring that the company complies with existing data privacy laws.

The **chief knowledge officer (CKO)** is responsible for the firm's knowledge management program. The CKO helps design programs and systems to find new sources of knowledge or to make better use of existing knowledge in organizational and management processes.

The **chief data officer (CDO)** is responsible for enterprise-wide governance and utilization of information to maximize the value the organization can realize from its data. The CDO ensures that the firm is collecting the appropriate data to serve its needs, deploying appropriate technologies for analyzing the data, and using the results to support business decisions. This position arose to deal with the very large amounts of data organizations are now generating and collecting (see Chapter 6).

**End users** are representatives of departments outside the information systems group for whom applications are developed. These users are playing an increasingly large role in the design and development of information systems.

In the early years of computing, the information systems group was composed mostly of programmers who performed highly specialized but limited technical functions. Today, a growing proportion of staff members are systems analysts and network specialists, with the information systems department acting as a powerful change agent in the organization. The information systems department suggests new business strategies and new information-based products and services and coordinates both the development of the technology and the planned changes in the organization.

Information technology occupations in the United States were projected to grow 12 percent from 2018 through 2028, adding 546,200 new jobs (U.S. Bureau of Labor Statistics, 2020). Although all IT/IS occupations show above-average growth, jobs for information security analysts, data scientists, network analysts, machine learning engineers, cloud engineers, application developers, web developers, and business intelligence analysts are especially in demand. Demand for computer programmers has been declining, in part because the process of creating computer programs is becoming increasingly efficient with the growth of online software services, cloud computing, and outsourcing of coding to low-wage countries.

## Organizing the Information Systems Function

There are many types of business firms, and there are many ways in which the IT function is organized within the firm. A very small company will not have a formal information systems group. It might have one employee who

is responsible for keeping its networks and applications running, or it might use consultants for these services. Larger companies will have a separate information systems department, which may be organized along several different lines, depending on the nature and interests of the firm. Our Learning Track describes alternative ways of organizing the information systems function within the business.

The question of how the information systems department should be organized is part of the larger issue of IT governance. **IT governance** includes the strategy and policies for using information technology within an organization. It specifies the decision rights and framework for accountability to ensure that the use of information technology supports the organization's strategies and objectives. How much should the information systems function be centralized? What decisions must be made to ensure effective management and use of information technology, including the return on IT investments? Who should make these decisions? How will these decisions be made and monitored? Firms with superior IT governance will have clearly thought out the answers.



## 2-5 How will MIS help my career?

Here is how Chapter 2 and this book can help you find a job as a sales support specialist.

### The Company

Comprehensive Supplemental Insurance is a leading provider of individual supplemental accident, disability, health, and life insurance products. It is headquartered in Amsterdam and has an open position for an entry-level sales support specialist. The company offers supplemental insurance to complement existing employer benefits programs, maintaining a field sales force and corporate staff of over 5,000 people worldwide. It is known for investing in its employees and their career development.

### Position Description

This position will provide overall systems, administrative, and data management support to the national sales organization for the company's division that markets to small businesses. Job responsibilities include:

- Daily administration and support of the firm's Salesforce.com customer relationship management system, including managing user setup, profiles and roles, and validating data.
- Assisting with data management and providing system training and ongoing support to the field.
- Preparing routine weekly, monthly, and quarterly sales and key performance indicator reports for sales management.
- Preparing agent commission reports and creating new reports as requested.
- Supporting various projects related to agent licensing and agent compensation.

## Job Requirements

- Strong Excel skills plus some knowledge of data management
- Strong customer service skills
- Strong analytical, critical thinking, and communication skills
- Ability to multitask in a fast-paced environment
- College degree or two years of equivalent experience

## Interview Questions

1. What do you know about customer relationship management? Have you ever worked with Salesforce.com? If so, what have you used the system for?
2. What do you know about data management? Have you ever worked with data management software? If so, what exactly have you done with it?
3. Tell us what you can do with Excel. What kinds of problems have you used Excel to solve? Did you take courses in Excel?
4. Have you ever worked in customer service? What exactly did you do? What do you think is required to take on a successful client-oriented role for this company's agents and customers?
5. Can you give an example of a client service challenge you had to face? How did you approach this challenge?

## Author Tips

1. Review the section of this chapter on enterprise applications, the Chapter 9 discussion of customer relationship management, and Chapter 6 on data management.
2. Use the web and the professional networking site LinkedIn to find out more about the company, its insurance products and services, and the way it operates. Think about what it needs to do to support its agents and its customers and why customer relationship management and data management are so important. You might inquire about your responsibilities for data management in this job position.
3. Learn what you can about Salesforce.com, especially how to set up user profiles and roles and how to validate data. Indicate you want to learn more about Salesforce and work with this tool.
4. Inquire how you would be using Excel; for example, calculating agent commissions. If you've never done that before, show some of the Excel work you have done (and perhaps bring examples with you to the interview). Show that you would be eager to learn what you don't know in Excel to fulfill your job assignments.

## REVIEW SUMMARY

### 2-1 What are business processes? How are they related to information systems?

A business process is a logically related set of activities that defines how specific business tasks are performed, and it represents a unique way in which an organization coordinates work, information, and knowledge. Managers need to pay attention to business processes because they determine how well the organization can execute its business, and they may be a source of strategic advantage. There are business processes specific to each of the major business functions, but many business processes are cross-functional. Information systems automate parts of business processes, and they can help organizations redesign and streamline these processes.

### 2-2 How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance?

Systems serving operational management are transaction processing systems (TPS), such as payroll or order processing, that track the flow of the daily routine transactions necessary to conduct business. Management information systems (MIS) produce reports serving middle management by condensing information from TPS, and these are not highly analytical. Decision-support systems (DSS) support management decisions that are unique and rapidly changing using advanced analytical models. All of these types of systems provide business intelligence that helps managers and enterprise employees make more-informed decisions. These systems for business intelligence serve multiple levels of management and include executive support systems (ESS) for senior management that provide data in the form of graphs, charts, and dashboards delivered via portals using many sources of internal and external information.

Enterprise applications are designed to coordinate multiple functions and business processes. Enterprise systems integrate the key internal business processes of a firm into a single software system to improve coordination and decision making. Supply chain management systems help the firm manage its relationship with suppliers to optimize the planning, sourcing, manufacturing, and delivery of products and services. Customer relationship management (CRM) systems coordinate the business processes surrounding the firm's customers. Knowledge management systems enable firms to optimize the creation, sharing, and distribution of knowledge. Intranets and extranets are private corporate networks based on Internet technology that assemble information from disparate systems. Extranets make portions of private corporate intranets available to outsiders.

### 2-3 Why are systems for collaboration and social business so important, and what technologies do they use?

Collaboration is working with others to achieve shared and explicit goals. Social business is the use of internal and external social networking platforms to engage employees, customers, and suppliers, and it can enhance collaborative work. Collaboration and social business have become increasingly important in business because of globalization, the decentralization of decision making, and growth in jobs where interaction is the primary value-adding activity. Collaboration and social business enhance innovation, productivity, quality, and customer service. Tools for collaboration and social business include email and instant messaging, wikis, virtual meeting systems, virtual worlds, cloud-based file-sharing services, corporate collaboration systems such as Microsoft SharePoint and IBM Notes, and enterprise social networking tools such as Chatter, Yammer, and IBM Connections.

### 2-4 What is the role of the information systems function in a business?

The information systems department is the formal organizational unit responsible for information technology services. It is responsible for maintaining the hardware, software, data storage, and networks that comprise the firm's IT infrastructure. The department consists of specialists, such as programmers, systems analysts, project leaders, and information systems managers, and is often headed by a CIO.

## Key Terms

*Business intelligence*, 77  
*Chief data officer (CDO)*, 97  
*Chief information officer (CIO)*, 96  
*Chief knowledge officer (CKO)*, 97  
*Chief privacy officer (CPO)*, 97  
*Chief security officer (CSO)*, 97  
*Collaboration*, 86  
*Customer relationship management (CRM) systems*, 83  
*Decision-support systems (DSS)*, 78  
*Digital dashboard*, 80  
*Electronic business (e-business)*, 84  
*Electronic commerce (e-commerce)*, 84  
*E-government*, 84  
*End users*, 97  
*Enterprise applications*, 81  
*Enterprise systems*, 82

*Executive support systems (ESS)*, 80  
*Information systems department*, 96  
*Information systems managers*, 96  
*Interorganizational system*, 83  
*IT governance*, 98  
*Knowledge management systems (KMS)*, 83  
*Management information systems (MIS)*, 78  
*Portal*, 80  
*Programmers*, 96  
*Social business*, 88  
*Supply chain management (SCM) systems*, 83  
*Systems analysts*, 96  
*Teams*, 87  
*Telepresence*, 91  
*Transaction processing systems (TPS)*, 76

### MyLab MIS

To complete the problems marked with MyLab MIS, go to the EOC Discussion Questions in MyLab MIS.

## Review Questions

**2-1 What are business processes? How are they related to information systems?**

- Describe with examples how business processes are tied to the specific functional area of an organization.
- List and describe the business processes involved in fulfilling a customer order.

**2-2 How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance?**

- Describe the characteristics of transaction processing systems (TPS) and the roles they play in a business.
- Describe the characteristics of business intelligence and explain why it is important in terms of decision-making.
- Identify which layer of management is most likely to use MIS and why.
- Describe how business intelligence systems also address the decision-making needs of senior management.
- Explain how a digital dashboard works.
- Explain how and why an organization might want to implement enterprise applications. What might be involved?

- Explain how customer relationship management helps an organization manage their interactions with customers.

**2-3 Why are systems for collaboration and social business so important, and what technologies do they use?**

- Define collaboration and social business and explain why they have become so important in business today.
- List and describe the business benefits of collaboration and social business.
- Describe a supportive organizational culture and business processes for collaboration.
- List and describe the various types of collaboration and social business tools.

**2-4 What is the role of the information systems function in a business?**

- Describe how the information systems function supports a business.
- Compare the roles played by programmers, systems analysts, information systems managers, the chief information officer (CIO), the chief security officer (CSO), the chief data officer (CDO), and the chief knowledge officer (CKO).

## Discussion Questions

- 2-5** How could information systems be used to support the order fulfillment process illustrated in Figure 2.1? What are the most important pieces of information these systems should capture? Explain your answer.
- 2-6** Identify the steps that are performed in the process of selecting and checking out a book from your college library and
- 2-7** Use the time/space collaboration and social tool matrix to classify the collaboration and social technologies used by the Sharp Corporation.

## Hands-On MIS Projects

The projects in this section give you hands-on experience analyzing opportunities to improve business processes with new information system applications, using a spreadsheet to improve decision making about suppliers, and using Internet software to plan efficient transportation routes. Visit MyLab MIS to access this chapter's Hands-On MIS Projects.

### Management Decision Problems

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- 2-8** Heli is a manager at MoiMoiPixel, a Finnish startup developing free, fast-paced casual games for mobile platforms. MoiMoiPixel has been a success, gathering over 10 million returning players within a very short time. Nevertheless, the company is bleeding due to associated costs of hosting the game for all these players and paying salaries to the current staff of 40. Heli realizes the company doesn't know the players at all—when they play, why they play, where they live, and so on. Further, there is no communication at all with the players, and simply meeting at the coffee machine and sending emails is not enough to communicate efficiently with the growing staff. Help Heli by providing three suggestions for improving revenue and communication using information systems.
- 2-9** PetFence is based in Birmingham, in the United Kingdom, and makes custom-made fences to protect cats and dogs in household gardens. The company takes orders via email, designs the fence together with the client, and builds it in the client's garden. Finally, an invoice is sent to the client. PetFence depends on having just the right amount of necessary parts—too few and the work is delayed; too many and the storage fills up quickly. As business transactions are agreed on over the phone or by email, they sometimes forget to charge clients and pay suppliers. Moreover, email requests from prospective clients are often lost in the email flood, leading to missed sales opportunities and credibility issues. In what ways could information systems help PetFence? What issues can information systems not help them with?

### Improving Decision Making: Using a Spreadsheet to Select Suppliers

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Software skills: Spreadsheet date functions, data filtering, DAVERAGE function

Business skills: Analyzing supplier performance and pricing

- 2-10** In this exercise, you will learn how to use spreadsheet software to improve management decisions about selecting suppliers. You will filter transactional data on suppliers based on several different criteria to select the best suppliers for your company.

You run a company that manufactures aircraft components. You have many competitors who are trying to offer lower prices and better service to customers, and you are trying to determine whether you can benefit from better supply chain management. In MyLab MIS, you will find a spreadsheet file that contains a list of all of the items that your firm has ordered from its suppliers during the past three months. The fields in the spreadsheet file include vendor name, vendor identification number, purchaser's order number, item identification number and item description (for each item ordered from the vendor), cost per item, number of units of the item ordered (quantity), total cost of each order, vendor's accounts payable terms, order date, and actual arrival date for each order.

Prepare a recommendation of how you can use the data in this spreadsheet database to improve your decisions about selecting suppliers. Some criteria to consider for identifying preferred suppliers include the supplier's track record for on-time deliveries, suppliers offering the best accounts payable terms, and

the information that flows among these activities. Diagram the process. Are there any ways this process could be changed to improve the performance of your library or your school? Diagram the improved process.

suppliers offering lower pricing when the same item can be provided by multiple suppliers. Use your spreadsheet software to prepare reports to support your recommendations.

## Achieving Operational Excellence: Using Internet Software to Plan Efficient Transportation Routes

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Software skills: Internet-based software

Business skills: Transportation planning

- 2-11** In this exercise, you will use Google Maps to map out transportation routes for a business and select the most efficient route.

You have just started working as a dispatcher for Kräiz Land Transport, a new trucking and delivery service based in Luxembourg. Your first assignment is to plan a delivery of office equipment and furniture from Esch-sur-Alzette to Niederanven. To guide your trucker, you need to know the most efficient route between the two cities. Use Google Maps to find the route that is the shortest distance between the two cities. Use Google Maps again to find the route that takes the least time. Compare the results. Which route should Cross-Country use?

## Collaboration and Teamwork Project

### Identifying Management Decisions and Systems

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- 2-12** With a team of three or four other students, find a description of a manager in a corporation in *The Financial Times*, *Forbes*, *Fortune*, the *The Economist*, or another business publication, or do your research on the web. Gather information about what the manager does and the role he or she plays in the company. Identify the organizational level and business function where this manager works. Make a list of the kinds of decisions this manager has to make and the kind of information the manager would need for those decisions. Suggest how information systems could supply this information. If possible, use Google Docs and Google Drive or Google Sites to brainstorm, organize, and develop a presentation of your findings for the class.

## Is Social Business Good Business?

### CASE STUDY

**A**s companies become more dispersed in the global marketplace, businesses are turning increasingly to workplace collaboration technology, including tools for internal social networking. These tools can promote employee collaboration and knowledge sharing, and help employees make faster decisions, develop more innovative ideas for products and services, and become more engaged in their work and their companies.

Adoption of internal enterprise social networking is also being driven by the flood of email that employees typically receive each day and are increasingly unable to handle. Hundreds of email messages must be opened, read, answered, forwarded, or deleted. For example, Winnipeg, Manitoba-based Duha Group, which produces color paint samples and color systems for paint companies across the globe, was able to eliminate 125,000 excess emails per year by adopting Salesforce Chatter social collaboration tools. Managing Director Emeric Duha, who used to receive 50 emails each morning from Asia, Europe, and Australia, now has a Chatter feed of everything going on in the company.

Another driver of enterprise social networking is "app fatigue." In order to collaborate, many employees have to log on to numerous apps, creating additional work. Contemporary enterprise social networking systems often integrate multiple capabilities in one place.

Recent studies have found that collaboration tools could be effective in boosting efficiency and productivity, while enabling users to make better business decisions. The products also expanded the potential for innovation. Not all companies, however, are successfully using them. Implementation and adoption of enterprise social networking depends not only on the capabilities of the technology but on the organization's culture and the compatibility of these tools with the firm's business processes. The technologies won't provide benefits if they are applied to flawed business processes and organizational behaviors. Digital collaboration tools such as Microsoft Teams, Chatter, Yammer, Zoom, and WebEx added to email, texting, and messaging may enmesh employees in too many interactions, leaving even less time for in-depth individual thinking and problem-solving.

When firms introduce new social media technology (as well as other technologies), a sizable number of employees resist the new tools, clinging to old ways of working, including email, because they are more familiar and comfortable. There are companies where employees have duplicated communication on both social media and email, increasing the time and cost of performing their jobs. BASF, the world's largest chemical producer with subsidiaries and joint ventures in more than 80 countries, prohibited some project teams from using email to encourage employees to use new social media tools.

Social business requires a change in thinking, including the ability to view the organization more democratically in a flatter and more horizontal way. A social business is much more open to everyone's ideas. A secretary, assembly line worker, or sales clerk might be the source of the next big idea. As a result, getting people to espouse social business tools requires more of a "pull" approach, one that engages workers and offers them a significantly better way to work. In most cases, they can't be forced to use social apps.

Enterprise capabilities for managing social networks and sharing digital content can help or hurt an organization. Social networks can provide rich and diverse sources of information that enhance organizational productivity, efficiency, and innovation, or they can be used to support preexisting groups of like-minded people that are reluctant to communicate and exchange knowledge with outsiders. Productivity and morale will fall if employees use internal social networks to criticize others or pursue personal agendas.

Social business applications modeled on consumer-facing platforms such as Facebook and Twitter will not necessarily work well in an organization or organizational department that has incompatible objectives. Will the firm use social business for operations, human resources, or innovation? The social media platform that will work best depends on its specific business purpose. Additionally employees who have actively used Facebook and Twitter in their personal lives are often hesitant to use similar social tools for work

purposes because they see social media primarily as an informal, personal means of self-expression and communication with friends and family. Most managers want employees to use internal social tools to communicate informally about work, but not to discuss personal matters. Employees accustomed to Facebook and Twitter may have trouble imagining how they could use social tools without getting personal.

This means that instead of focusing on the technology, businesses should first identify how social initiatives will actually improve work practices for employees and managers. They need a detailed understanding of social networks: how people are currently working, with whom they are working, what their needs are, and measures for overcoming employee biases and resistance.

A successful social business strategy requires leadership and behavioral changes. Just sponsoring a social project is not enough—managers need to demonstrate their commitment to a more open, transparent work style. Employees who are used to collaborating and doing business in more traditional ways need an incentive to use social software. Changing an organization to work in a different way requires enlisting those most engaged and interested in helping, and designing and building the right workplace environment for using social technologies.

Management needs to ensure that the internal and external social networking efforts of the company are providing genuine value to the business. Content on the networks needs to be relevant, up-to-date, and easy to access; users need to be able to connect to people who have the information they need and would otherwise be out of reach or difficult to reach. Social business tools should be appropriate for the tasks on hand and the organization's business processes, and users need to understand how and why to use them.

For example, NASA's Goddard Space Flight Center had to abandon a custom-built enterprise social network called Spacebook because no one knew how its social tools would help people do their jobs. Spacebook had been designed and developed without taking into consideration the organization's culture and politics. This is not an isolated phenomenon. Dimension Data found that one-fourth of the 900 enterprises it surveyed focused more on the successful implementation of collaboration technology, rather than how it's used and adopted.

Despite the challenges associated with launching an internal social network, there are companies using these networks successfully. One company that has made social business work is Standard Bank, Africa's largest financial services provider, which operates in 33 countries (including 19 in Africa). Standard Bank has embraced social business to keep up with the pace of twenty-first-century business. The bank is using Microsoft Yammer to help it become a more dynamic organization.

Use of Yammer at Standard Bank started to take off in 2013, when the bank staged an important conference for its executives around the world and was looking for a collaborative platform for communicating conference logistics and posting content such as PowerPoint presentations. Many agencies and consultants who worked for the bank used Yammer and liked the tool. Once conference participants saw how intuitive and useful Yammer was, they wanted to use it in their own operations. Usage exploded, and the Yammer social network grew to over 20,000 users just six months after Standard Bank adopted the Enterprise version. Belinda Carreira, Standard Bank's Executive Head of Interactive Marketing, is also reaching out to departments most likely to benefit from enterprise social networking.

Standard Bank has over 400 Yammer social groups. Many are organized around projects and problem-solving, such as finding credit card solutions that work well in African countries. Yammer has become a platform for listening, where employees can easily share their concerns and insights. Yammer is also used for internal education. Yammer enables trainers to present more visual and varied material than in the past, including videos from the Internet. In some locations, the Internet may be down for half the day, but Standard's employees are still able to access Yammer on their mobile phones.

Carreira notes that successful adoption and use of a social tool such as Yammer will hit roadblocks without proper planning and organizational buy-in. Many factors must be considered. Carreira recommends that Yammer implementors work closely with their organization's IT department, risk and compliance teams, human resources, communications department, and executive leadership across the organization. In addition to internal resources, Standard Bank drew on expertise provided by Yammer and Microsoft.

Northwards Housing, a nonprofit organization providing affordable housing services in Manchester, England, has an open organizational culture, which encourages two-way communication and information transparency. Northwards has 340 employees, who do everything from rent collection to scheduling repairs and cleaning maintenance. The organization wanted a way of exchanging information internally and with its customers that was easy to use and did not require much time for technical updates. Northwards introduced Yammer in 2012 and now has 85 percent of employees engaged with the network.

Steve Finegan, Northward's Head of Business Effectiveness and Communication, believes executive support was critical to the network's growth. The Northwards CEO regularly participates in discussions, posts links to news stories of interest, and publishes a blog. The organization's executive directors, who were initially skeptical about Yammer's benefits, now actively post content on the network and answer questions.

*Sources:* "Duha Group Innovates by Inviting Their Customers into the Manufacturing Process Using Salesforce," www.salesforce.com, accessed March 26, 2020; "Standard Bank," media.featured-customers.com, accessed February 12, 2020"; "Building a Better Enterprise with Yammer," Microsoft.com, accessed February 12, 2020; Ethan Bernstein, Jesse Shore, and David Lazer, "Improving the Rhythm of Your Collaboration," *MIT Sloan Management Review*, Fall 2019; Margaret Jones Cordelia Kroob, "The Growth of an Enterprise Social Network at BASF," www.simply-communicate.com, accessed March 12, 2018; Paul Leonardi and Tsedal Neeley, "What Managers Need to Know About Social Tools," *Harvard Business Review*, November–December 2017; and Dimension Data, "2016 Connected Enterprise Report," 2016.

## CASE STUDY QUESTIONS

- 2-13** Identify the management, organization, and technology factors affecting adoption of internal corporate social networks.
- 2-14** Compare the experiences implementing internal social networks of the organizations described in this case. Why was Standard Bank successful? What role did management play in this process?
- 2-15** Should all companies implement internal enterprise social networks? Why or why not?

## Chapter 2 References

- Aral, Sinan, Erik Brynjolfsson, and Marshall Van Alstyne. "Productivity Effects of Information Diffusion in Networks." MIT Center for Digital Business (July 2007).
- Arena, Michael, Rob Cross, Jonathan Sims, and Mary Uhl-Bien. "How to Catalyze Innovation in Your Organization." *MIT Sloan Management Review* (Summer 2017).
- Banker, Rajiv D., Nan Hu, Paul A. Pavlou, and Jerry Luftman. "CIO Reporting Structure, Strategic Positioning, and Firm Performance." *MIS Quarterly* 35, No. 2 (June 2011).
- Bernstein, Ethan, Jesse Shore, and David Lazer. "Improving the Rhythm of Your Collaboration." *MIT Sloan Management Review* (Fall 2019).
- Bughin, Jacques, Michael Chui, and Martin Harrysson. "How Social Tools Can Reshape the Organization." McKinsey Global Institute (May 2016).
- Bureau of Labor Statistics. "Computer and Information Technology Occupations." *Occupational Outlook Handbook*. bls.gov, accessed February 12, 2020.
- Colony, George F. "CIOs and the Future of IT." *MIT Sloan Management Review* (Spring 2018).
- Cross, Rob, Thomas H. Davenport, and Peter Gray. "Collaborate Smarter, Not Harder." *MIT Sloan Management Review* (Fall 2019).
- Cummings, Jeff, and Alan Dennis. "Virtual First Impressions Matter: The Effect of Enterprise Social Networking on Impression Formation in Virtual Teams." *MIS Quarterly* 42, No. 3 (September 2018).
- Forrester Research. "Social Business: Delivering Critical Business Value." (April 2012).
- Frost & Sullivan. "Meetings Around the World II: Charting the Course of Advanced Collaboration." (October 14, 2009).
- Gino, Francesca. "Cracking the Code of Sustained Collaboration." *Harvard Business Review* (November–December 2019).
- Harvard Business Review Analytic Services. "Collaboration Technology Boosts Organizations." Insight Enterprises Inc. (February 13, 2017).
- Kane, Gerald C. "Enterprise Social Media: Current Capabilities and Future Possibilities." *MIS Quarterly Executive* 14, No. 1 (2015).
- Kane, Gerald C., Doug Palmer, Anh Nguyen Phillips, and David Kiron. "Finding the Value in Social Business." *MIT Sloan Management Review* 55, No. 3 (Spring 2014).
- Kiron, David. "Why Your Company Needs More Collaboration," *MIT Sloan Management Review* (Fall 2017).
- Leonardi, Paul, and Tsedal Neeley. "What Managers Need to Know About Social Tools." *Harvard Business Review* (November–December 2017).

- Li, Charlene. "Making the Business Case for Enterprise Social Networks." Altimeter Group (February 22, 2012).
- Maruping, Likoebe M., and Massimo Magni. "Motivating Employees to Explore Collaboration Technology in Team Contexts." *MIS Quarterly* 39, No. 1 (March 2015).
- McKinsey & Company. "Transforming the Business Through Social Tools." (2015).
- McKinsey Global Institute. "The Social Economy: Unlocking Value and Productivity Through Social Technologies." McKinsey & Company (July 2012).
- Mortensen, Mark. "Technology Alone Won't Solve Our Collaboration Problems." *Harvard Business Review* (March 26, 2015).
- Ross, Jeanne. "Architect Your Company for Agility." *MIT Sloan Management Review* (January 10, 2018).
- Srivastava, Shirish, and Shalini Chandra. "Social Presence in Virtual World Collaboration: An Uncertainty Reduction Perspective Using a Mixed Methods Approach." *MIS Quarterly* 42, No. 3 (September 2018).
- Stackpole, Beth. "The New CIO Charter." *CIO* (Spring 2020).
- U.S. Bureau of Labor Statistics. "Computer and Information Technology Occupations." Occupational Outlook Handbook. bls.gov, accessed February 12, 2020.
- Weill, Peter, and Jeanne W. Ross. *IT Governance*. Boston: Harvard Business School Press (2004).