Management Information Systems Managing the Digital Firm 15th edition Laudon Solutions Manual

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Chapter 2
Global E-Business and Collaboration

Student Learning Objectives

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?

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Key Terms

The following alphabetical list identifies the key terms discussed in this chapter. The page number for each key term is provided.

Business intelligence, 48
Chief data officer (CDO), 68
Chief information officer (CIO), 68
Chief knowledge officer (CKO), 68
Chief privacy officer (CPO), 68
Chief security officer (CSO), 68
Collaboration, 57
Customer relationship management (CRM) systems, 55
Decision-support systems (DSS), 49
Digital dashboard, 51
Electronic business (e-business), 56
Electronic commerce (e-commerce), 56
E-government, 56
End users, 68
Enterprise applications, 54
Enterprise systems, 54
Executive support systems (ESS), 50
Information systems department, 68
Information systems managers, 68
Interorganizational system, 55
IT governance, 69
Knowledge management systems (KMS), 55
Management information systems (MIS), 48
Portal, 50
Programmers, 68
Social business, 58
Supply chain management (SCM) systems, 55
Systems analysts, 68
Teams, 57
Telepresence, 62
Transaction processing systems (TPS), 46

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Teaching Suggestions

The opening vignette, "Enterprise Social Networking helps ABB innovate and grow," provides an outstanding example of how the company embraced social business tools to significantly reduce its expenses while it also increased the amount of learning and education available to its employees. These technologies are the very same ones every business needs to succeed.

Collaboration and sharing information are essential for ABB's continued growth and business success among its 135,000 employees in 100 countries. Even though the company already had an intranet, it was too static and outmoded to meet its current needs for empowering and energizing employees. Employees were storing information in a variety of places other than the intranet including wikis, local file servers, and other knowledge platforms.

ABB needed a central resource that would support dynamic knowledge sharing and give employees tools to help them work more closely together. A dynamic and social-media enabled platform called Inside+ gave ABB employees a single entry point to all the information and tools they need including Microsoft Yammer, Office 365, and SharePoint.

Inside+ integrates all the key internal platforms that employees use while making Yammer conversations searchable through archives. Employees use the new tools to collaborate on projects, share ideas, and discover people in other department with useful expertise. Discussions are more productive and have improved employee engagement. Staff can access Inside+ from smartphones and tablets making them more productive. The company has also saved on conference costs using online tools. And thanks to the new system, many more employees feel closely involved with the business as a whole.

Section 2-1, "What are business processes? How are they related to information systems?" Table 2-1 may help students understand that every business, large and small, uses the same basic business processes. Referring back to this table may help as you examine information needs for each functional area. You could have students select a business with which they are familiar and identify some of the business processes involved in each of the basic functional areas.

Another good classroom exercise is to use Figure 2-1 to compare how the order fulfillment process can be accomplished sequentially, as the figure shows, versus simultaneously as a new information system would allow.

Section 2-2, "How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance?"
This section focuses on how information systems serve various management levels in companies. The ultimate goal is for students to realize that one system helps serve other systems and, working together, all the systems serve the entire organization.

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Type of System	Information Inputs	Information Outputs	Users
Transaction Processing Systems (TPS)	Transactions; daily events	Detailed reports; lists; summaries	Operations personnel; first-line supervisors
Management Information Systems (MIS)	Summary transaction data; high-volume data; simple models	Summary and exception reports	Middle managers
Decision Support Systems (DSS)	Optimized for data analysis, analytic models, and data analysis tools	Interactive; simulations; analysis	Professionals; staff managers
Executive Support Systems (ESS)	Aggregate data; external, internal	Projections; responses to queries	Senior managers

It's likely students' main encounter will be with TPS systems when they first begin their careers. Stress the importance of accurate data at the TPS level because it serves as the initial source for the other systems.

Typically, DSS and ESS systems will be the least familiar. Students may better understand them if you ask these types of questions: Why do national retail chains open stores in certain locations and not others? How can a retail chain determine which type of clothing to stock at different geographic locations?

Most importantly, students need to understand that each type of information system supports the different kinds of decisions made at each managerial level.

It's quite possible students feel overwhelmed by all the different kinds of information systems described in the first part of this section. "*Systems for Linking the Enterprise"* helps you tie together all of the information systems into a cohesive package and shows how data and information can flow seamlessly through an organization.

Enterprise systems: Central to this section is the need to coordinate activities, decisions, and knowledge across the firm's different levels, functions, and business units. Enterprise systems use a single central data repository in order to supply all users with a consolidated view of employees, customers, suppliers, and vendors. The key to effectively using enterprise systems is to eliminate redundancy and duplication, not just in the information systems but also in business processes.

Supply chain management systems: Students should understand the importance of a business managing its relationships with suppliers through a free-flowing exchange of information. The concept may seem foreign to those students who think a company is a closed entity and shouldn't share data or information with anyone outside the organization. A review of a typical supply chain may be helpful: sourcing, producing, and delivering goods and services. It may also be helpful to engage the students in an exercise that lists all the entities involved in producing and delivering goods and services.

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Customer relationship management systems: Ask students how many times they've quit doing business with a company because of poor customer service. Ask them how many times they've had to supply a business with the same information simply because they talked to a different department in the company. Discuss how important it is for every functional area in a business to have the same consolidated view of its customers to avoid these kinds of problems.

Knowledge management systems: Few, if any, students have probably had any experience with these systems. Point out that businesses are beginning to realize how much expertise and experience is locked away in employees' heads and that it's imperative to find a way to capture that information. Moreover, it's important that businesses find a way to make the expertise and experience available to a wide range of users. On the other hand, students should understand that employees are very reluctant to impart with their individual knowledge due to fear or self-preservation.

Intranets and extranets: As Internet-based technologies continue to expand the basic platforms for disseminating information, smaller businesses that cannot afford to implement enterprise applications can turn to intranets and extranets. Your difficulty will be getting students to understand the difference between the two since they operate basically the same way. Intranets are limited to internal users; extranets are available to external users as well as internal users. Both are an inexpensive way to quickly disseminate information and data across functional lines and organizational boundaries.

E-business, e-commerce, and e-government: Have students give examples of their own experiences with of each of these. Students are most often confused between e-business and e-commerce. Stress that e-business refers to the use of digital technology and the Internet to execute major business processes while e-commerce is more narrowly centered on the buying and selling of goods and services over the Internet.

Interactive Session: Organizations: New Systems Help Plan International Manage Its Human Resources

Case Study Questions

1. Describe the problem faced by Plan International. What management, organization, and technology factors contributed to this problem?

Plan International is a worldwide organization that promotes rights and opportunities for children in need. While headquartered in the United Kingdom, it has operations in 70 countries and has worked with 81.5 million children in more than 86,676 communities. It requires a highly coordinated approach when emergencies strike. It must locate and deploy the most appropriate resources wherever they are required within hours or days.

Management: Plan's old system was outdated and decentralized, causing much of the work to be done manually. It kept track of employees by using a patchwork of 30 human

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resources systems, spreadsheets, and documents. There was no way for individual employees to update their own records with new training or experiences.

Organization: Plan International did not have a way to track the skills people bring when they are hired and any additional training or experiences they have acquired for disaster response emergencies.

Technology: Plan International must sift through data on all its 10,000 aid workers in 70 countries to see which people have the appropriate skills and experience in medical aid, child protection, education, and shelter management. When a disaster struck, Plan had to send an email to everyone, asking whether staff knew any people who could speak the appropriate language, had the appropriate disaster management skills, and were available to help.

2. Describe the system solution to this problem. Describe the types of systems used for the solution.

Plan now has the ability to see data about all its workers' skills the moment an emergency occurs because of its new human resources systems. The cloud-based HR system was implemented in only 16 weeks at Plan's headquarters and all international regions were brought onto the system by 2014. It is accessible through the Internet for all users. Employees can now update all their own information, creating an easily searchable directory that every employee can access.

3. Why is human resources so important at Plan International?

When disaster strikes, it is people who make the difference in the recovery. Because Plan International did not have a way to track experience, training, skills, or expertise of its employees, it was not able to deploy the appropriate resources to the disaster site in a timely manner.

4. How did these systems improve operational efficiency?

Plan International's new human resources systems provide a bird's eye view of the entire workforce. Managers know immediately how many people work for Plan, where they are, what skills they possess, their job responsibilities, and their career paths. Employees can access their own records online and update information such as address, family details, and emergency contacts. Plan can also show its donors exactly how their contributions were spent and what the results are.

Much of this information used to take days or months to compile. Now all it takes is the press of a button. The new HR system saves valuable human resources staff time that can be directed towards more value-adding work.

5. How did these systems improve decision-making? Give examples of two decisions improved by Plan's new systems.

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With the new technology Plan International staff can identify and dispatch relief workers to disaster areas within hours. Two examples of improved decision making are:

--Workers can now be deployed to disaster sites within 72 hours. Being able to deploy staff to emergencies so rapidly has saved more lives.

--The improved response time has helped Plan International secure new sources of funding by giving it more credibility with governments, corporations, and other sources of grants and donations.

Section 2-3 "Why are systems for collaboration and social business so important, and what technologies do they use?" Students have probably used most of these systems without even realizing their business value. Your task is to relate these increasingly common technologies to business processes and needs. Discuss how they can use cell phones, instant messaging, social networking sites, and wikis in a business setting to communicate, collaborate, and share ideas with team members, business partners, customers, and suppliers.

One exercise you can use to reinforce the usefulness of team collaboration is to have small student groups explore social networking sites or Twitter to see how many postings by businesses they can find. For instance, Twitter has tweets for Free Honey Bunches of Oats at Walmart and a tweet for an article about General Electric's solar technology. Businesses also make use of the popular YouTube.com to post videos of their products. This exercise will help demonstrate how businesses must constantly adapt their marketing strategies to reach customers. You can also generate a discussion about students' experience on these kinds of sites in relation to business uses and ask them to relate how effective these new methods of engaging customers are.

Table 2-2 emphasizes the benefits of collaboration while Figure 2-7 highlights the necessity of having the appropriate organization structure and culture, along with the right technology, to successfully use collaboration in an organization. Discuss how the absence of even one of these three can hinder or prevent collaboration. Ask students to draw on their own experiences to compare and contrast firms with a collaborative culture to those without.

Many times people and businesses decide which collaborative tools to use based on which ones they are most familiar with rather than which are the most appropriate tool for the task at hand.

You can have student teams evaluate one or more collaborative programs for an organization to which they belong like a sports team, sorority/fraternity, workplace, or even their use in your classroom. Have them use the time/space matrix in Figure 2-8 and the information in the section "*Checklist for Managers: Evaluating and Selecting Collaboration Software Tools*" to help select the best tool.

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Have students explore the use of business wikis first-hand by visiting SAP's Enterprise Solution Wiki at http://wiki.sdn.sap.com/wiki/display/ESpackages/ES+Wiki+Home, or IBM's Notes and Domino Wiki at http://www-10.lotus.com/ldd/dominowiki.nsf/. Both wikis will help demonstrate the usefulness of having so much knowledge at your fingertips plus the ease with which companies are gathering, storing, and disseminating knowledge.

Interactive Session: Technology: Cisco IX5000: What State-of-the-Art Telepresence can do for Collaboration

Case Study Questions

1. **Describe the capabilities of Cisco's IX5000 telepresence system. How do they promote collaboration and innovation?**

The Cisco's IX5000 immersive telepresence system offers leading-edge telepresence and is much more affordable and easier to use than in the past. It is sleekly sculpted, with three 4K ultra-high-definition cameras clustered discreetly above three 70-inch LCD screens. The cameras provide crisp, high-definition video. Theater-quality sound emanates from 18 custom speakers and one powerful subwoofer, creating a high-quality lifelike collaboration experience for 8 to 18 people. Video and other content can move across any of the screens.

The system creates a more natural setting than previous systems because the camera and graphic processors are able to capture the whole room in fine detail so you can stand up and move around or go the whiteboard. Using the 4K cameras, the IX 5000 creates an image four times larger than what's actually needed to fill the system's three screens. The images can be cropped down to show participants seated behind their tables, but when someone stands up, the crop is removed to show both standing and sitting participants.

2. **Why would a company like Produban want to invest in a telepresence system such as Cisco's IX5000? How are videoconferencing technology and telepresence related to Produban's business model and business strategy?**

With more than 5,500 employees working in nine different countries, Produban services more than 120 companies in areas such as data center design and operation, IT infrastructure design and operation as a service, IT platform design and operation as a service, technology risk management and business continuity, and management of end user computing mobility and self-service management. The company is dedicated to technology innovation and continuous improvement.

By using Cisco's IX5000 system Produban brings people from all over the world together to make better decisions faster and more efficiently. Over the years it has invested in 76 Cisco TelePresence rooms worldwide. The IX500 technology has a lower total cost of ownership and can be installed into a space as small as 19 feet by 14 feet. With 50 percent less power usage, 50 percent less data transmission capacity, and half the

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installation time of earlier systems (only eight hours), the IX5000 reduces TCO by 30 percent over three years.

Because Produban's business model and strategy is to maximize technology innovation and continuous improvement for other companies, using the latest telepresence technology for its own inner workings fits.

3. What kinds of other companies might benefit from a telepresence service such as IX5000? Why?

Other companies that might benefit from using telepresence services are those who have operations in multiple locations like vehicle manufacturers or household product makers and distributors. When problems or opportunities arise in one location, people can meet and resolve the situation more quickly and efficiently than they would be having to travel in person to the location.

Section 2-4. "What is the role of the information systems function in a business?" If possible, arrange a session with the school's information systems department to allow students to see first-hand how such a center works and who is responsible for running the systems. Have the IT staff and students participate in a Question and Answer forum about how typical processes are handled. Many students have a better appreciation of how these complex centers work when they actually see one in operation rather than just reading about it. Stress to students that in all but the smallest of firms these systems are critical to the operational efficiency and sheer survival in a very competitive marketplace.

Most importantly, students should understand that the IT staff is responsible for the well-being of all users in an organization. Users and the IT staff are teammates not polarizing opposites.

Review Questions

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

Define business processes and describe the role they play in organizations.

A business process is a logically related set of activities that defines how specific business tasks are performed. Business processes are the ways in which organizations coordinate and organize work activities, information, and knowledge to produce their valuable products or services.

How well a business performs depends on how well its business processes are designed and coordinated. Well-designed business processes can be a source of competitive strength for a company if it can use the processes to innovate or perform better than its rivals. Conversely, poorly designed or executed business processes can be a liability if they are based on outdated ways of working and impede

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responsiveness or efficiency. (Learning Objective 2-1: What are business processes? How are they related to information systems? AACSB: Application of knowledge.)

Describe the relationship between information systems and business processes.

Information systems automate manual business processes and make an organization more efficient. Data and information are available to a wider range of decision-makers more quickly when information systems are used to change the flow of information. Tasks can be performed simultaneously rather than sequentially, speeding up the completion of business processes. Information systems can also drive new business models that perhaps wouldn't be possible without the technology. (Learning Objective 2-1: What are business processes? How are they related to information systems? AACSB: Application of knowledge.)

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, and how systems that link the enterprise improve organization performance.

Transaction processing systems (TPS) are computerized systems that perform and record daily routine transactions necessary in conducting business; they serve the organization's operational level. The principal purpose of systems at this level is to answer routine questions and to track the flow of transactions through the organization.

- At the operational level, tasks, resources, and goals are predefined and highly structured.
- Managers need TPS to monitor the status of internal operations and the firm's relationship with its external environment.
- TPS are major producers of information for other types of systems.
- 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.

(Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Describe the characteristics of management information systems (MIS) and explain how MIS differ from TPS and from DSS.

Middle management needs systems to help with monitoring, controlling, decision-making, and administrative activities.

- 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.

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- MIS summarize and report the company's basic operations using data supplied by TPSs. The basic transaction data from TPS are compressed and usually presented in reports that are produced on a regular schedule.
- MIS serve managers primarily interested in weekly, monthly, and yearly results, although some MIS enable managers to drill down to see daily or hourly data if required.
- MIS generally provide answers to routine questions that have been specified in advance and have a predefined procedure for answering them.
- MIS 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.

MIS differs from TPS in that MIS deals with summarized and compressed data from the TPS.

Although MIS have an internal orientation, DSS will often use data from external sources, as well as data from TPS and MIS. DSS supports "what-if" analyses rather than a long-term structured analysis inherent in MIS systems. MIS are generally not flexible and provide little analytical capabilities. In contrast, DSS are designed for analytical purposes and are flexible. (Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Describe the characteristics of decision-support systems (DSS) and how they benefit businesses.

Decision-support systems (DSS) support nonroutine decision-making for middle managers.

- DSS provide sophisticated analytical models and data analysis tools to support semistructured and unstructured decision-making activities.
- DSS use data from TPS, MIS, and external sources, in condensed form, allowing decision makers to perform "what-if" analysis.
- DSS focus on problems that are unique and rapidly changing; procedures for arriving at a solution may not be fully predefined.
- DSS are designed so that users can work with them directly; these systems include interactive, user-friendly software.

(Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Describe the characteristics of executive support systems (ESS) and explain how these systems differ from DSS.

Executive support systems (ESS) help senior managers address strategic issues and long-term trends, both in the firm and in the external environment.

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- ESS address nonroutine decisions requiring judgment, evaluation, and insight because there is no agreed-on procedure for arriving at a solution.
- ESS provide a generalized computing and communications capacity that can be applied to a changing array of problems.
- ESS are designed to incorporate data about external events, such as new tax laws or competitors, but they also draw summarized information from information from internal MIS and DSS.
- ESS are designed for ease-of-use and rely heavily on graphical presentations of data.

(Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Explain how enterprise applications improve organizational performance.

An organization operates in an ever-increasing competitive and global environment. The successful organization focuses on the efficient execution of its processes, customer service, and speed to market. Enterprise applications provide an organization with a consolidated view of its operations across different functions, levels, and business units. Enterprise applications allow an organization to efficiently exchange information among its functional areas, business units, suppliers, and customers. (Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking.)

Define enterprise systems, supply chain management systems, customer relationship management systems, and knowledge management systems and describe their business benefits.

Enterprise systems integrate the key business processes of an organization into a single central data repository. This makes it possible for information that was previously fragmented in different systems to be shared across the firm and for different parts of the business to work more closely together.

Business benefits include:

- Information flowing seamlessly throughout an organization, improving coordination, efficiency, and decision making
- Giving companies the flexibility to respond rapidly to customer requests while producing and stocking only that inventory necessary to fulfill existing orders
- Increasing customer satisfaction by improving product shipments, minimizing costs, and improving a firm's performance
- Improving decision making by improving the quality of information for all levels of management. That leads to better analyses of overall business performance, more accurate sales and production forecasts, and higher profitability

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In short, **supply chain management (SCM) systems** help businesses better manage relationships with their suppliers. Objective of SCM: Get the right amount of products from the companies' source to their point of consumption with the least amount of time and with the lowest cost. SCM provides information to help suppliers, purchasing firms, distributors, and logistics companies share information about orders, production, inventory levels, and delivery of products and services so that they can source, produce, and deliver goods and services efficiently. SCM helps organizations achieve great efficiencies by automating parts of these processes or by helping organizations rethink and streamline these processes. SCM is important to a business because through its efficiency it can coordinate, schedule, and control the delivery of products and services to customers.

Business benefits include:

- Decide when and what to produce, store, and move
- Rapidly communicate orders
- Track the status of orders
- Check inventory availability and monitor inventory levels
- Reduce inventory, transportation, and warehousing costs
- Track shipments
- Plan production based on actual customer demand
- Rapidly communicate changes in product design

Customer relationship management (CRM) systems enable a business to better manage its relationships with existing and potential customers. With the growth of the web, potential customers can easily comparison shop for retail and wholesale goods and even raw materials, so treating customers better has become very important.

Business benefits include:

- CRM systems provide information to coordinate all 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.
- CRM systems consolidate customer data from multiple sources and provide analytical tools for answering questions such as: What is the value of a particular customer to the firm over his/her lifetime?
- CRM tools integrate a business's customer-related processes and consolidate customer information from multiple communication channels, giving the customer a consolidated view of the company.
- Detailed and accurate knowledge of customers and their preferences helps firms increase the effectiveness of their marketing campaigns and provide higher-quality customer service and support.

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

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and whenever it is needed to improve business processes and management decisions. They also link the firm to external sources of knowledge.

Business benefits include:

- KMS support processes for acquiring, storing, distributing, and applying knowledge, as well as processes for creating new knowledge and integrating it into the organization.
- KMS include enterprise-wide systems for managing and distributing documents, graphics, and other digital knowledge objects; systems for creating corporate knowledge directories of employees with special areas of expertise; office systems for distributing knowledge and information; and knowledge work systems to facilitate knowledge creation.
- KMS use intelligent techniques that codify knowledge and experience for use by other members of the organization and tools for knowledge discovery that recognize patterns and important relationships in large pools of data.

(Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Application of knowledge.)

Explain how intranets and extranets help firms integrate information and business processes.

Because intranets and extranets share the same technology and software platforms as the Internet, they are easy and inexpensive ways for companies to increase integration and expedite the flow of information within the company (intranets alone) and with customers and suppliers (extranets). They provide ways to distribute information and store corporate policies, programs, and data. Both types of nets can be customized by users and provide a single point of access to information from several different systems. Businesses can connect the nets to transaction processing systems easily and quickly. Interfaces between the nets and TPS, MIS, DSS, and ESS systems provide input and output for users. (Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking.)

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.

Collaboration is working with others to achieve shared and explicit goals. It focuses on task or mission accomplishment and usually takes place in a business, or other organizations, and between businesses. Collaboration can be short-lived or longer term, depending on the nature of the task and the relationship among participants. It can be one-to-one or many-to-many.

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Social business is part of an organization's business structure for getting things done in a new collaborative way. It uses social networking platforms to connect employees, customers, and suppliers. The goal of social business is to deepen interactions with groups inside and outside a company to expedite and enhance information-sharing, innovation, and decision-making.

Collaboration and social business are important because:

- *Changing nature of work.* More jobs are becoming "interaction" jobs. These kinds of jobs require face-to-face interaction with other employees, managers, vendors, and customers. They require systems that allow the interaction workers to communicate, collaborate and share ides.
- *Growth of professional work.* Professional jobs in the service sector require close coordination and collaboration.
- *Changing organization of the firm*. Work is less often organized in a hierarchical fashion because it is now organized into groups and teams who are expected to develop their own methods for accomplishing tasks.
- *Changing scope of the firm.* Work is more geographically separated than before.
- *Emphasis on innovation.* Innovation stems more from groups and teams than it does from a single individual.
- *Changing culture of work and business*. Diverse teams produce better outputs, faster, than individuals working on their own.

(Learning Objective 2-3: Why are systems for collaboration and social business so important, and what technologies do they use? AACSB: Application of knowledge.)

List and describe the business benefits of collaboration and social business.

The general belief is that the more a business firm is collaborative in nature, the more successful it will be and that collaboration within and among firms is more essential than in the past. The overall economic benefits of collaboration and social business are significant.

The business benefits of collaboration and social business are listed in Table 2-3:

- *Productivity:* People working together accomplish tasks faster, with fewer errors, than those working alone.
- *Quality:* People can communicate errors and correct them faster when working together versus working alone.
- *Innovation:* People working in groups can generate more innovative ideas than if they were working alone.
- *Customer service:* People working in teams can solve customer complaints and issues faster and more effectively versus working in isolation.
- *Financial performance:* Collaborative firms have superior sales, sales growth, and financial performance.

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(Learning Objective 2-3: Why are systems for collaboration and social business so important, and what technologies do they use? AACSB: Application of knowledge.)

Describe a supportive organizational culture and business processes for collaboration.

Historically, organizations were built on hierarchies that did not allow much decision making, planning, and organizing at lower levels of management or by employees. Communications were generally vertical through management levels rather than horizontal between groups of employees.

A collaborative culture relies on teams of employees to implement and achieve results for goals set by senior managers. 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. Rather than employees being rewarded for individual results, they are rewarded based on their performance in a team. The function of middle managers in a collaborative business culture is to build the teams, coordinate their work, and monitor their performance. 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. (Learning Objective 2-3: Why are systems for collaboration and social business so important, and what technologies do they use? AACSB: Application of knowledge.)

List and describe the various types of collaboration and social business tools.

Some of the more common enterprise-wide information systems that businesses can use to support interaction jobs include:

- Internet-based collaboration environments like IBM Notes and WebEx provide online storage space for documents, team communications (separated from email), calendars, and audio-visual tools members can use to meet face-to-face.
- Email and Instant Messaging (IM) are reliable methods for communicating whenever and wherever around the globe.
- Cell phones and wireless handhelds give professionals and other employees an easy way to talk with one another, with customers and vendors, and with managers. These devices have grown exponentially in sheer numbers and in applications available.
- Social networking is no longer just "social." Businesses are realizing the value of providing easy ways for interaction among workers to share ideas and collaborate with each other.
- Wikis are ideal tools for storing and sharing company knowledge and insights. They are often easier to use and cheaper than more proprietary knowledge management systems. They also provide a more dynamic and current repository of knowledge than other systems.
- Virtual worlds house online meetings, training sessions, and "lounges" where real-world people meet, interact, and exchange ideas.

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- Google tools, cyberlockers, and cloud collaboration allow users to quickly create online group-editable websites that include calendars, text, spreadsheets, and videos for private, group, or public viewing and editing.
- Microsoft SharePoint software makes it possible for employees to share their Office documents and collaborate on projects using Office documents as the foundation.

(Learning Objective 2-3: Why are systems for collaboration and social business so important, and what technologies do they use? AACSB: Application of knowledge.)

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

Describe how the information systems function supports a business.

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. (Learning Objective 2-4: What is the role of the information systems function in a business? AACSB: Application of knowledge.)

Compare the roles played by programmers, systems analysts, information systems managers, the chief information officer (CIO), chief security officer (CSO), chief data officer (CDO), and chief knowledge officer (CKO).

- 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. The systems analyst's job is to translate business problems and requirements into information requirements and systems.
- Information systems managers lead teams of programmers and analysts, project managers, physical facility managers, telecommunications mangers, or database specialists.
- The chief information officer is a senior manager who oversees the use of information technology in the firm.
- The chief security officer is responsible for information systems security in the firm and has the principle responsibility for enforcing the firm's information security policy. The CSO is responsible for educating and training users and IS specialists about security, keeping management aware of security threats and breakdowns, and maintaining the tools and policies chosen to implement security.
- The chief data officer is responsible for enterprise-wide governance and utilization of information to maximize the value the organization can realize from its data. The CDO ensures the firm is collecting appropriate data, analyzing it appropriately, and using the results to support business decisions.

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- The chief knowledge officer helps design programs and systems to find new sources of knowledge or to make better use of existing knowledge in organizational and management processes.

(Learning Objective 2-4: What is the role of the information systems function in a business? AACSB: Analytical thinking, Application of knowledge.)

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.

Student answers to this question will vary.

2-6 Identify the steps that are performed in the process of selecting and checking a book out from your college library and the information that flows among these activities. Diagram the process. Are there any ways this process could be improved to improve the performance of your library or your school? Diagram the improved process.

Student answers to this question will vary.

2-7 Use the time/space collaboration and social tool matrix to classify the collaboration and social technologies used by ABB.

Student answers to this question will vary.

Hands-on MIS Projects

Management Decision Problems

2-8 Don's Lumber Company: The price of lumber and other building materials are constantly changing. When a customer inquires about the price on pre-finished wood flooring, sales representatives consult a manual price sheet and then call the supplier for the most recent price. The supplier in turn uses a manual price sheet, which has been updated each day. Often the supplier must call back Don's sales reps because the company does not have the newest pricing information immediately on hand. Assess the business impact of this situation, describe how this process could be improved with information technology, and identify the decisions that would have to be made to implement a solution. Who would make those decisions?

Manually updating price sheets leads to slower sales processes, pricing errors if sales reps are using outdated information, and customer dissatisfaction due to delays in obtaining information. By putting the data online using an extranet and updating it as

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necessary, sales reps consult the most current information immediately. That would lead to faster sales and more satisfied customers. Necessary decisions include how much information to make available online, who will have access to it, and how to keep the information secure. Senior management would likely make these decisions. (Learning Objective 2-1: What are business processes? How are they related to information systems? AACSB: Analytical thinking, Reflective thinking, Application of knowledge.)

2-9 Henry's Hardware: Owners do not keep automated, detailed inventory or sales records. Invoices are not maintained or tracked (other than for tax purposes). The owners use their own judgment in identifying items that need to be reordered. What is the business impact of this situation? How could information systems help Henry and Kathleen run their business? What data should these systems capture? What decisions could the systems improve?

The business impact includes lost sales, over- and under-ordering products, improper sales accounting and more costly inventory control. An information system could capture data that allows owners to maintain proper inventories, order only those products needed, and ensure proper sales accounting. Decisions on pricing, product levels, and inventory replenishment could be vastly improved based on data and not a best-guess venture. (Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking, Application of knowledge.)

Improving Decision Making: Using a Spreadsheet to Select Suppliers

Software skills: Spreadsheet date functions, data filtering, DAVERAGE functions
Business skills: Analyzing supplier performance and pricing

2-10 Although the format of the student's answers will vary, a suggested solution can be found in the Microsoft Excel File named: *MIS15ch02_solutionfile.xls.*

This exercise requires some student knowledge of spreadsheet database functions. At a minimum, students should know how to sort the database by various criteria such as item description, item cost, vendor number, vendor, name, or A/P terms. Students may need to be told that A/P Terms is expressed as the number of days that the customer has to pay the vendor for a purchase. In other words, 30 designates net 30 days. The vendor that allows customers the longest amount of time to pay for an order would, of course, offer the most favorable payment terms.

Students will need to add additional columns for calculating the actual delivery time for each order and the number of days the delivery is late. The Actual Delivery Time can be calculated by subtracting the Promised Ship Date from the Arrival Date. The number of days late can be calculated by subtracting the Promised Transit Time from the Actual Delivery Time. If the number of days late is negative, it indicates that the order arrived

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early.

These numbers are useful when trying to determine who is the vendor with the best on-time delivery track record. Students can use the DAVERAGE function to determine the average delivery time for each vendor. Students can also use one of the database functions to determine the vendor with the best accounts payable terms. To determine the vendor with the lowest prices for the same item when it is supplied by multiple vendors, students can filter the database using the item description. This filtered list can then be sorted by item cost and vendor number. (Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Written and oral communication, Analytical thinking, Application of knowledge.)

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

Software skills: Internet-based software
Business skills: Transportation planning

2-11 Obviously, the shortest amount of time is more cost effective than the shortest distance since there's only a difference of 27.05 miles. Saving the 27 miles will take 2 hours, 24 minutes longer. Encourage students to use the Advanced Tools option to quickly change back and forth between "shortest time" and "shortest distance." Only to show how convenient these kinds of online tools are, ask students to use a regular map and calculator to draw out the two routes. (Lots of ughs!) (Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? AACSB: Analytical thinking, Application of knowledge.)

Shortest distance: 10 hours, 11 minutes; 506.56 miles
Shortest time: 8 hours, 35 minutes; 533.61 miles

Collaboration and Teamwork Project

2-12 In MyMISLab, you will find a Collaboration and Teamwork Project dealing with the concepts in this chapter. You will be able to use Google Drive, Google Docs, Google Sites, Google +, or other open source collaboration tools to complete the assignment.

Case Study: Social Business: Full Speed Ahead or Proceed with Caution?

2-13 Identify the management, organization, and technology factors responsible for impeding adoption of internal corporate social networks.

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Management: Employees that are used to collaborating and doing business in more traditional ways need an incentive to use social software. Most companies are not providing that incentive: only a small number of social software users believe the technology to be necessary to their jobs.

Organization: Companies that have tried to deploy internal social networks have found that employees are used to doing business in a certain way and overcoming the organizational inertia can prove difficult. Enterprise social networking systems were not at the core of how most of the surveyed companies collaborate.

Technology: Ease of use and increased job efficiency are more important than peer pressure in driving adoption of social networking technologies. Content on the networks needs to be relevant, up-to-date, and easy to access; users need to be able to connect to people that have the information they need, and that would otherwise be out of reach or difficult to reach. (Learning Objective 2-1: What are business processes? How are they related to information systems? Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? Learning Objective 2-3: Why are systems for collaboration and social business so important, and what technologies do they use? AACSB: Analytical thinking, Application of knowledge.)

2-14 Compare the experiences implementing internal social networks of the two organizations. Why were they successful? What role did management play in this process?

Bayer Material Sciences made social collaboration a success by making the tools more accessible, demonstrating the value of these tools in pilot projects, employing a reverse mentoring program for senior executives, and training employee experts to spread know-how of the new social tools and approaches within the company and demonstrate their usefulness.

Bayer Material Sciences uses IBM Connections, a social platform for collaboration, cooperation, and consolidation of social networks. It features tools for employee profiles, communities of people with common interests and expertise; blogs; wikis; viewing, organizing, and managing tasks; forums for exchanging ideas with others; and polls and surveys of customers and fellow employees along with a home page for each user to see what is happening across that person's social network and access important social data.

A year after the new collaboration tools were introduced, adoption had plateaued. Working with company information technology and business leaders, management established an ambitious set of goals for growing social business along with seven key performance indicators (KPIs) to measure success. The goals included fostering global collaboration, creating stronger networks across regions and departments, creating a less

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hierarchical culture of sharing, and reducing the confusion of which tools are intended for which job.

These efforts are now paying off: 50 percent of employees are now routinely active in the company's enterprise social network. Bayer Material Sciences has benefited from faster knowledge flows, increased efficiency, and lower operating costs.

Carlo's Bake Shop has 10 locations in New Jersey, New York, and Las Vegas, and people can order custom cakes from its website. Carlo's implemented Salesforce CRM with the Salesforce social networking tool Chatter. Some employees and members of Carlo's management team initially resisted the new system. They believed that because they already used e-mail, Facebook, and Twitter, they didn't need another social tool. The company was able to demonstrate the benefits of social business, and bakers and Chatter changed the way they worked.

Carlo's produces a very large volume of custom cakes from a 75,000-square-foot commissary in Jersey City operating around the clock. Chatter is now the de facto standard for internal communication from order to delivery. If a key cake decorator is away, that person is still included in the communication and discussion process. Upon returning, the decorator can view any changes in color, shape, or design.

Because Carlo's employees now work more socially, errors are down by more than 30 percent, and crews are able to produce cakes and other custom products more rapidly and efficiently. Managers have access to a data and analytics dashboard that allows them to instantly view store performance and which products are hot and which are not. They can see sales and transaction patterns in depth. As Carlo's expands nationally and perhaps globally, the ability to connect people and view order streams is critical. Social business tools have transformed an organization that was gradually sinking under the weight of paper into a highly efficient digital business. (Learning Objective 2-2: How do systems serve the different management groups in a business, and how do systems that link the enterprise improve organizational performance? Learning Objective 2-3: Why are systems for collaboration and social business so important, and what technologies do they use? AACSB: Analytical thinking, Application of knowledge.)

2-15 Should all companies implement internal enterprise social networks? Why or why not?

Yes, companies should implement internal enterprise social networks, if for no other reason than they are cheaper and easier than other systems to operate and reduce expenses in other areas. The systems also improve productivity, in some cases dramatically. Companies should provide incentives if they must to encourage adoption of the new collaboration methods. Executives should be the first to use them which will speed their adoption. Executives must also tie these networks to financial results. Management must also encourage the necessary organizational cultural changes to help make the social networking tools a success. (Learning Objective 2-1: What are business processes? How are they related to information systems? Learning Objective 2-3: Why

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are systems for collaboration and social business so important, and what technologies do they use? AACSB: Analytical thinking, Application of knowledge.)

2-16 Identify and describe the capabilities of enterprise social networking software. Describe how a firm could use each of these capabilities.

Visit MyMISLab for suggested answers.

2-17 Describe the systems used by various management groups within the firm in terms of the information they use, their outputs, and groups served.

Visit MyMISLab for suggested answers.

For an example illustrating the concepts found in this chapter, view the videos in mymislab.com.

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Management Information Systems, 15E

Laudon & Laudon

Lecture Files by Barbara J. Ellestad

Chapter 2 Global E-business and Collaboration

What would happen if you walked into work one day and the management told the employees they could do anything, anything at all, that they wanted to do that day. If Jimmy from production decided he wanted to work in sales and marketing, he could. If Sally, who normally works in accounting, wanted to spend the day in shipping she could do that too. No one would have to follow any rules or any set procedures. They could accomplish the work any way they choose.

Sally decides that she doesn't want to use FedEx to ship out the products that day even though the company has a contract, which saves them lots of money. She decides to use an alternate shipping service that will cost the company more and slow down the shipment significantly. She doesn't see a need to tell accounting about the change.

Jimmy decides not to use the same old packing materials when he's preparing glass bowls for movement across the country. He determines that it is faster if he just plops the bowls into a box, closes the lid, and sends it down the line. Unfortunately, his co-worker Tim (who doesn't know anything about Jimmy's decision) is responsible for answering customer complaints.

Bill in accounting decides that he needs a pay raise to help pay for his upcoming vacation. Normally, he would be required to get his supervisor's approval to change any pay record but because there aren't any established procedures he can just go ahead and enter the new salary data in the system. While he's at it, he gives ten of his friends pay raises also. Although Bill's friends may like the idea, the rest of the employees in the company are pretty upset.

2.1 What are business processes? How are they related to information systems?

As we discussed in Chapter 1, the "digital firm" means more than just plunking down computers that have all the latest bells and whistles on every desk. The digital firm must connect each functional area and each management level to one another. Data input to the system in manufacturing must be made available to sales, accounting, and shipping. Managers in the human resources department must have access to appropriate information regardless of its origin. Information integration is the key to the digital firm.

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As we go through this chapter, we'll look at the types of information systems organizations use to bring it all together. To help distinguish between the type of function each one is designed to accomplish and to fit them all together, we're going to look at them in the context of manufacturing candy bars. Yep, candy bars. Everyone likes them and everyone has eaten one, so they will be easy to relate to. We'll call the company WorldWide Candy and we'll give the candy bar the timely name of "Cybernuts."

Business Processes

You can imagine from the opening scenario how quickly chaos would reign in the organization without established business processes that integrate functions throughout an organization. Processes that deliver the best product for the lowest cost in the most efficient manner are imperative to success.

The way a business organizes its workflows, the method it uses to accomplish tasks, and the way it coordinates its activities among employees, customers, and suppliers determines its business processes.

Organizations, from the smallest one- or two-person group to the largest you can imagine, must have orderly processes that all divisions can understand. No part of the organization can work in isolation from any other part.

Table 2.1 describes some typical business processes for each of the functional areas of business. We will see later in the chapter how these businesses processes are supported by enterprise systems.

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

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How Information Technology Improves Business Processes

Some processes that may have contributed to an organization's success have now outgrown their usefulness. Information systems can help an organization recognize processes that may need to be changed. An information system could be used to automate some of those processes or help managers determine that they are no longer needed. And a successful organization will use an information system to determine which processes are working well.

The key to using information systems to analyze, change, automate, or delete processes is that the organization must determine the appropriateness of the recommendations and must determine the right questions. Throwing a new-fangled computer system at the supposed problem is not the answer. And answering the wrong question with a good answer can be far more devastating to the bottom line than not doing anything at all. In other words, if the system says a process should be changed but it truly doesn't make sense to change it, then don't. The system should supply recommendations; humans still have the ultimate decision-making responsibility.

Information systems enhance business processes in two ways:

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

Bottom Line: Business processes help an organization organize, coordinate, and focus its workflow to produce products or services. The success or failure of a business may depend on how well its business processes are designed and coordinated. Information systems can automate many steps in business processes and even change the flow of information.

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

There is no one single information system that will satisfy all of the needs of an organization. At first glance it can be difficult to comprehend all the different systems in a business, and even more difficult to understand how they relate to one another.

Systems for Different Management Groups

You'll see at the end of this discussion the integral role each type of system plays—from determining which kind of candy bar to make (strategic level systems); to how many people the company will need to make the candy bar (management level systems); to tracking customer orders (operational level systems). Within these three levels we'll

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discuss the four major types of systems typically used to make an organization successful.

Transaction Processing Systems

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

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

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

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

As you can visualize, the operational level of an organization also includes functions not directly associated with the actual production of the Cybernuts bar, but vital in keeping the company running smoothly. The people in accounting may not be pouring the chocolate over the nuts on the assembly line, but those workers that do appreciate the fact that they get a paycheck every two weeks. Production workers also like to know that the human resource division is keeping track of training programs that may help them advance within the company. Each of these divisions requires an information system that helps it keep track of the many details that make the production worker happy and productive. The best transaction processing system will be integrated throughout the organization to supply useful information to those who need it when they need it.

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

Systems for Business Intelligence

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

Businesses and organizations collect billions and billions of pieces of data on everything from customers to suppliers to business partners. Collecting the data is the easy part—almost too easy. Once the data are collected it's much more difficult for managers and executives to actually use them to make smart decisions. That conundrum has given rise to **business intelligence** software applications that help users make sense of all that data. Decision makers can discern hidden patterns and trends in the data and use the information to the organization's benefit.

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

Before integrated systems, managers received periodic printed reports that gave them lots of data, but often didn't supply information that they could utilize to make timely decisions. Planning was sometimes a wasted effort because the information the managers needed just wasn't there when they needed it.

If there was a problem getting a shipment out to the convenience store in Paducah, Kentucky, the shipping manager may not have known about it until a customer cancelled her account six months later. The human resources department manager would likely not be able to find out about new job opportunities in a different part of the company until after the workers had been laid off and had found other employment. Worse yet, production might have to stop the assembly lines because accounting hadn't purchased enough supplies to cover the increase in the number of candy bars rolling off the line.

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With the integration of information systems up and down the management levels, and throughout the corporation, managers can often get needed information in a real-time mode. The data are kept online, the system can gather the precise information managers need to make a decision, and the information can be cross integrated into all departments of the company. All divisions in the company can see what's going on throughout the corporation. Information can be passed from department to department so that they are all working "on the same page."

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

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

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

You'll notice we describe decisions at this level as semistructured. Not all decisions required for an organization to function smoothly are cut-and-dried. There are a lot of gray areas in successfully managing an organization and the larger the company, the more diverse the decision-making process becomes.

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

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

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

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

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

Interactive Session: Organizations: New Systems Help Plan International Manage Its Human Resources (page 52 of the textbook) discusses how the organization implemented a new human resources system that could handle its growing global workforce, support common processes across all regions, and deliver information on a secure mobile platform in regions where technology infrastructure was not well developed.

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

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

Systems for Linking the Enterprise

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It's not unusual to find an organization with three or more different information systems that act as islands. The systems don't exchange information very well, if at all. Accounting and finance may have a system that serves their needs very well, but they can't collect information from the system used by manufacturing and production. Sales and marketing is doing its own thing with its system and losing valuable information from the other systems, which could help it do a better job.

Enterprise Applications

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

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

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

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

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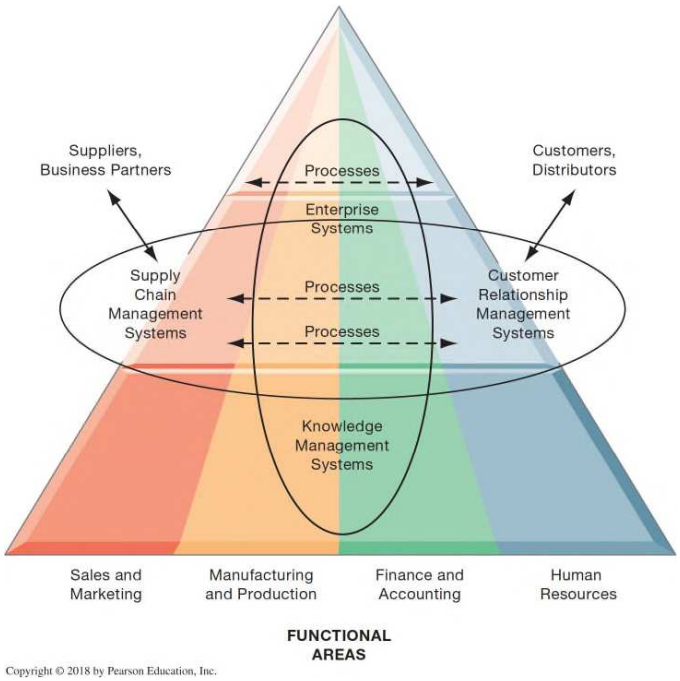


Figure 2.6: Enterprise Application Architecture

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

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

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

CRM technology isn't just a nice looking website for customers to click through or more reports dumped on managers' desks that they don't have time to review. CRM systems involve business processes in all the functional areas and every management level of a

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firm. The ideal CRM system provides end-to-end customer care from receipt of order through product delivery.

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

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

You may not think of a **knowledge management system** as an integral part of the overall information system of an organization. Most of the other systems have been recognized for many years, but this one may be thought of as relatively new. Knowledge management systems (KMS) enable organizations to better manage processes for capturing and applying knowledge and expertise.

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

Intranets and Extranets

Enterprise applications are often costly to implement. Companies that don't have the resources to invest in enterprise applications can still achieve some measure of information integration by using intranets and extranets.

Intranets and extranets use Internet technology and standards to assemble information from various systems and present it to the user in a web page format. Extranets make portions of private corporate intranets available to outsiders.

Both of these tools make it easy for companies to disseminate information through a standard platform that requires very little work to maintain. It's a low-cost way to connect internal employees with one another or external users to company information.

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E-Business, E-Commerce, and E-Government

The Internet, extranets, and intranets offer new opportunities to do business in cyberspace. The amount of **electronic commerce** and **electronic business** conducted online continues to grow exponentially year after year without any signs of slowing down. The two terms, *e-commerce* and *e-business,* are often confused with each other. E-commerce is limited to the buying and selling of goods and services on networks. E-business encompasses not only e-commerce but also a broader range of tasks like coordinating training seminars for customers.

Even with the rising popularity of these new ways of doing business, you should take caution. It's easy to put up a snazzy, colorful website that looks very pretty and may even be easy to use. It may be a site on the Internet, an intranet, or an extranet. You must consider though, how you're going to incorporate that part of your business with your other, more established methods of doing business. What internal processes must you change or adapt? What new processes must you establish? What training must you do with the people who will run the e-business, both technical and nontechnical? You can't keep doing your job the same old way. Lots of businesses have tried and lots of businesses have lost big bucks.

The electronic delivery of government services via the Internet has been fairly successful. Citizens have easy access to forms necessary in many **e-government** programs such as tax payments. Rather than waste time standing in line for vehicle registration and licenses, people can complete these kinds of tasks on the Internet. Perhaps most importantly, e-government has opened the lines of communications between citizens and elected officials and made information access easier and timelier.

Bottom Line: Integrating functions and business processes cuts costs and allows systems development that involves the whole firm or industry. Customer resource management and supply chain management give a company the added advantages of end-to-end customer care. Enterprise systems have many challenges but the benefits, when executed properly, are enormous. Knowledge management systems allow an organization to fully integrate their newly acquired knowledge into the current systems.

2.3 Why are systems for collaboration and social business so important, and what technologies do they use?

Globalization now allows companies to work around the clock, around the world. It's not unusual for major corporations to shift work from one time zone to another, one country to another. Somehow, the people in all the geographically separated locations have to be

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able to easily communicate and share information with one another. Working in teams is now becoming the de facto practice in the business world.

What Is Collaboration?

Let's first determine exactly what the term **collaboration** means to businesses and to you:

- Working with others to achieve shared and explicit goals
- Focuses on a particular task or mission
- Takes place in a business and/or between businesses
- Can be short or long term
- Can be one-to-one or many-to-many
- Can be informal or structured, formal **teams**

Collaboration and teamwork has grown in popularity over the last few years because new technology has made it much easier for people to communicate and share information, files, and documents. Imagine how difficult it would be to collaborate with a colleague across the country if you had to pass documents back and forth using snail-mail.

Collaboration and teamwork are central to the success of many businesses. Here are six reasons why businesses promote collaboration and teamwork:

- **Changing nature of work**—traditionally work was organized into silos. Now, most new jobs require interaction among employees, suppliers, and customers.
- **Growth of professional work**—most professional jobs require close coordination and sharing information and opinions with other professionals.
- **Changing organization of the firm**—traditionally organizations used a managerial hierarchy. Now, many firms have been "flattened" and expertise and decision-making powers are pushed down to groups and teams.
- **Changing scope of the firm**—globalization has created organizations that are disbursed to many geographically separated locations that require close coordination.
- **Emphasis on innovation**—innovation comes more from teams and groups than from a single individual. Collaborative practices and technologies increase the likely success of innovation.
- **Changing culture of work and business—**diverse teams tend to produce better outputs and do it faster than individuals.

What Is Social Business?

Collaboration among employees, suppliers, and customers is becoming an important tool in increasing a company's competitive advantage. Social networking platforms such as Facebook, Twitter, and Pinterest help improve a company's **social business** to establish

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and improve interactions with groups inside and outside the organization. Information sharing, innovation, and decision making are enhanced through these technologies.

Communications among managers, executives, and employees can be improved and streamlined through the use of social business. Table 2.2 provides a list of social business applications and their descriptions.

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; co-create content
Blogs and wikis	Publish and rapidly access knowledge; discuss opinions and experiences
Social commerce	Share opinions about purchasing or purchase 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

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Business Benefits of Collaboration and Social Business

Many major corporations are embracing collaboration and teamwork not just within their own company, but also with people outside the organizations.

> "IBM is prowling the world to set up what it calls 'collaboratories' which match up its researchers with experts from governments, universities, and companies. IBM is trying to convince countries and companies that it can help them improve their ability to innovate at an important moment for the global economy. In recent years, companies such as Hewlett-Packard and Intel have begun tapping talent from outside for essential bits of science and technology—a concept called open innovation. Now IBM is moving a giant step further by making collaboration with outsiders an essential piece of its research strategy. The depth of that collaboration, the number of partners, the staff involved, and its global reach set IBM apart. 'To move in this direction you have to be willing to not just take risks but be open to accepting ideas from around the world,' says Soumitra Dutta, professor of business and technology at Europe's INSEAD." (*BusinessWeek,* Big Blue's Global Lab, Steve Hamm, Sep 7, 2009.)

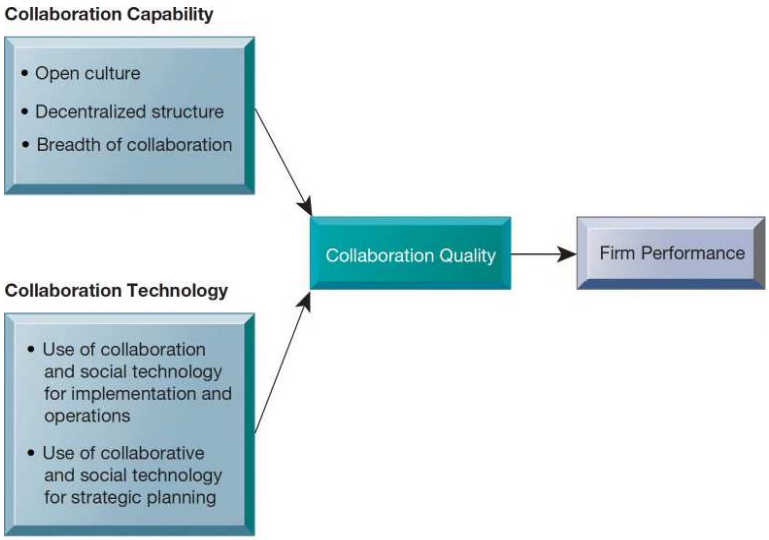
Table 2.3 emphasizes the benefits of collaboration and social business: increased productivity, increased quality of work, more and better innovation, improved customer service, and increased profitability, sales, and sales growth. Figure 2.7 highlights the necessity of having the appropriate organizations structure and culture, along with the right technology.

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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. 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.

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Figure 2.7 Requirements for Collaboration

Building a Collaborative Culture and Business Processes

Trying to mesh a typical hierarchical management structure with a true collaborative environment simply won't hack it for one major reason. In a hierarchical organization structure, communications are passed up the management ladder from employees, across to another management ladder and back down to employees. That's extremely slow,

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cumbersome, and has an awful lot of "filters" as messages are passed from one person to another.

Collaboration and teamwork require much faster communications and information sharing. In essence it requires managers to set specific goals and then "get out of the way." Teams develop products, design new ideas or processes, and create new systems and technologies. Individuals are rewarded based on the success of the team rather than their own individual merits. Managers build the teams, coordinate the work, and monitor performance.

But in order for all this to work well, an organization must have the right tools and technologies in place.

Tools and Technologies for Collaboration and Social Business

Many new systems for interacting with other employees, managers, vendors, and customers have been developed. You probably use some of them without realizing how essential they've become in creating an environment that supports a collaborative culture.

- **E-mail and instant messaging:** Billions of messages flow everyday among employees, managers, suppliers, and customers.
- **Wikis:** These are gaining in popularity as a way to share knowledge and ideas among collaborators. They are much easier to use and manage than more sophisticated knowledge management systems.
- **Virtual worlds:** Able to house online meetings, training sessions, and lounges, this type of tool is gaining popularity as a way to meet, interact, and exchange ideas.

Collaboration and Social Business Platforms: Let's assume you are part of a team working on a new candy product for WorldWide Candy Corporation. You work in Atlanta, Georgia, while your teammates work in New York City, Seattle, and Dallas. Sure, you could all fly to a central meeting place once a month to collaborate on the new candy bar. But imagine how cumbersome and slow that would be. Not to mention expensive and time-consuming.

Virtual Meeting Systems: With a virtual meeting system, you can hold strategy sessions once or twice a week instead. You would feel like all of your teammates are physically located in the same place if you use **telepresence** technology. You can share ideas and documents in real-time. Best of all, you don't have all the travel hassles and you can sleep in your own bed.

Interactive Session: Technology: Cisco IX5000: What State-of-the-Art Telepresence Can Do for Collaboration (see page 63 of the text) describes the progress companies have made in building new technologies that enhance videoconferencing and make it less expensive to use.

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Cloud Collaboration Services: While your WorldWide Candy team is collaborating on the new candy bar, you'll find it necessary to share word documents, spreadsheets, calendars, and perhaps audio and video files. Rather than create the online structure for all this, not to mention spending big dollars, your team can use Google Tools that include Google Drive, Google Docs, Google Apps, Google Sites and Google + to easily set up the necessary technology infrastructure you need. You'll have the benefit of e-mail, instant messaging, and threaded discussion, so all of you can communicate in real-time. You're also able to save and archive all your communications for future reference. You can't necessarily do that in a face-to-face meeting.

Microsoft SharePoint and IBM Notes: WorldWide Candy already uses Microsoft servers and networking products, along with the Microsoft Office suite of Word, Excel, Outlook, and PowerPoint. Your team can use all of these as a base for collaboration by developing a website that organizes and stores information in one location. The host website provides the following benefits:

- Coordinate work activities
- Collaborate on and publish documents
- Maintain task lists
- Implement workflows
- Share information via wikis and blogs

Another Internet-based collaboration environment your team could use is IBM Notes. It provides all the basic collaboration tools as Google Apps/Google Sites and SharePoint do but with a few added features. It has social networking enhancements and the ability for your team to develop its own custom applications. The most beneficial feature of IBM Notes for very large corporations is the higher levels of security and reliability along with the ability to keep control over sensitive information.

Enterprise Social Networking Tools: These tools, such as Jive and Yammer, help connect an organization's members through profiles, updates, and notifications but are restricted to internal corporate uses. Some include user profiles, communities, e-mail, instant messaging, web meetings, calendars, personal dashboards, and file sharing.

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

Sometimes the decision about which of these tools to use may be up to you. How do you decide which one is best? Figure 2.8 gives you a matrix that will help you sort through all the hype and make a decision based on your needs. The matrix uses two dimensions, time and space, to compare the tasks you want to accomplish with the best way to do so. For instance, will your team use synchronous (same time) or asynchronous (different time) to meet? Mostly, you need to analyze the collaboration tools from a cost-benefit point of view.

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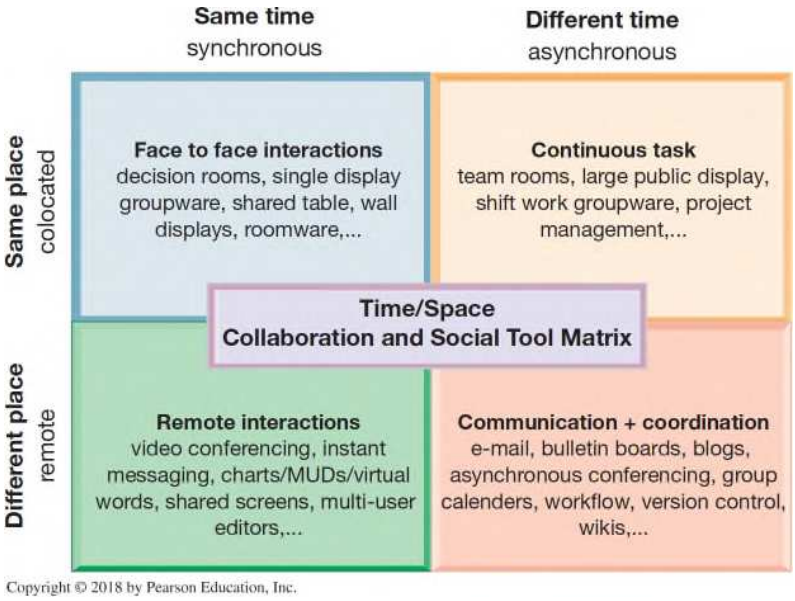


Figure 2.8 The Time/Space Collaboration and Social Tool Matrix

You can also use these six steps to help you select the best product for the task at hand:

- What are my challenges in terms of time and space?
- What solutions are available for each of the challenges?
- What are the costs and benefits of each solution?
- What security risks and vulnerabilities are associated with each solution?
- What are the implementation and training issues associated with each solution?
- Choose the collaboration tools and seek presentations from the vendors

Bottom Line: Collaboration and teamwork is the name of the game in today's corporate world. There are many different tools and technologies that help enable collaboration. The firm must have a collaborative culture that encourages employees to work together as a team to ensure success.

2.4 What is the role of the information systems function in a business?

Many people focus on the job losses caused by technological advances and changes. On the other hand, many new jobs have been created because of technology. **Information systems departments,** previously a tiny group of people usually assigned to the financial group, have moved into the mainstream of most companies.

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The Information Systems Department

Programmers have taken on more important positions within organizations. They must understand not only the technical side of computing, but they must also know business processes so they can adapt the technology to the needs of their company. **Systems analysts** serve as the bridge between the techies and the nontechies. Heading this group of people are the **information systems managers.** Their importance to businesses has grown as the emphasis on technology's role within organizations has grown.

Just as most organizations have a chief financial officer, the position of **chief information officer (CIO)** has been created to handle the myriad of problems and opportunities businesses face in today's technologically driven environment. Very large corporations appoint a **chief security officer (CSO)** who's responsible for enforcing the firm's information security policy and training users and information systems technologists about security. The CSO keeps other executives and managers aware of security threats and maintains security tools and policies.

The **chief privacy officer (CPO)** protects an organization's data from misuse and abuse and makes sure the company complies with data privacy laws. Another new position, that of **chief knowledge officer (CKO),** has been created in larger corporations to deal with effectively using knowledge management systems.

Some major corporations are establishing a position for a **chief data officer (CDO)** who is responsible for enterprise-wide governance and utilization of information that is gleaned from all the data an organization collects and stores. Making sure the company is collecting appropriate data, analyzing the data properly, and using the results to support good business decisions is the CDO's main responsibility.

Perhaps the most important role of all, though, is the **end user.** The responsibility for successful integration of information systems has extended past the "techies" and become part of everyone's job. As we've seen so far, no functional area or level of organizational hierarchy is exempt from understanding information systems and how they can help businesses meet their objectives.

Organizing the Information Systems Function

Deciding how to organize the information systems function within a business is not as easy as deciding how to organize other functional areas. After all, sales and marketing has a much different mission than production and manufacturing. An information system on the other hand has similar tasks regardless of the functional area it is supporting. Sales and marketing needs access to data the same as production and manufacturing.

Larger companies and organizations develop an **IT governance** that helps decide the best way to organize the IT department for the benefit of all. Some of the issues to be decided upon are:

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- Strategy and policies for using IT
- Accountability toward the organization's strategies and objectives
- How much centralization will take place within the IT function
- Does the organization receive a positive return on its IT investments?

Bottom Line: The IS department is an integral part of any successful business. Programmers, analysts, IS managers, and the CIO are major players in the IS function. Large corporations use a chief security officer, chief privacy officer, and a chief knowledge officer to ensure investments in information technology pay big dividends to the firm. The most important role in effectively using technology belongs to the users.

Discussion Questions:

1. How can a transaction processing system help an organization's management information system and decision-support system?

2. Which of the four major types of information systems do you think is the most valuable to an organization?

3. Discuss the benefits and challenges of enterprise systems and explain why a firm would want to build one.

4. Discuss why a typical hierarchical management structure is not conducive to a collaborative business culture.

5. Discuss the tools and technologies for collaboration and social business that are available and how they provide value to an organization.

Answers to Discussion Questions:

1. A transaction processing system gathers data about the day-to-day operations of the organization from all functional areas. The data can be fed into the other systems to help the business meet its objectives. It can also help prevent islands of information in the organization.

2. Opinions will vary about which type of information system is the most valuable. Answers should include information about why the student thinks the one they have chosen is most valuable. For instance, some students may claim that a TPS is the most important because it collects data that become the foundation for all other systems. Other students may determine that DSS are more important than the others

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because these systems increase the viability of decisions that may affect large parts of the organization.

3. Benefits of an enterprise system include a consolidated view of the organization, unified platforms, more efficient operations, and customer-driven business processes. Challenges include daunting implementation, high up-front costs, unpredictable future benefits, inflexibility, and difficulty in realizing strategic values in the company. Organizations are enticed to build enterprise systems because they offer enormous cost savings in the long run, increased efficiencies in business processes, and give the firm an advantage over its competitors.

4. Business firms, especially large firms, had in the past a reputation 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's plans. The job of middle management supposedly was to pass messages back and forth, up and down the hierarchy. A collaborative business culture is 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.

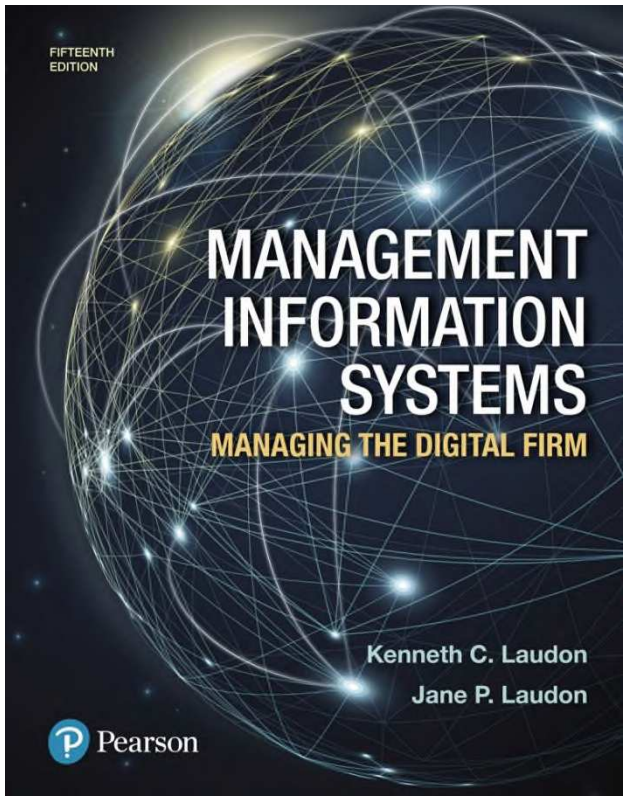
5. The tools and technologies for collaboration and social business include e-mail, social networking, wikis, and virtual worlds. Social networking sites give corporations another way for users to share ideas and collaborate with each other. Businesses can use them as a way to communicate with and reach out to customers. If done correctly, they can be great tools to sell products, service customers, and communicate with the masses. Wikis are specially created websites that provide a way for users to contribute and edit text content and graphics about a wide-ranging assortment of topics. They are generally less costly than formal knowledge management systems and may be more dynamic and current. Businesses can use virtual worlds to house online meetings, training sessions, and lounges for employees to communicate with one another.

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Management Information Systems: Managing the Digital Firm

Fifteenth edition



Chapter 2

Global E-business and Collaboration

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Learning Objectives

- **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?

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Video Cases

- Case 1: Walmart's Retail Link Supply Chain
- Case 2: CEMEX: Becoming a Social Business
- *Instructional Video: US Foodservice Grows Market with Oracle CRM on Demand*

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Enterprise Social Networking Helps ABB Innovate and Grow (1 of 2)

- Problem
  - Outdated static technology
  - Geographically dispersed
- Solutions
  - Develop knowledge sharing strategy and goals
  - Change knowledge and collaboration processes
  - Change organizational culture
  - Deploy Inside+, with Yammer, Office 365, and Sharepoint

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Enterprise Social Networking Helps ABB Innovate and Grow (2 of 2)

- ABB uses Inside+ to provide new channels for knowledge acquisition, innovation, and collaboration
- Demonstrates IT's role in helping organizations improve performance and remain competitive
- Illustrates the ability of IT systems to support collaboration and teamwork

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Business Processes (1 of 2)

- Business processes
  - Flows of material, information, knowledge
  - Sets of activities, steps
  - May be tied to functional area or be cross-functional
- Businesses: Can be seen as collection of business processes
- Business processes may be assets or liabilities

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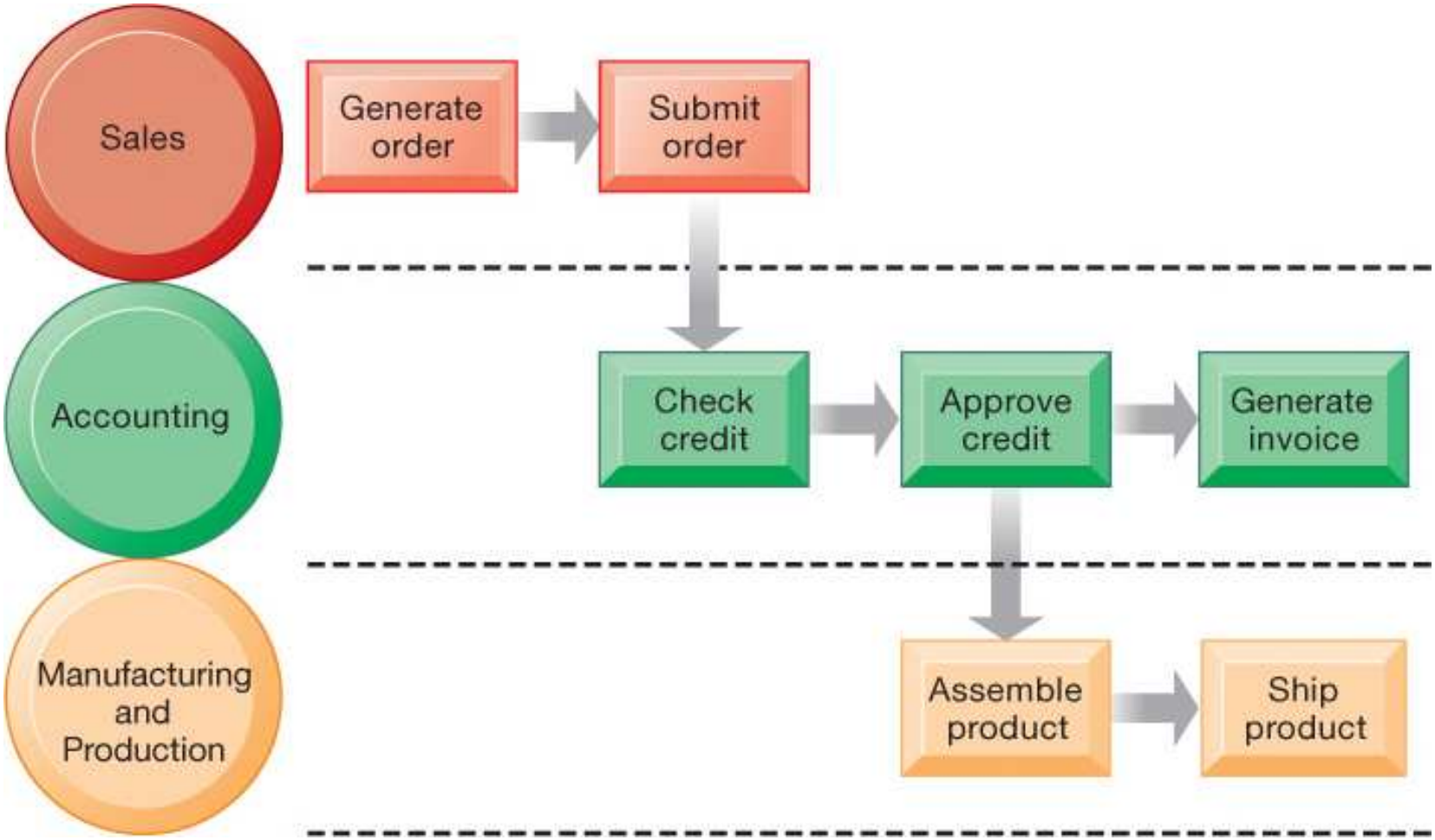
Business Processes (2 of 2)

- Examples of functional business processes
  - Manufacturing and production
    - Assembling the product
  - Sales and marketing
    - Identifying customers
  - Finance and accounting
    - Creating financial statements
  - Human resources
    - Hiring employees

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Figure 2.1: The Order Fulfillment Process



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How Information Technology Improves Business Processes

- Increasing efficiency of existing processes
  - Automating steps that were manual
- Enabling entirely new processes
  - Changing flow of information
  - Replacing sequential steps with parallel steps
  - Eliminating delays in decision making
  - Supporting new business models

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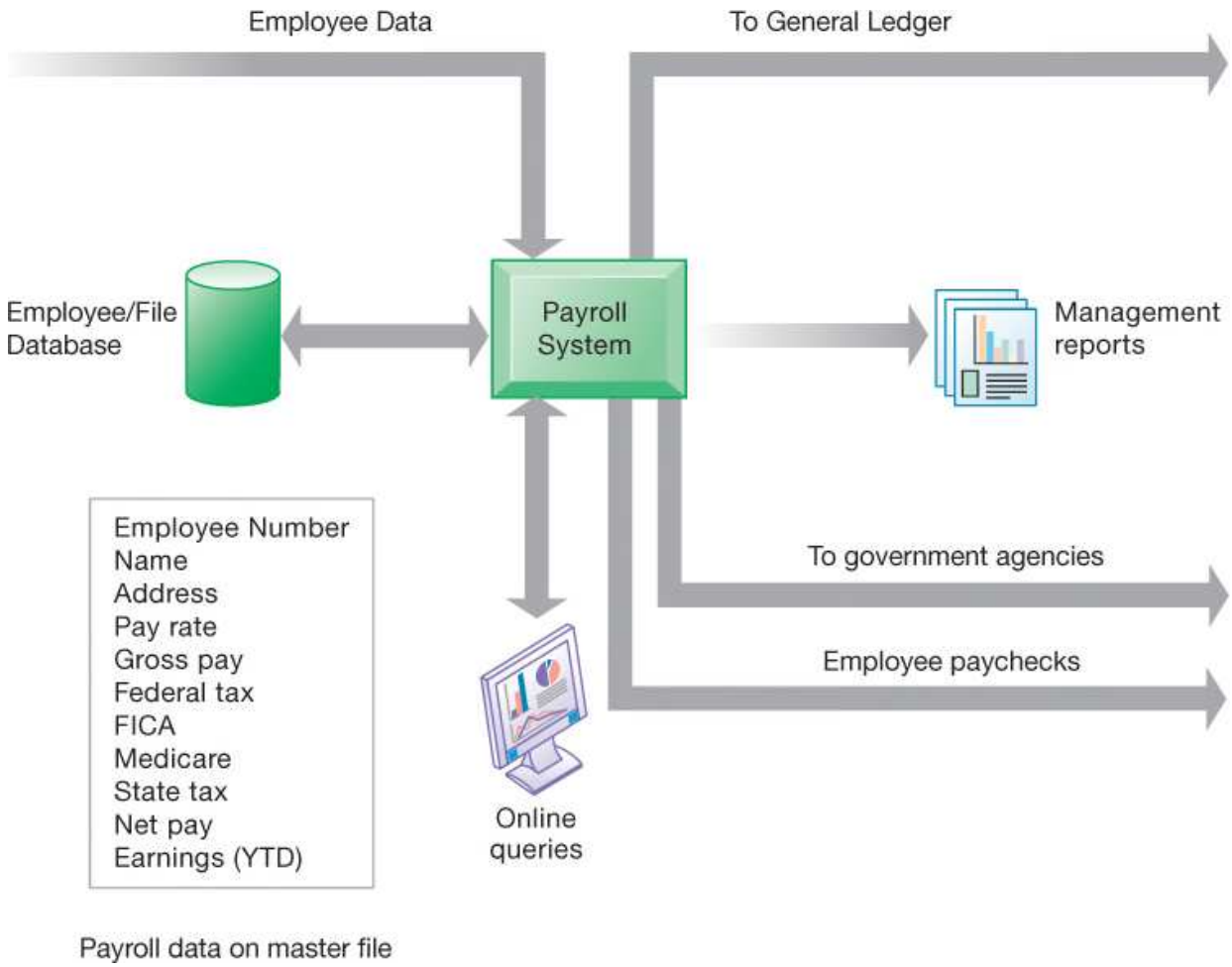
Systems for Different Management Groups (1 of 2)

- Transaction processing systems
  - Serve operational managers and staff
  - Perform and record daily routine transactions necessary to conduct business
    - Examples: sales order entry, payroll, shipping
  - Allow managers to monitor status of operations and relations with external environment
  - Serve predefined, structured goals and decision making

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Figure 2.2: A Payroll TPS



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Systems for Different Management Groups (2 of 2)

- Systems for business intelligence
  - Data and software tools for organizing and analyzing data
  - Used to help managers and users make improved decisions
- Management information systems
- Decision support systems
- Executive support systems

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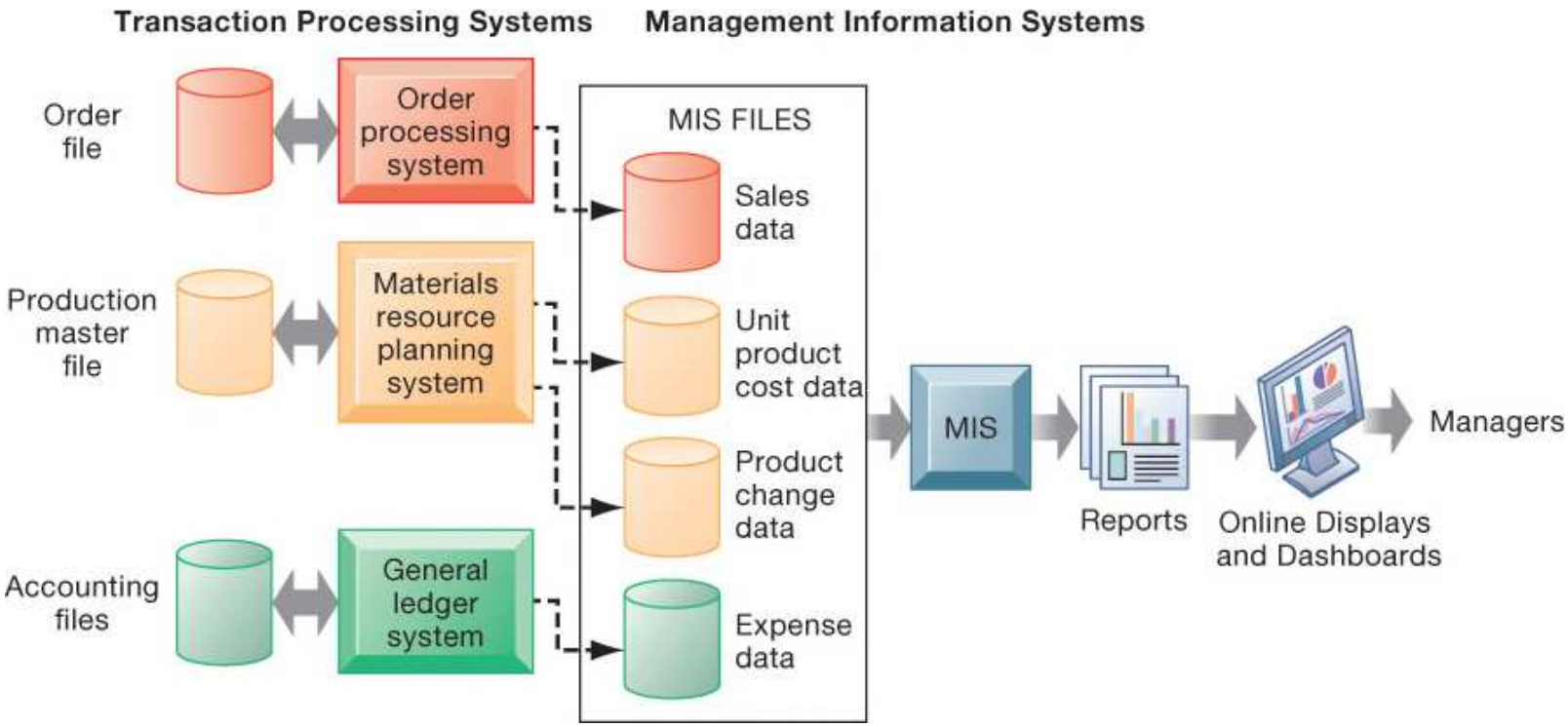
Management Information Systems

- Serve middle management
- Provide reports on firm's current performance, based on data from TPS
- Provide answers to routine questions with predefined procedure for answering them
- Typically have little analytic capability

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Figure 2.3: How Management Information Systems Obtain Their Data from the Organization's TPS



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Figure 2.4: Sample MIS Report

Consolidated Consumer Products Corporation Sales by Product and Sales Region: 2017

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

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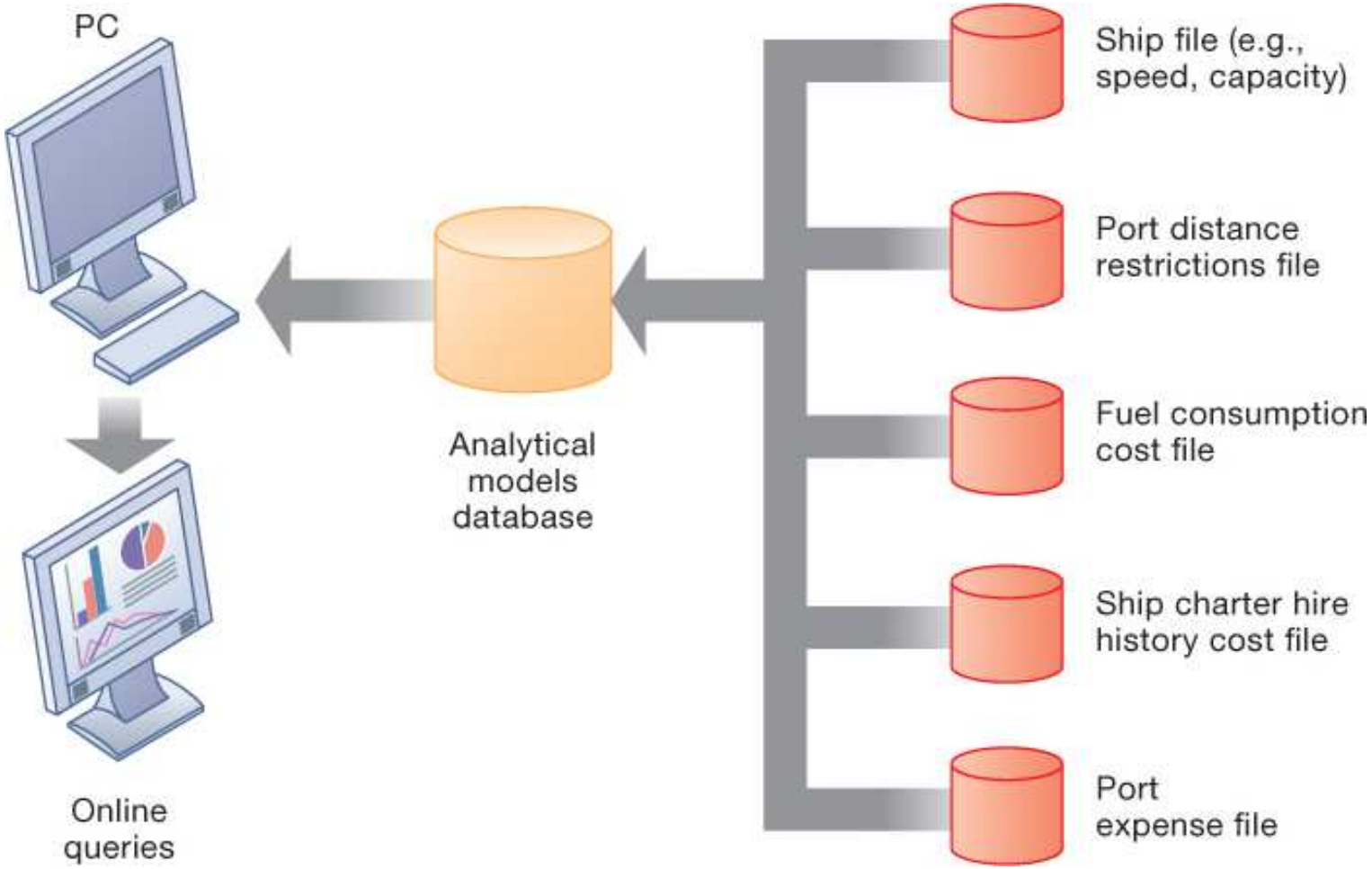
Decision support systems

- Serve middle management
- Support nonroutine decision making
  - Example: What is the impact on production schedule if December sales doubled?
- May use external information as well TPS / MIS data
- Model driven DSS
  - Voyage-estimating systems
- Data driven DSS
  - Intrawest's marketing analysis systems

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Figure 2.5: Voyage-Estimating Decision-Support System



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Executive Support Systems

- Support senior management
- Address nonroutine decisions
  - Requiring judgment, evaluation, and insight
- Incorporate data about external events (e.g., new tax laws or competitors) as well as summarized information from internal MIS and DSS
- Example: Digital dashboard with real-time view of firm's financial performance

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Interactive Session: Organizations: New Systems Help Plan International Manage Its Human Resources (1 of 2)

- Class discussion
  - Describe the problem faced by Plan International. What management, organization, and technology factors contributed to this problem?
  - Describe the system solution to this problem. Describe the types of systems used for the solution.
  - Why is human resources so important at Plan International?

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Interactive Session: Organizations: New Systems Help Plan International Manage Its Human Resources (2 of 2)

- Class discussion
  - How did these systems improve operational efficiency?
  - How did these systems improve decision making? Give examples of two decisions improved by Plan's new systems.

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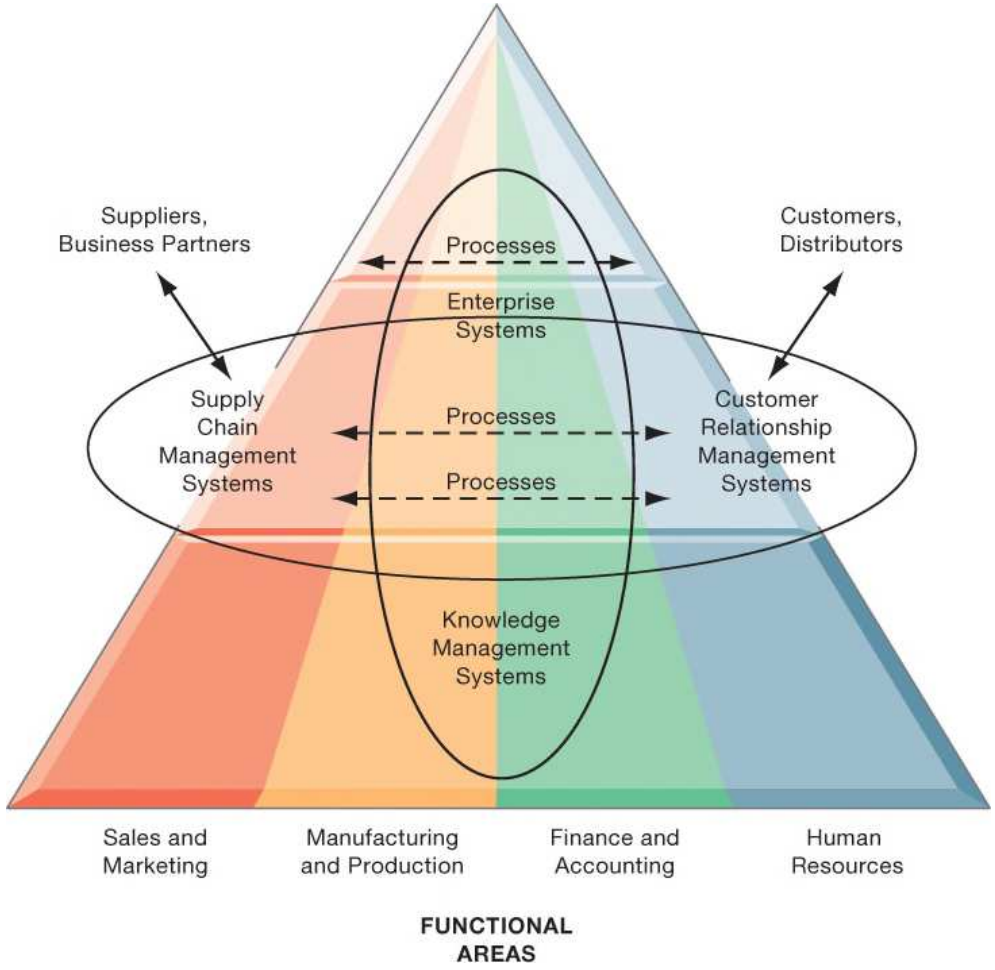
Enterprise Applications

- Systems for linking the enterprise
- Span functional areas
- Execute business processes across the firm
- Include all levels of management
- Four major applications
  - Enterprise systems
  - Supply chain management systems
  - Customer relationship management systems
  - Knowledge management systems

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Figure 2.6: Enterprise Application Architecture



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Enterprise Systems

- Collect data from different firm functions and store data in single central data repository
- Resolve problems of fragmented data
- Enable:
  - Coordination of daily activities
  - Efficient response to customer orders (production, inventory)
  - Decision making by managers about daily operations and longer-term planning

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Supply Chain Management (SCM) Systems

- Manage firm's relationships with suppliers
- Share information about:
  - Orders, production, inventory levels, delivery of products and services
- Goal:
  - Right amount of products to destination with least amount of time and lowest cost

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Customer Relationship Management (CRM) Systems

- Provide information to coordinate all of the business processes that deal with customers
  - Sales
  - Marketing
  - Customer service
- Helps firms identify, attract, and retain most profitable customers

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Knowledge Management Systems (KMS)

- Support processes for capturing and applying knowledge and expertise
  - How to create, produce, and deliver products and services
- Collect internal knowledge and experience within firm and make it available to employees
- Link to external sources of knowledge

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Intranets and Extranets

- Also used to increase integration and expedite the flow of information
- Intranets
  - Internal company websites accessible only by employees
- Extranets
  - Company websites accessible externally only to vendors and suppliers
  - Often used to coordinate supply chain

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

- E-business
  - Use of digital technology and Internet to drive major business processes
- E-commerce
  - Subset of e-business
  - Buying and selling goods and services through Internet
- E-government
  - Using Internet technology to deliver information and services to citizens, employees, and businesses

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What Is Collaboration?

- Collaboration
  - Short lived or long term
  - Informal or formal (teams)
- Growing importance of collaboration
  - Changing nature of work
  - Growth of professional work—“interaction jobs”
  - Changing organization of the firm
  - Changing scope of the firm
  - Emphasis on innovation
  - Changing culture of work

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What Is Social Business?

- Social business
  - Use of social networking platforms (internal and external) to engage employees, customers, and suppliers
- Aims to deepen interactions and expedite information sharing
- “Conversations”
- Requires information transparency
  - Driving the exchange of information without intervention from executives or others

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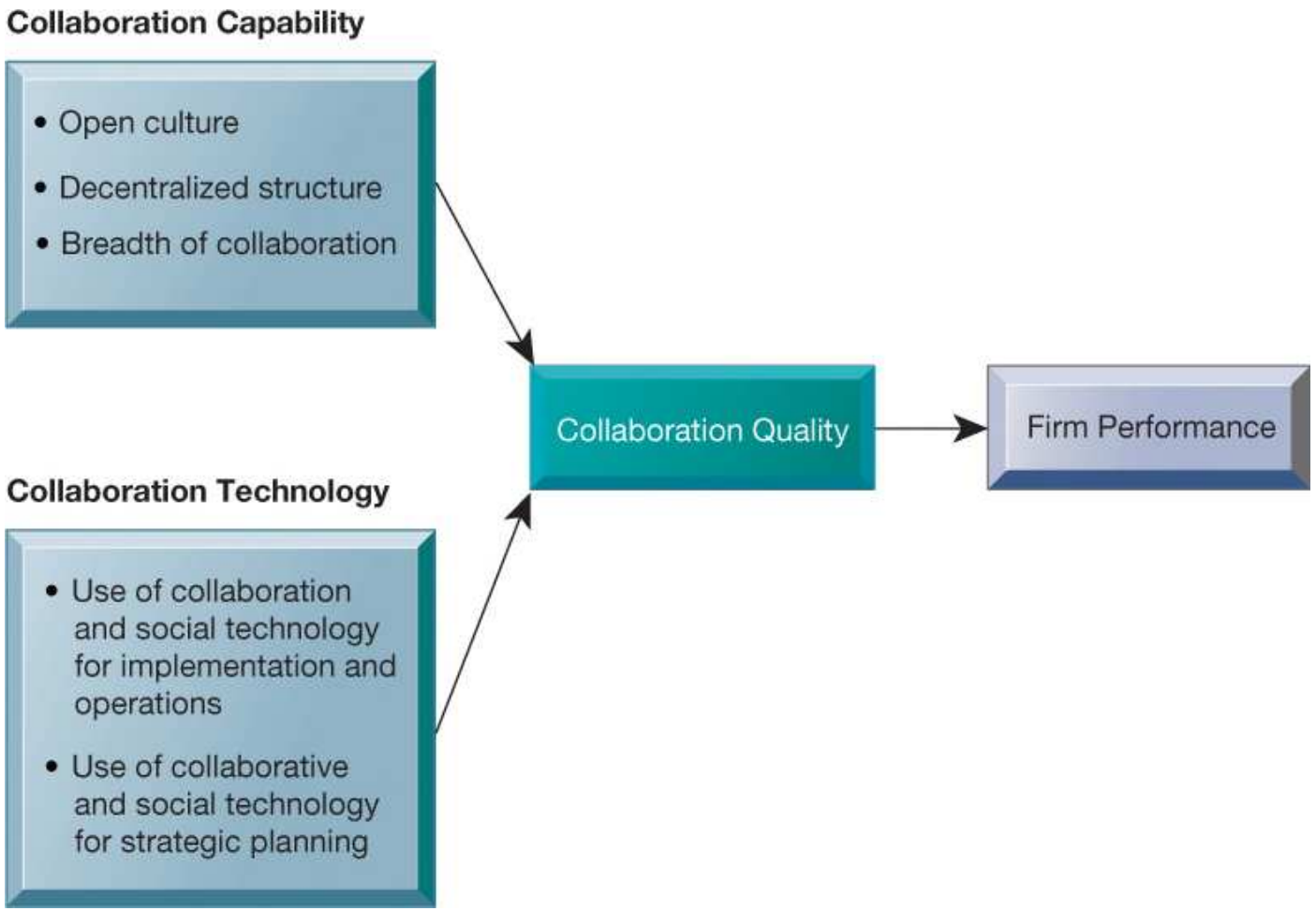
Business Benefits of Collaboration and Teamwork

- Investments in collaboration technology can bring organization improvements, returning high ROI
- Benefits
  - Productivity
  - Quality
  - Innovation
  - Customer service
  - Financial performance
    - Profitability, sales, sales growth

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Figure 2.7: Requirements for Collaboration



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Building a Collaborative Culture and Business Processes

- "Command and control" organizations
  - No value placed on teamwork or lower-level participation in decisions
- Collaborative business culture
  - Senior managers rely on teams of employees
  - Policies, products, designs, processes, and systems rely on teams
  - The managers purpose is to build teams

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Tools and Technologies for Collaboration and Social Business

- E-mail and instant messaging (IM)
- Wikis
- Virtual worlds
- Collaboration and social business platforms
  - Virtual meeting systems (telepresence)
  - Cloud collaboration services (Google Drive, Google Docs, etc.)
  - Microsoft SharePoint and IBM Notes
  - Enterprise social networking tools

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Interactive Session: Technology: Cisco IX5000: What State-of-the-Art Telepresence Can Do for Collaboration

- Class discussion
  - Describe the capabilities of Cisco's IX5000 telepresence system. How do they promote collaboration and innovation?
  - Why would a company like Produban want to invest in a telepresence system such as Cisco's IX5000? How are videoconferencing technology and telepresence related to Produban's business model and business strategy?
  - What kinds of other companies might benefit from a telepresence service such as IX5000? Why?

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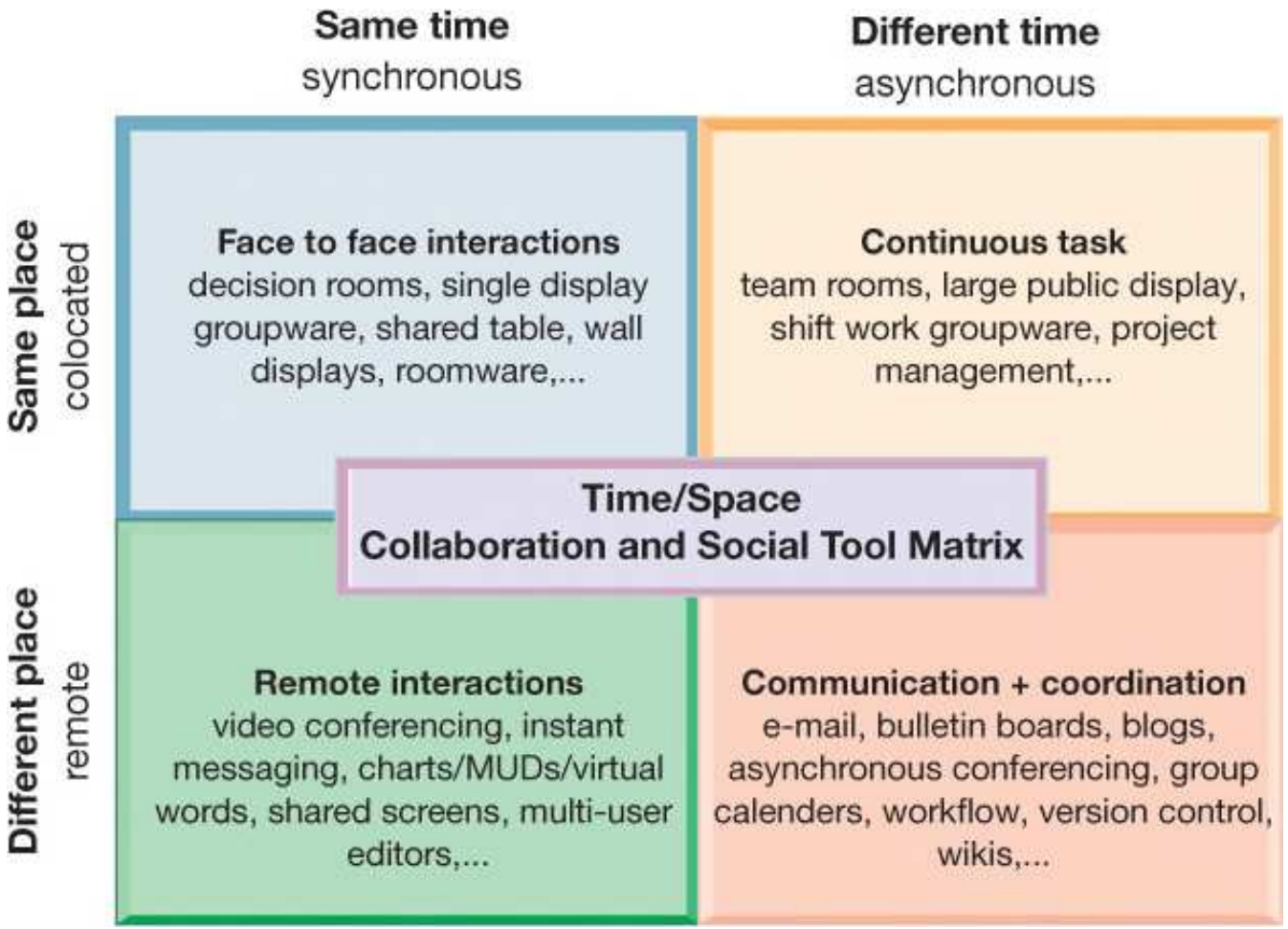
Checklist for Managers: Evaluating and Selecting Collaboration and Social Software Tools

- Time/space matrix
- Six steps in evaluating software tools
  - Identify your firm's collaboration challenges
  - Identify what kinds of solutions are available
  - Analyze available products' cost and benefits
  - Evaluate security risks
  - Consult users for implementation and training issues
  - Evaluate product vendors

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Figure 2.8: The Time/Space Collaboration and Social Tool Matrix



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The Information Systems Department

- Often headed by chief information officer (CIO)
  - Other senior positions include chief security officer (CSO), chief knowledge officer (CKO), chief privacy officer (CPO), chief data officer (CDO)
- Programmers
- Systems analysts
- Information systems managers
- End users

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Organizing the Information Systems Function

- IT governance
  - Strategies and policies for using IT in the organization
  - Decision rights
  - Accountability
  - Organization of information systems function
    - Centralized, decentralized, and so on

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