Chapter 2

Review Questions

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 define 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 Conversely, poorly designed or executed business processes can be a liability if they are based on outdated ways of working and impede responsiveness or efficiency.

   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.

2. How do systems serve the various levels of management in a business?

   Describe the characteristics of transaction processing systems (TPS) and the roles they play in a business.

   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.

   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.
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.

While 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.

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.

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

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

- 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 internal MIS and DSS.
- ESS are designed for ease-of-use and rely heavily on graphical presentations of data.

3. How do systems that link the enterprise improve organizational performance?

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.

**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 flows seamlessly throughout an organization, improving coordination, efficiency, and decision making.
- Gives companies the flexibility to respond rapidly to customer requests while producing and stocking only that inventory necessary to fulfill existing orders.
- Increases customer satisfaction by improving product shipments, minimizing costs, and improving a firm’s performance.
- Improves 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.

In short, **supply chain management 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 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 help firms increase the effectiveness of their marketing campaigns and provide higher-quality customer service and support.

Knowledge management systems enable organizations to better manage processes for capturing and applying knowledge and expertise. These systems collect all relevant knowledge and experience in the firm, and make it available wherever and whenever it is needed to improve business processes and management decisions. They also link the firm to external sources of knowledge.

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.

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.

4. Why are systems for collaboration and teamwork so important and what technologies do they use?

Define collaboration and teamwork 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.

**Teamwork** is part of the organization’s business structure for getting things done. Teams have a
specific mission. The members of a team need to collaborate on the accomplishment of specific
tasks and collectively achieve the team mission. Teams are often short-lived, depending on the
problems they tackle and the length of time needed to find a solution and accomplish the mission.

Collaboration and teamwork are 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 ideas.
- *Growth of professional work.* Professional jobs in the service sector require close
  coordination and collaboration.
- *Changing organization of the firm.* Work is no longer organized in a hierarchical fashion
  as much as 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.

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

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 benefit of collaboration is significant.

The business benefits of collaboration are listed in Table 2.2, page 58:

- *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.

**Describe a supportive organization culture and business processes for collaboration.**

Historically, organizations were built on hierarchies which 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
List and describe the various types of collaboration and communication systems.

Table 2-3, page 59 lists fifteen categories of collaborative software tools. Some of the more common enterprise-wide information systems that businesses can use to support interaction jobs include:

- Internet-based collaboration environments like Lotus Notes, Groove, 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 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.
- Google Apps/Google sites allow users to quickly create online group-editable Web sites 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.

5. 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.

Compare the roles played by programmers, systems analysts, information systems managers, the chief information officer (CIO), chief security officer (CSO), 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 managers, or database specialists.
- Chief information officer (CIO) is a senior manager who oversees the use of information technology in the firm.
- Chief security officer (CSO) 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.
- Chief knowledge officer (CKO) helps design programs and systems to find new sources of knowledge or to make better use of existing knowledge in organizational and management processes.