Solutions for Essentials of MIS 15th Edition by Laudon

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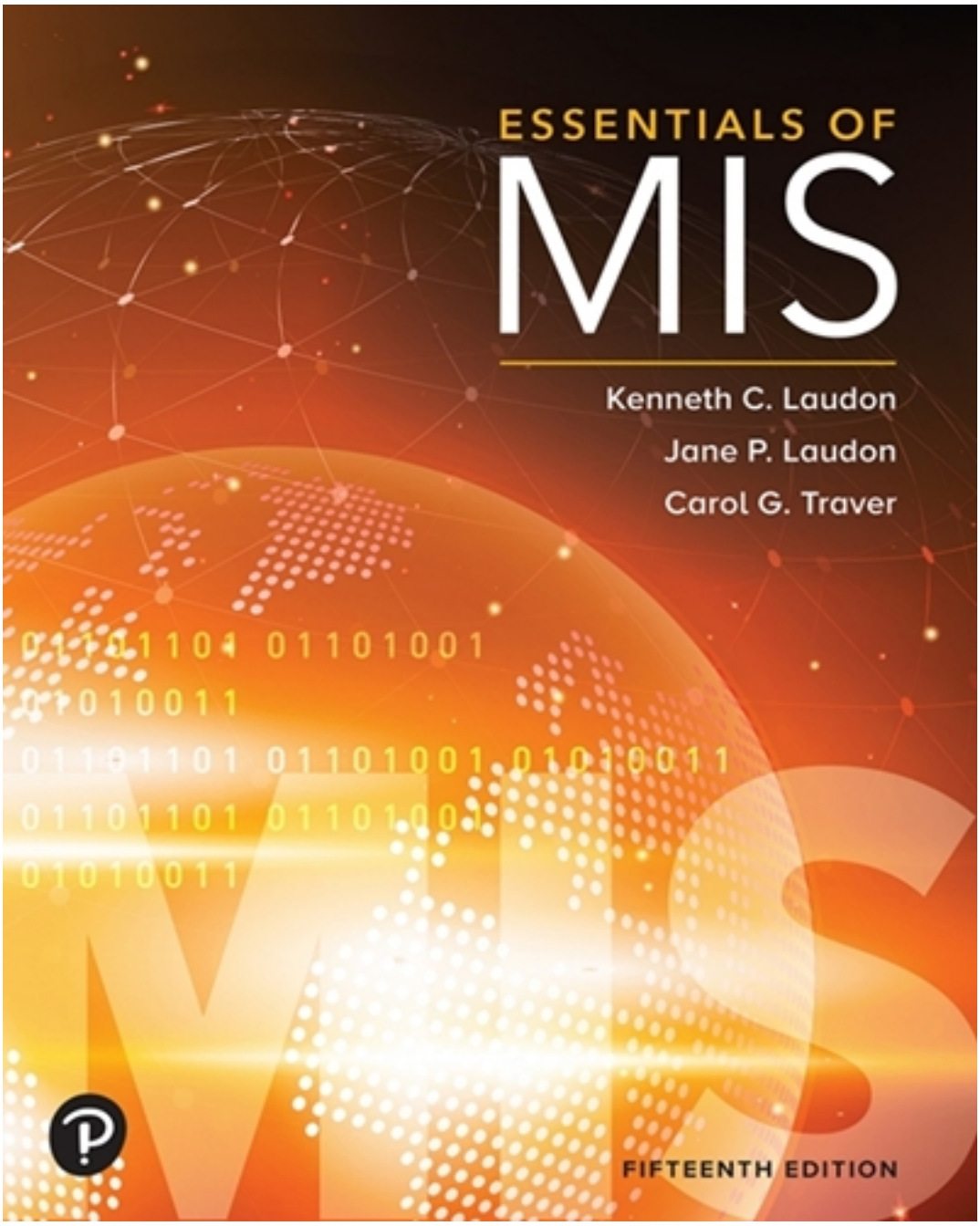

Solutions

Chapter 2
Global E-Business and Collaboration

Using MyLab Resources

My Lab Resources including Instructor Resources, Figure Videos, Hands on MIS Application Data Files, Dirt Bikes Case Data Files, and MyLab MIS are located at this link - Instructor Resources (https://media.pearsoncmg.com/ph/bp/bridgepages/teamsite/laudon/#mis).

This Instructor Manual (IM) resource has category headers viewable in Word and PPT to assist in using the text resources. This IM has resources related to Learning Objectives, Chapter Outline, Key Terms with page numbers, Section Summaries, Video Case, and the end of chapter problems (Discussion Questions, end MIS Projects, Collaboration and Teamwork Project).

Any other materials needed for instructing this course will be located at the above link for Instructor Resources for this text.

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Learning Objectives

2-1 Identify the major features of a business that are important for understanding the role of information systems.
2-2 Explain how information systems serve different management groups in a business and how systems that link the enterprise improve organizational performance.
2-3 Understand why systems for collaboration, social business, and knowledge management are so important and the technologies they use.
2-4 Describe the role of the information systems function in a business.
2-5 Understand how MIS can help your career.

Chapter Outline

2-1 Identify the major features of a business that are important for understanding the role of information systems.
- Organizing a Business: Basic Business Functions
- Business Processes
- Managing a Business and Firm Hierarchies
- The Business Environment
- The Role of Information Systems in a Business

2-2 Explain how information systems serve different management groups in a business and how systems that link the enterprise improve organizational performance.
- Systems for Different Management Groups
- Systems for Linking the Enterprise

E-Business, E-Commerce and E-Government

2-3 Understand why systems for collaboration, social business, and knowledge management are so important and the technologies they use.

What is Collaboration?
What is Social Business?
Business Benefits of Collaboration and Social Business
Building a Collaborative Culture and Business Processes
Tools and Technologies for Collaboration and Social Business
Systems for Knowledge Management

2-4 Describe the role of the information systems function in a business.

The Information Systems Department
Information Systems Services

2-5 Understand how MIS can help your career.

Key Terms

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

Business, 43
Business intelligence, 50
Business processes, 44
Chief data officer (CDO), 69
Chief information officer (CIO), 68
Chief knowledge officer (CKO), 69
Chief privacy officer (CPO), 69
Chief security officer (CSO), 69
Collaboration, 58
Customer relationship management (CRM) systems, 57
Data workers, 47
Decision-support systems (DSS), 51
Digital dashboard, 54
E-government, 58
Electronic business (e-business), 57
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End users, 69
Enterprise applications, 55
Enterprise content management (ECM) systems, 67
Enterprise systems, 55
Executive support systems (ESS), 55
Information systems department, 68
Information systems managers, 68
Interorganizational system, 56
Knowledge management systems (KMS), 57
Knowledge workers, 47
Management information systems (MIS), 50
Middle management, 47
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Production or service workers, 47
Programmers, 68
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Senior management, 46
Social business, 59
Structured knowledge, 67
Supply chain management (SCM) systems, 56
Systems analysts, 68
Tacit knowledge, 67
Teams, 58
Telepresence, 63
Transaction processing systems (TPS), 49
Virtual worlds, 62

Teaching Suggestions

Opening Case

The opening vignette, "Microsoft Teams Helps Toyota Motor North America (TMNA) Do Even Better," provides an outstanding example of the Toyota Way always looks for ways to improve operations, innovate, and collaborate. New digital tools are empowering employees to work more efficiently by promoting teamwork, gradual improvement of everyday business processes, and increased engagement. These technologies are the very same ones every business needs to succeed.

When the Covid-19 pandemic shut TMNA's factories and forced office workers to work from home, TMNA used Microsoft Teams to keep the company running in a safe work environment. Microsoft Teams is a business communication platform developed by Microsoft as part of the Microsoft 365 family of products. Teams has capabilities for workspace chat, audio and videoconferencing, screen sharing, online meetings, file storage, and communication through the public switched telephone network. Teams have channels, which are conversation boards for teammates.

Before adopting Teams, it would have taken TMNA months to schedule a meeting with representatives from every continent, and the cost would be very high. Employees throughout the company used Teams to work together virtually and drive productivity. TMNA's corporate culture values employee wellness and uses Teams for this purpose. During the pandemic shutdown, managers used Teams to connect with employees and ensure everyone was doing well working from home. Meeting experiences in Teams have lessened the need for business travel, which reduces stress as well as costs. Teams has empowered employees to support each other as they solve problems and produce more value for the firm.

Consider using this case to highlight the impact of information systems on collaboration in a global business environment in addition to coordination work from home and other remote working arrangements that are increasingly more common. Classroom discussion could center around student's own experiences working remotely for school or work during the pandemic and their observations of the tools they use and the improvement of those tools over a few short years.

Section 2-1: Identify the major features of a business that are important for understanding the role of information systems.

Table 2-1 (Page 45) 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 2-2 (Page 45) to compare how the order fulfillment process can be accomplished sequentially, as the figure shows, versus simultaneously, as a new information system would allow.

The explanation of firm hierarchies sets the basis for the rest of the text as it explains the various levels of management. Senior management requires a different type of information than do

middle management, operational management, knowledge workers, data workers, and production or service workers. Throughout the text, students will need this information to understand how and why each type of information system is necessary.

The business environment is a complex interaction where many forces push and pull on an organization. Highlighting Figure 2-4 will demonstrate this environment visually. Have students discuss examples of how each entity interacts with the others in the diagram.

Figure Videos 2.2

Chapter 2 Section 2-1 near discussion of Business Processes
This is an appropriate time for the class to review and discuss Figure 2.2 and the accompanying Video, which illustrates the business functions and activities involved in the business process of fulfilling a customer order. Figure videos are available in the eText and MyLabMIS.

Section 2-2: Explain how information systems serve different management groups in a business, and how 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.

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 that students' main encounter will be with TPS systems when they first begin their careers. Stress the importance of accurate data at the TPS level since 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.

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.

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 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.

Figure Videos 2.5

Chapter 2 Section 2-2 near discussion of Transaction processing systems
This is an appropriate time for the class to review and discuss Figure 2.5 and the accompanying Video, which illustrate how a transaction processing system (TPS) for payroll works. Figure videos are available in the eText and MyLabMIS.

Spotlight On: Organizations: Carbon Lighthouse Lights Up with the Internet of Things (IoT), Big Data, and Cloud Computing

Case Study Questions

1. Identify the problem described in this case study. Is it a people problem, an organizational problem, or a technology problem? Explain your answer.

According to the US Environmental Protection Agency (EPA), more carbon emissions come from operating commercial, residential, and industrial properties than from transportation. 68 % of total carbon emissions comes from generation of electric power, (manufacturing) industry, commercial and residential property, and agriculture.

This is an organizational problem of solving how to limit carbon emissions. Many businesses complain that it costs more money to be environmentally responsible. This does not have to be so. Acting on findings from advanced data analytics, commercial and building owners can reduce carbon emissions while producing cost savings.

2. What role have the IoT, Big Data analytics, and cloud computing played in developing a solution for this problem?

Carbon Lighthouse uses a software platform called Carbon Lighthouse Unified Engineering System (CLUES) to analyze more than 100 million square feet of clients' commercial and industrial real estate and 5 billion data points. Carbon Lighthouse uses Amazon's cloud services to run its computers and store data such as building addresses and square footage, along with time-series data such as the data collected on-site at buildings. Internet of Things (IoT) sensors, Big Data, cloud computing, and powerful data analysis software rather than expensive capital upgrades allow Carbon Lighthouse to unlock hidden returns in existing building mechanical systems and translate energy efficiency into tangible long-term savings.

3. Describe Carbon Lighthouse's problem solving methodology for reducing both carbon emissions and costs.

Carbon Lighthouse first examines the location using a sensor kit to start new data streaming from the client's buildings. Then recommendations generated are more complex than just turning off lights or lowering the heat. Recommendations focus instead on making existing equipment work a little better. As CLUES collects more data, its algorithms become more accurate and provide additional zone isolation and central plant measure, generating more energy efficiency and cost savings than projected.

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

Section 2-3: Understand why systems for collaboration, social business, and knowledge management are so important and the technologies 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 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' experiences 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 (Page 60) describes important application of social business inside and outside the firm. Because some of these applications are relatively unknown, you can have teams of students explore one or two of them and then present to the class a list of characteristics, capabilities, advantages, and disadvantages for each one.

Table 2.3 (Page 61) emphasizes the benefits of collaboration and social business while Figure 2.10 (Page 61) 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 2.11 (Page 66) and the information in the section "*Checklist for Managers: Evaluating and Selecting Collaboration Software Tools*" (Page 65) to help select the best tool.

Enterprise content management (ECM) systems help manage company knowledge including semistructured, semistructured, and unstructured types of information. Year ago, statistics were particularly valuable because companies often didn't have enough data to make decisions. As such, they used statistics based on samples of the population data. We still use statistics, but

today, many companies have too much data, and EMCs help to capture, store, retrieve, distribute, and preserve vast amounts of data.

Spotlight on Technology: Zoom: Quality Videoconferencing for Every Budget

Case Study Questions

1. **How is videoconferencing related to the business models and business strategies of the organizations described in this case?**

   Today, videoconferencing has been democratized. Zoom provides a less expensive and easier to use cloud-based option for online video and audio conference, collaboration, chat, screen-sharing, and webinars across various devices and became the online meeting tool of choice for classrooms and offices all over the world that had to operate remotely from people's homes during the 2020 coronavirus shutdown and thereafter.

   There is a free Basic version for short personal meetings with a maximum of 100 participants and more full-featured business versions ranging from $149.90 to $249.90 per year per license. Zoom can accommodate up to 1,000 video participants, 10,000 view-only attendees, and as many as 49 HD videos on-screen simultaneously.

   Videoconferencing is becoming a tool of choice to promote collaboration and innovation as they allow individuals to manage business processes and to connect an collaborate with others around the world. Zoom has been used in healthcare solutions, as a waiting room, remote work, education, and many other fields as a low cost collaboration system.

2. **Describe the specific ways in which Zoom helped each of the organizations in this case improve their operations and decision making.**

   Butler Health System used Zoom to expand its telehealth services during the Covid-19 pandemic. Zoom for Healthcare provided a solution, enabling providers to offer much of the clinical experience without having to see patients in person. (Zoom for Healthcare is Zoom's secure, web-based virtual care videoconferencing platform.) It enabled BHS to start offering expanded telehealth appointments to patients in their homes within three days. Using Zoom's Scheduling Privilege feature, office staff can schedule appointments for multiple providers at the same time. Staff also use Zoom's Waiting Room feature to simulate an urgent care setting. Patients with acute symptoms who can't wait for a scheduled appointment are given a meeting link to a physician's personal meeting ID and placed in a "virtual waiting room" queue.

   Blue Yonder used Zoom to create a communications platform that could support both its employees working from home and its customers around the globe during the Covid-19 pandemic and thereafter. Zoom helped Blue Yonder transition to a remote work environment and support customers facing pandemic-induced demand spikes, transportation disruptions, and labor shortages. Tools such as Zoom Meetings, Zoom Rooms, and Zoom

Webinar enabled the company to maintain business continuity and communication with employees and customers. Blue Yonder used Zoom to train employees in new products and product updates and for monthly meetings with the CEO and leadership to update them on the company and customers. Blue Yonder's marketing team uses Zoom to stage webinars for customers and sales prospects about successful customer experiences with Zoom tools

3. **Describe the If you were a small or medium-sized business, what people, organization, and technology criteria would you use to determine whether to use Zoom videoconferencing?**

   Zoom provides companies with the opportunity to conference via tablets and smartphones. As such, small businesses can participate in meetings and collaborations from remote locations. I would weigh how my workers needed to communicate with the type or organization and industry we work in. If people needed to communicate with supplies or customers at length face to face Zoom may be a good option to provide them. If workers remote, I would evaluate the technology needs for work from home employees and make sure they are compatible with the software chose for collaboration.

(Learning Objective 3: Understand why systems for collaboration, social business, and knowledge management are so important and the technologies they use.)
(AACSB: Application of knowledge)

Section 2-4: Describe 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 IS 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 IS staff is responsible for the well-being of all users in an organization. Users and the IS staff are teammates not polarizing opposites.

Section 2-5: Understand how MIS can help your career.

Addresses how the chapter's elements and information can help in securing a good job as a customer success analyst. This job will consist of responding to and assisting the support desk, assisting in new system implementations, providing ongoing training, conducting testing and quality assurance, and monitoring usage and feedback. These types of jobs are becoming more popular as information technology becomes more important in the workplace.

Review Questions

2-1 Identify the major features of a business that are important for understanding the role of information systems.

Define a business and describe the major business functions.

A business is a formal organization whose aim is to produce products or provide services for a profit. That is, to sell products at a price greater than the costs of production. Every business, large or small, has these four major functions: manufacturing and production; sales and marketing; human resources; and finance and accounting.

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.

Business processes for the manufacturing and production area include product assembling, quality checking, and producing bills of materials. For the sales and marketing area, business processes include identifying customers, making customers aware of the product, and selling the product. For finance and accounting, business processes include paying creditors, creating financial statements, and managing cash accounts. For human resources, business processes include hiring employees, evaluating employees' job performance, and enrolling employees in benefits plans.

Identify and describe the different levels in a business firm and their information needs.

From highest to lowest, the three levels of the organizational hierarchy are senior, middle, and operational management.

- Senior managers need summary information that quickly informs them about the overall performance of the firm, such as gross sales revenues, sales by product group and region, and overall profitability.
- Middle managers need more specific information on the results of specific functional areas and departments of the firm, such as sales contacts by the sales force, production statistics for specific factories or product lines, employment levels and costs, and sales revenues for each month or even each day.
- Knowledge workers, such as engineers, scientists, or architects, design products or services and create new knowledge for the firm. They may need access to external scientific databases or internal databases with organizational knowledge.
- Operational managers need transaction-level information, such as the number of parts in inventory each day or the number of hours logged on Tuesday by each employee.
- Production or service workers actually produce the product and deliver the service. Production workers need access to information from production machines. Service workers need access to customer records so they can take orders and answer questions from customers.

Types of information systems include transaction processing at the operational level, decision-support systems and management information systems at the middle level, and executive support systems at the senior level.

(Learning Objective 1: Identify the major features of a business that are important for understanding the role of information systems.)
(AACSB: Application of knowledge)

Explain why environments are important for understanding a business.

Business environments are constantly changing. New developments in technology, politics, customer preferences, and regulations happen all the time. In general, when businesses fail, it is often because they failed to respond adequately to changes in their environments. A firm must monitor changes in its environment and share information with key entities in that environment in order to stay in business.

External business environmental forces include: technology and science, the economy, international change, and politics.

Internal business environmental forces include: customers, suppliers, stockholders, regulations, and competitors.

(Learning Objective 1: Identify the major features of a business that are important for understanding the role of information systems.)
(AACSB: Application of knowledge)

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

Define business intelligence systems.

Business intelligence systems focus on delivering information to support management decision making. These systems use data and software tools for organizing, analyzing, and providing access to data to help managers and other enterprise users make more informed decisions. Business intelligence addresses the decision-making needs of all levels of management.

Business intelligence systems for middle management help with monitoring, controlling, decision making, and administrative activities in an organization.

Describe the characteristics of transaction processing systems (TPS) and the role 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), decision support systems (DSS), and executive support systems (ESS) and explain how each type of system helps managers make decisions.

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

- MIS provides 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 summarizes and report the company's basic operations using data supplied by TPS. The basic transaction data from TPS are compressed and usually presented in reports that are produced on a regular schedule.
- MIS serves 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 provides answers to routine questions that have been specified in advance and have a predefined procedure for answering them.
- MIS 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.

Examples include sales and profit per customer and per region, relocation summary and analysis, inventory control, capital investment analysis, and even a report on students who were here in the fall but did not to return in the spring.

While MIS have an internal orientation, DSS will often use data from external sources, as well as data from TPS and MIS. DSS support "what-if" analyses rather than a long-term structured analysis of MIS. Whereas MIS are generally not flexible and provide little analytical capabilities, DSS are designed for analytical purposes and are flexible.

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

- DSS provide sophisticated analytical models and data analysis tools to support semi-structured 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.

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

- ESS address non-routine 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.

(Learning Objective 2: Explain how information systems serve different management groups in a business and how 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.

Define enterprise systems, supply chain management systems (SCM), customer relationship management systems (CRM), and knowledge management systems (KMS), 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.

This changes the workflow of an organization:

- 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.

Supply chain management systems help businesses better manage relationships with their suppliers. The objective of SCM is to get the right number of products from the companies' source to their point of consumption with the least amount of time and with the lowest cost. SCM provide 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:

- Deciding when and what to produce, store, and move
- Rapidly communicating orders
- Tracking the status of orders
- Checking inventory availability and monitor inventory levels
- Reducing inventory, transportation, and warehousing costs
- Tracking shipments
- Planning production based on actual customer demand
- Rapidly communicating 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:

- Providing 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.
  - Consolidating customer data from multiple sources and providing analytical tools for answering questions such as: What is the value of a particular customer to the firm over his/her lifetime?
  - Integrating customer-related processes and consolidate customer information from multiple communication channels, giving the customer a consolidated view of the company.

- Providing detailed and accurate knowledge of customers and their preferences to 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.

- 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 improve business performance.

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 provide input and output for users.

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

2-3 Understand why systems for collaboration, social business, and knowledge management are so important and the technologies 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 businesses 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.

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 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 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, page 59:

- *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 organizational culture 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 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.

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 Lotus Notes, Groove, and WebEx provide online storage space for documents, team communications (separate 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 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.

Describe how knowledge management systems help organizations make better use of their structured, semistructured, and unstructured knowledge and also their tacit knowledge assets.

Knowledge management and their associated enterprise content management systems help manage company knowledge including semistructured, semistructured, and unstructured types of information. The ability of an organization capture, store, retrieve, distribute, and preserve vast amounts of data is critically important in this data-driven marketplace to be competitive. In the past SQL-based technologies were sufficient to maintain an organizations data. However, semistructured and unstructured types of information are difficult for these systems to effectively manage. Given the value of semistructured and unstructured data, knowledge management and ECMs help organizations these massive data troves.

Unfortunately, tacit knowledge is rarely written down. Some enterprise-wide KMS provide features and capabilities for addressing the challenges of tacit knowledge and provide assistance for locating employees that are experts within an organization that may help document important knowledge that is currently in tacit form.

(Learning Objective 3: Understand why systems for collaboration, social business, and knowledge management are so important and the technologies they use.)
(AACSB: Application of knowledge)

2-4 What is the role of the information system's 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 programmers, systems analysts, information systems managers, the chief information officer (CIO), chief security officer (CSO), chief data officer (CDO), chief privacy officer (CPO), and chief knowledge officer (CKO) play.

- 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.
- Chief information officer is a senior manager who oversees the use of information technology in the firm.
- 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.
- 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.
- Chief privacy officer is responsible for ensuring that the company complies with existing data privacy laws.
- 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 4: Describe 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 2.2? 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 Toyota Motor North America uses.

Student answers to this question will vary.

Hands-on MIS Projects

This section gives students an opportunity to analyze real world information systems needs and requirements. It provides several exercises you can use to determine if students are grasping the material in the chapter. Hands on MIS Project data files can be found at the link here. Each Chapter has these areas using software for real work application of chapter material.

Management Decision Problems

2-8 US Census Bureau:

What are some of the people, organizational, and technology issues that the Census Bureau had to address in modernizing a massive, important paper-based system?

Answer

(Learning Objective 1: Identify the major features of a business that are important for understanding the role of information systems.)
(AACSB: Analytical thinking, Reflective thinking, Application of knowledge)

Improving Decision Making: Using a Spreadsheet to Create a Town Budget

Software skills: Spreadsheet charts, formulas, assumptions
Business skills: Preparing a town budget

2-9 Using a Spreadsheet to Create a Town Budget

This exercise provides an opportunity for students to use spreadsheet software to develop budget projections for a small town. They also prepare a pie chart to visually illustrate the relative size of important budget cost components. The question file for this project (EMIS15Chap2 Question File) can be found in MyLabMIS and the solution file (EMISCha2 Solution File can be found in the Instructor Resources.

(Learning Objective 2: Explain how information systems serve different management groups in a business and how 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

2-10 Using Internet Software to Plan Efficient Transportation Routes

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!)

Shortest Distance and time: 7 hours, 57 min; 532 miles (Tolls included) Via I-80E and I-76
Alternate: 9 hours, 26 minutes; 595 miles (No Tolls) Via I-70E

(Learning Objective 2: Explain how information systems serve different management groups in a business and how systems that link the enterprise improve organizational performance.)
(AACSB: Analytical thinking, Application of knowledge)

Collaboration and Teamwork Project

2-11 Collaboration and Teamwork Project

With a team of three or four other students, search business publications on the web to find a description of a manager of a corporation. Gather information about what the manager does and the role the manager plays in the company. Identify the organizational level and business function where this manager works. Make a list of the kinds of decisions this manager has to make and the kind of information that manager would need for those decisions. Suggest how information systems could supply this information. If possible, use Google Docs and Google Drive or Google Sites to brainstorm, organize, and develop a presentation of your findings for the class.

Business Problem-Solving Case: How Much Does Technology Help Collaboration?

2-12 How do virtual meeting technologies enhance collaboration?.

People: 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. A successful social business strategy requires leadership and behavioral changes. Just sponsoring a social project is not enough -managers need to demonstrate their commitment to a more open, transparent work style.

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 and culture can prove difficult. Enterprise social networking systems were not at the core of how most of the surveyed companies collaborate. The social media platform that will work best depends on its specific business purpose. Firms should first identify how social initiatives will actually improve work practices for employees and managers since technologies won't benefit flawed business processes.

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: Identify the major features of a business that are important for understanding the role of information systems.)
(Learning Objective 2-2: Explain how information systems serve different management groups in a business and how systems that link the enterprise improve organizational performance.)
(Learning Objective 2-3: Understand why systems for collaboration, social business, and knowledge management are so important and the technologies they use.)
(AACSB: Analytical thinking, Application of knowledge)

2-13 How do virtual meeting technologies hinder collaboration? Identify the people, organization, and technology factors that contribute to this problem.

People: People aren't used to the unnatural lack of nonverbal cues, prolonged eye contact, or overload of faces to process on the screen. Seeing our own faces as we talk or listen, and awareness of how we appear online is stressful. The amount of effort required to process all of these stimuli while simultaneously thinking and communicating is fatiguing. The term "Zoom fatigue" is now part of our vocabulary. Constant connectedness and overuse of virtual communication platforms, particularly videoconferencing, cause many people to experience feelings of tiredness, anxiety, or burnout. Collaboration technologies can create conditions for self-censorship, even if the technology is perceived to be user-friendly.

Organization: Studies show that spending too much time in meetings negatively affects people's psychological, physical, and mental well-being. Having too many meetings diverts workers during their most productive hours, interrupts people's train of thought, and detracts from effective collaboration. Regardless of company size, both the number of collaborative demands and the diversity of them are overwhelming people. This is a serious problem

Technology: Recent research has found that videoconferencing technology can actually make it harder for people to collaborate, communicating via video can draw attention away from audio cues in many cases, reducing capacity to carry out the work itself.

(Learning Objective 2-2: Explain how information systems serve different management groups in a business and how systems that link the enterprise improve organizational performance.)
(Learning Objective 2-3: Understand why systems for collaboration, social business, and knowledge management are so important and the technologies they use.)
(AACSB: Analytical thinking, Application of knowledge)

2-14 What can organizations do to improve the effectiveness of collaboration technology?

Answers will vary, each organization has its own specific needs, recommendations for making virtual meetings more effective and less tiring include the following:

- Cancel unnecessary meetings and make necessary meetings shorter.
- Use breakout rooms for problem solving, discussions, and social interactions.

- Use asynchronous meetings, such as by creating a shared Google Doc for employees to contribute to throughout the day.
- Build in breaks during long meetings and in between back-to-back meetings.
- Moderate and facilitate virtual meetings more actively, moving topics along when needed and ensuring that everyone has an opportunity to contribute.
- Turn off "self-view," if possible, on your meeting platform and make camera use optional for some meetings.
- Implement meeting free blocks of time or days

(Learning Objective 2-1: Identify the major features of a business that are important for understanding the role of information systems.)
(Learning Objective 2-3: Understand why systems for collaboration, social business, and knowledge management are so important and the technologies they use.)
(AACSB: Analytical thinking, Application of knowledge)

2-15 If a midsized company wants to implement virtual meeting technology to support remote work and collaboration, what issues should be considered?

Answers will vary, but should include among others: cost to implement, usability, specific needs of the business, technological needs for employees and clients, internal vs external use, support needed for customers, clients, and employees.

Video Case: How Slack Is Preparing for the Future of Work

The Video Case is located by link in the eText. The PDF of the case with questions and answers are located in the MyLab MIS (link in the IM introduction).

- A great way to use this resource would be to assign as a material to review prior to a lecture to then engage students with questions regarding the material as it comes up in the lecture.
- A second use of this resource would be to view with the class at the end of class for application and have groups of students present their answers to questions in class.
- This could also be used for discussion in class, or online in discussion boards with the view as the material to reflect on and the questions as prompts for student discussions.

Description

This Video and Video Case provide more detail on Slack, a multipurpose messaging tool acquired by Salesforce that has emerged as a leading platform for digital collaboration in today's anytime, anywhere work environment. The discussion of Slack and other collaboration technologies in section 2-3 is an ideal place to use this Video Case. You might want to ask students to describe Slack's features for communication and collaboration and whether Slack makes a good "digital first" toolkit. The Video is in the eText and the PDF with case details and questions is in the MyLab.

Dirt Bike Running Case: Analyzing Financial Performance

Introduction

There is an assignment accompanying each chapter of the text. To complete the assignment, Students should review the corresponding text chapter and any information provided by students' instructor related to the topic. Students can complete each project individually or in teams, depending on instructor's requirements. To develop solutions, students may need to do Web research and to use spreadsheet, database, or Web browser software tools, and will need to use a word processor to write up findings. Many projects recommend Students use electronic presentation software, if possible, to summarize findings for management. Each assignment will list the software tools that students will need to use, and the questions Students will need to answer.

Software skills: Spreadsheet charts and formulas

Business skills: Financial statement analysis

Chapter Case

As part of your analysis of the company for management, you have been asked to analyze data on Dirt Bikes's financial performance. Review Dirt Bikes's selected financial and sales data in the Introduction to Dirt Bikes, which can be found in MyLabMIS. There you will find Dirt Bikes's income statement and summary balance sheet data from 2020 to 2022, annual sales of Dirt Bikes models between 2018 and 2022 (measured in units sold), and total domestic versus international sales between 2018 and 2022 (measured in units sold).

Use your spreadsheet software to create graphs of Dirt Bikes's sales history from 2018 to 2022 and its domestic versus international sales from 2018 to 2022. Select the type of graph that is most appropriate for presenting the data you are analyzing.

Use the instructions in MyLabMIS and your spreadsheet software to calculate the gross and net margins in Dirt Bikes's income statements from 2020 to 2022. You can also create graphs showing trends in selected pieces of Dirt Bikes's income statement and balance sheet data if you wish. (You may want to rearrange the historical ordering of the data if you decide to do this.)

Prepare an addition to your management report that answers these questions:

- What are Dirt Bikes's best- and worst-performing products? What is the proportion of domestic to international sales? Have international sales grown relative to domestic sales?

- Are sales (revenues) growing steadily, and, if so, at what rate? What is the cost of goods sold compared to revenues? Is it increasing or decreasing? Are the firm's gross and net margins increasing or decreasing? Are the firm's operating expenses increasing or decreasing? Is the firm heavily in debt? Does it have assets to pay for expenses and to finance the development of new products and information systems?

- (Optional) Use electronic presentation software to summarize your analysis of Dirt Bikes's performance for management.

The spreadsheet solution file for this case (EMIS15Ch02_solutionfile.xls) uses a line chart to show the 5-year trend in Dirt Bikes' total sales and a stacked column chart of 5-year sales trends to show how much international and domestic sales (measured by units sold) contribute to the total. One can see from these graphs that unit sales dipped slightly during 2022 but that overall, sales have been growing. The portion of overall sales represented by international sales has not changed significantly, suggesting that there may be opportunities for Dirt Bikes to grow its international sales. The income statement data show a continuing rise in operating expenses and cost of goods sold combined with declines in gross and net margins. Dirt Bikes needs some way to bring down its costs, and new information systems might help. The balance sheet shows that Dirt Bikes has sufficient assets so that it could afford to invest in new product development and new information systems.