saylor.org
ACADEMY

Saylor Academy awards

DAN RIMNICEANU

this certificate for the prescribed curriculum of study for the

MINOR IN BUSINESS ADMINISTRATION

Issue Date: 16 octombrie 2018

Certificate ID: 12055131

Devon Ritter
Director of Education,
Saylor Academy

---

saylor.org
ACADEMY

Saylor Academy awards

Dan Rimniceanu

this certificate of achievement for

BUS303: Strategic Information Technology

14 august 2018

Issue Date

11830586

Certificate ID

In this course, we will focus on the allocation and use of technology resources across an entire firm as part of the larger organizational strategy. Because firms do not have an unlimited supply of capital, they must decide when and where to deploy new information technology. Firms must not only focus on when to deploy IT, but also if they should deploy IT at all! This brings up the bigger question about technology: Can the use of IT bring a sustainable competitive advantage to an organization? There are those who say "no", and others who say "of course!" You will explore these differing opinions in Unit 1.

In Unit 2, you will delve into how IT might manage business processes and take a look at Enterprise Resource Planning (ERP) systems, Business Process Management (BPM) systems, and business process reengineering. You will then move on to how technology can inform decision making in Unit 3 by studying business intelligence, data warehousing, and data mining. Unit 4 introduces you to the world of e-commerce and examines such important topics as intellectual property and online marketing. In Unit 5 you will explore major trends in technology today like cloud computing, Web 2.0, and mobile technologies. Units 1 through 5 lay the groundwork for understanding how IT can be used in business strategy, which you will put to practical use in Unit 6 and actually write a strategy.

Unit 1: Information Technology and Competitive Advantage

Organizations have been using information technology for the past 50-plus years. Billions of dollars have been spent on computer hardware, software, network communications, and all the other requirements of having world-class technology. But to what end? Has the money spent on technology allowed businesses to become more profitable? Or more specifically: has the implementation of information technology led to a sustainable competitive advantage?

This unit will start by answering the question: What is information technology? For that matter, what exactly is technology? For our purposes here, technology is considered any electronic or digital tool used by people to make a process easier or more efficient. You can also think of technology as the science of creating or using technical objects in order to reach industrial goals, which certainly applies to how businesses use technology to achieve productivity. We tend to think of technology mostly in terms of electronic innovation. Information technology is defined as those digital or electronic tools that are designed to make the process of managing or distribution of information easier.

You will then study the history of IT and how it fits into business strategy today. Specifically, you will review concepts from other courses, such as the value chain and Porter's Five Forces of Competitive Advantage. You will look at how IT fits into these topics and other key concepts related to strategy.

This unit will end with a focus on the relationship between IT and competitive advantage, which will set the foundation for the rest of the course. Is it possible for IT to bring competitive advantage? Many argue that YES, it can! As a student of information systems, it is highly important that you can articulate both Carr's article AND the rebuttals to it.

The articles below present different cases for how IT can bring a competitive advantage. See if you can find a common thread in these articles.

Completing this unit should take you approximately 10 hours.

- Upon successful completion of this unit, you will be able to:
    - explain the effective use of information technology in business organizations;
    - summarize key concepts of an information systems strategy;
    - explain the concept of sustained competitive advantage; and
    - describe how information systems strategy can play a part in achieving a sustained competitive advantage.

- ## 1.1: Understanding Information Technology
- ## 1.1.1: Information Technology vs. Information Systems

    - [Achieving Efficiency and Effectiveness through SystemsURL](#)
      Read Chapter 2 to learn about the four components of information systems and what role information technology plays in business. Read the two case studies on pages 33 and 34 and answer the two questions that accompany each case to apply what you have read.

- ## 1.1.2: Strategic Growth of Information Systems

    - [Moore's Law and More: Fast, Cheap Computing and What It Means for the ManagerURL](#)
      Read this chapter to get a full understanding of Moore's Law and its implications. Complete the exercises at the end of each section.

- ## 1.1.3: Information Systems Strategy

    - [Performance Through TimeURL](#)
      Read this chapter until you get to the heading "1.4 Diagnosing Performance", then stop. As you read through the first three sections, think about how many technology delivery tools have changed in your lifetime. Consider the author's claim that management does matter. As the competitive landscape and the technology change rapidly, consider how a business can use strategy to take a proactive approach toward strategic growth.

    - [Creating Winning IT StrategiesPage](#)
      As you listen, think about the day to day operations of an organization. We will talk about the demand side of the business in terms of competitive advantage. We will then discuss the control side by discussing the enterprise systems and processes that drive the information systems strategy. Finally, we will discuss the supply of the system by talking about how to manage our data and interact with our customers.

- o 1.1.4: Roles of IT in a Firm
    - ▪ Introduction to Information SystemsURL
        Read Chapter 1. In this chapter, you will learn about three primary roles that information systems serve in business organizations: enterprise systems, e-business, and information technology. Chapter 1 likens information systems to puzzle pieces that keep changing. Do you think that is a worthwhile comparison? Take a minute to write why you agree or disagree. If you disagree, come up with another analogy.

- • 1.2: What Is Competitive Advantage?
- o 1.2.1: Sustainable Competitive Advantage

    - ▪ Introduction to Competitive AdvantageURL
        Read this section for an understanding of competitive advantage and the role technology can play in sustaining competitive advantage. Complete the exercises at the end of this section. Also, answer the following questions in your notes: What is strategic positioning? How might technology be used to achieve strategic positioning?

- o 1.2.2: Five Forces of Competitive Advantage

    - ▪ The Five Forces of Industry Competitive AdvantageURL
        Read this section to see examples of how technology can influence the five forces of competitive advantage. Consider the questions and exercises at the end of this reading to explore how this model is used for developing business strategy.

    - ▪ Business-to-Business Marketing ModelsURL
        This reading offers a very clear and simple explanation of the Five Forces Model. Think about a business you visit regularly, such as a grocery store or online store. Then try to briefly describe the rivalries, threat of substitutes, buyer power, barriers to entry, and supplier power for the business you have chosen.

- o 1.2.3: Value Chain

    - ▪ The Value ChainURL
        Read this section to gain insight into how technology can affect the value chain. Consider each question at the end of the reading to reinforce your understanding of this model.

    - ▪ The Marketing ModelURL
        The value chain proposes that if a business makes a product that meets the customers needs and wants and then sells it at the right time and the right price, the customer will purchase the product. Reflect on some instances in

which the customer may still choose not to buy the product, even if the theory of the value chain is applied fully.

- ## 1.3: Using Information Systems to Create a Strategic Competitive Advantage

    - Achieving Competitive Advantage with Information SystemsPage
      This article ties together the concepts of information systems and competitive advantage. Take note of the several examples given of how information systems support business processes. Can you think of additional ways that information technologies are used to help business every day? Review the quiz questions at the end of the reading.

    - Introduction to Competitive Advantage in Information SystemsURL
      As you complete this reading, think about how using, protecting, and managing information and data could support an organization's competitive advantage. How does understanding customer information and data support current operations? How might it impact future operations?

- ## 1.4: Cases in Competitive Advantage: Zara and Netflix

    - Zara: Fast Fashion from Savvy SystemsURL
      Read this chapter to see an example of how IT is used to gain a competitive advantage. How did Zara use data to make decisions about their business operations? How did Zara's use of data compare to Gap's?

    - Netflix: David Becomes GoliathURL
      Read this chapter to see an example of how IT is used to gain a competitive advantage. As you read the case of Netflix, consider the following question: What are the long-term threats to Netflix? (Hint: Consider changes in technology and copyright/patent/media law.)

Unit 2: ERP Systems, Business Processes, and IT

To obtain a competitive advantage with information technology requires more than just simply using the technology. As we have seen in the previous section, it is about the innovative use of technology integrated into your business processes that bring about competitive advantage. In this unit, you will dig deeper into the concepts of business processes and explore the use of ERP Systems, Business Process Management, and Business Process Reengineering in an organization.

Completing this unit should take you approximately 5 hours.

- Upon successful completion of this unit, you will be able to:
    - explain the concept of business processes;

- explain the purpose of an enterprise resource planning (ERP) system in organizations;
- give examples of how information systems support organizations in managing business processes; and
- explain the concept of business process reengineering and describe the role information technology plays in it.

- ## 2.1: What Is a Business Process?

  o [Business Process Modeling and Process ManagementURL](#)

  As you read Chapter 4, focus on the definition of a business process. A business process is a series of tasks that are repeated in order to produce a measurable output. Pay particular attention to how the concept of the business process has been defined in the business literature over the years (page 70). Take a moment to write a definition of business process in your own words.

  o [Documenting Business Processes and Information SystemsURL](#)

  Read the first six pages of Chapter 2. How are business processes crucial for the functioning of a business and how technology is integrated with the processes. Think about some things you do on a regular basis, like pay your bills online or check your email. Are you able to map out simple processes that support your day-to-day activities? Do you feel confident that another person could complete the task based on your process map?

- ## 2.2: Enterprise Resource Planning Systems

  o [Introduction to ERP SystemsPage](#)

  Watch this video learn how ERP systems are used in businesses. Take some time to write down the answers to the following questions in your notes: What is an ERP system? What is its business function?

  o [More on ERP SystemsPage](#)

  As you watch, consider the following questions: What are the rewards of implementing an ERP system for an organization? What are the risks of implementing an ERP system?

  o [Advantages and Disadvantages of Enterprise Resource Planning (ERP)Page](#)

  This short article complements the videos you just watched. Look back on your notes from the videos and your answers to the questions posed in these notes. Did you uncover any advantages or risks that are not mentioned in the video or in this article? Did the these resources list advantages or risks that you had not considered? Given the advantages and disadvantages of implementing an ERP

system, write a cautionary letter to your company CEO in response to this email she just sent you:

"Good morning. I want to implement a new ERP and you are the lead for the transition. I want it online quickly but don't spend a lot of money on it. Also, make sure everyone has access to it; I don't want the IT department to be the only employees around here who can make sure this system works."

Consider sharing your letter on the discussion forum.

- 2.3: Business Process Management

  o   [Business Process Management in Health Care: Current Challenges and Future ProspectsURL](#)

  Read this article to get a better understanding of business process management (BPM). Consider the following question as you read: How do business processes and enterprise resource planning systems work together to support the use of information technology in a business organization?

  o   [Business Process Improvement: Creating Value from Asset Information ManagementPage](#)

  This video explains BPM well and gives you an idea of how software can be used to support business processes. Note: Do not construe the inclusion of this resource as an endorsement of the particular software solution provided or the company.

  o   [Intro to Business Process ManagementPage](#)

  Consider the following questions as you watch this video and write down your thoughts in your notes: What is business process reengineering? When is business process reengineering an appropriate strategy?

  The sound in this video cuts out from 3:50 to 4:23. Nothing critical is explained during this portion, so you may skip ahead until the sound resumes.

Unit 3: Using Information for Decision Making

Data is everywhere, but how can an organization leverage it for competitive advantage? The field of business intelligence studies how organizations can get the right information into the hands of the right decision makers. This unit begins by giving you an overview of how decisions are made and how information technology plays a role. You will then review different ways that information technology is used to help organizations make effective decisions: business intelligence, data warehousing, and data mining.

Completing this unit should take you approximately 5 hours.

- Upon successful completion of this unit, you will be able to:

- explain the concept of business intelligence;
- compare and contrast system design methodologies; and
- analyze how data warehousing and data mining can be used as part of an organization's strategy.

- ## 3.1: The Decision-Making Process
  - Utilizing Data for Efficiency and EffectivenessURL

    Read Chapter 8 for a discussion of how business organizations make decisions and the role information technology plays in decision making. Consider the following questions as you read: What is the process that uses technology to make automated decisions? Consider system input, decision-making algorithms, and output. How does an organization track the decisions made by the system?

- ## 3.2: Business Intelligence

  - The Data Asset: Databases, Business Intelligence, and Competitive AdvantageURL

    Read sections 11.2 through 11.4 to more fully understand how information systems can enable better decision making. Complete the exercises at the end of each section and record your answers to each question in your notes.

  - Business Intelligence: Analysis of App Sales DataURL

    This chapter gives the practitioner's view of how business intelligence can be used. In your notes, identify at least one key business process/activity that is well-suited for a business intelligence application. Complete the exercises at the end of each section and record your answers to each question in your notes.

- ## 3.3: Data Warehousing

  - Data Warehouses and Data MartsURL

    Read this short article, focusing on the diagram about how data warehouses are constructed. Take some time to jot down answers to the following questions: What is a data warehouse? How does it differ from a database? What are the key steps in constructing a data warehouse?

  - Google: Search, Online Advertising, and BeyondURL

    Read this chapter until you get to the heading "8.9 Search Engines, Ad Networks, and Fraud", then stop. Focus on how data warehousing allowed Google to become the giant search engine it is today. Think about the scope and scale of the server farm that is necessary for Google to support the collection and analysis of all the data that it collects.

- 3.4: Data Mining

  - [Data Mining: A Simple Guide for BeginnersPage](#)

  As you read this article, write down your notes on the following questions: What is data mining? How is it different from a data warehouse? What is the difference between data mining and information collection?

  - [The Business Intelligence ToolkitURL](#)

  This section explores how data warehouses and data mining work together. What types of reports and tools help transform data into information and data sets into underlying trends?

Unit 4: e-Commerce

Today's businesses must know how to compete online - it is as simple as that. In this unit you will learn what electronic commerce, or e-commerce, is and what steps a business must take in order to implement it. You will also be introduced to the concept of intellectual property and to the Pew Internet Project, both of which are important as part of your overall understanding of online business. Finally, the unit wraps up with topics related to marketing your business using online tools. Understanding this unit will be key to implementing information systems strategically!

Completing this unit should take you approximately 5 hours.

- Upon successful completion of this unit, you will be able to:
  - explain the concept of e-commerce;
  - describe the technologies used in e-commerce, including hardware, software, and database systems; and
  - analyze the competitive advantage of the types of hardware, software, and database systems as they relate to e-commerce.

- 4.1: e-Commerce Overview
- 4.1.1: Introduction
  - [Electronic Commerce: An IntroductionURL](#)

  Read Chapter 1, for an introduction into e-commerce and how businesses can use the Internet. As you read, take notes on the following questions: What is e-commerce? What is the role of the Internet in providing an organization's e-commerce presence? What are some similarities and some differences between e-commerce and brick and mortar commerce?

  - [The Importance of e-CommercePage](#)

  This short video gives an overview of why business organizations need to consider e-commerce as part of their business strategy. The previous resource discussed

some of the business risks that are reduced when implementing an e-commerce strategy. See page 9-11 of *Electronic Commerce* for a reminder. This video states that without an online presence, "you might as well be selling out of the back of a covered wagon". Do you agree with this statement? Do you think having an online presence reduces business risks? Why or why not?

- [e-CommercePage](#)

  What is the difference between e-commerce and e-business? In the e-business model, what should one consider for each element: customers, products and services, business processes, resources, supply chain, finance, and sustainability?

- ### 4.1.2: e-Commerce Technologies

  - [Electronic Commerce TechnologyURL](#)

    Read Chapter 2 on pages 21–38 to learn about the types of technologies that support e-commerce. Keep in mind that this textbook was written in 2008, so as you read, think about changes since then that have made e-commerce faster, less expensive, more reliable, and more secure.

  - [Attracting and Retaining VisitorsURL](#)
    There are thousands of businesses offering website development, hundreds of website hosting companies, or you can build and maintain your own presence. Should you develop your own site or use a pre-developed package? How do you maintain your site if you do use a package? Read all of the links under the "E-Commerce Software Solutions" section to learn what to consider in making these decisions to develop your strategy!

- ### 4.1.3: Intellectual Property

  - [A Basic Explanation of Intellectual PropertyPage](#)

    Be sure you are able to identify the three main forms of intellectual property protections by the time you finish this reading. As businesses use the Internet more and more, it becomes extremely important to understand basic intellectual property protections.

- ### 4.2: e-Commerce as a Competitive Advantage

  - [Using Information Technology CompetitivelyURL](#)

    This section discusses how business organizations leverage information Technology throughout the value chain. Take some time to think specifically about which elements of the value chain e-commerce affects. A business organization may use e-commerce for marketing and sales, or it may use e-commerce to order raw materials from other businesses or to provide service support to customers. Write down two or three uses for e-commerce for each element of the value chain.

- o [e-Commerce in China: A Guide for Australian BusinessPage](#)

  All competitive advantages require revision and refinement as the business grows and markets change. However, a technology-based competitive advantage, such as e-commerce, may require constant adjustments in order to remain an integral part of a business growth strategy. This video discussing specific strategies that Australian companies can adapt to grow their business in China. The strategies suggested include leveraging social media and establishing partnerships with Chinese business. What are some additional strategies suggested in the video? How could each of these strategies provide a competitive advantage?

Unit 5: Technology Trends

No course in the strategic use of information technology in business would be complete if it did not cover technology trends. These trends are impacting how businesses use technology, and how companies choose to utilize technological tools will have a profound impact on the future of the organization. In this unit, we will focus on understanding such technologies as Cloud Computing, Web 2.0, and mobile processing.

Completing this unit should take you approximately 3 hours.

- Upon successful completion of this unit, you will be able to:
  - explain cloud computing, including server hosting;
  - identify why an organization might want to use cloud computing; and
  - analyze how current trends in e-commerce technologies, including cloud computing, online transactions and user interface, influence an organization's competitive advantage.

- ## 5.1: Cloud Computing

  - o [Understanding Software: A Primer for ManagersURL](#)

    In order to understand the cloud and the implications of cloud computing for business organizations, it is important to first understand software and its role in IT strategy. This chapter will help you recognize the importance of software for strategic decision making.

  - o [Computer Networks and Cloud ComputingURL](#)

    Read this section and complete the exercises at the bottom of the page. When you have finished click the link for "Next Section" at the top right and read the next section. Complete the exercises at the end of that section as well. In these sections, you will see how cloud computing fits into a business organization's software strategy.

- ## 5.2: Cloud Computing as a Competitive Advantage

- o [Cloud Computing and the Software Cloud](URL)URL

  Read this section and complete the exercises at the bottom of the page. When you have finished click the link for "Next Section" at the top right and read the next page: "10.7: The Software Cloud: Why Buy When You Can Rent?" Complete the exercises at the end of that section as well. In these sections, you will see how cloud computing fits into a business organization's software strategy.

- ## 5.3: Trends in Cloud Computing

  - o [The State of Cloud Today](Page)Page

    Cloud networks are used internally in business organizations (private clouds), externally with customers (public clouds), and to link systems that support business applications (enterprise). This video helps you visualize how businesses employ different forms of the cloud for different purposes.

  - o [Top 5 "Giants" of Cloud Computing](Page)Page

    Owning space in the cloud to run applications, store data, or host a server is easier than ever with the growth of cloud computing in recent years. This article describes the five big players in the industry and briefly highlights the services each company offers. What other cloud computing providers do you use on a regular basis?

Unit 6: Creating a Technology Strategy

One of the overall goals of this course is that you would learn how to think strategically in relation to the use of information technology. As you learned in an earlier unit, making good use of social media technologies are a key part of many organizations' technology (and marketing) strategies. In this unit, you will focus on how to develop a strategy for using social media in your organization.

Completing this unit should take you approximately 7 hours.

- Upon successful completion of this unit, you will be able to:
  - compare and contrast different theories of information systems strategies;
  - explain the strategic planning process; and
  - create an information systems strategy.

- ## 6.1: Theories of Information Systems Strategies

  - o [Introduction to Strategy and Technology](URL)URL

    The introduction to this chapter provides an overview of the many aspects of business that managers must consider when setting an information systems strategy. Among the strategies discussed are operational effectiveness, fast

follower, first mover, and strategic positioning. Each strategy, plus any others you may be able to identify, have their strengths and their weaknesses. In your notes, list each of the strategies and name a strength and a weakness of each.

- ○ 6.1.1 Mobile Strategy

  - ▪ [Developing a Mobile Strategy to Reach ClientsURL](#)

    Each of the next three resources discusses one approach to developing a strategy for mobile. Read this article and watch the embedded video. In this first case, the company focused heavily on different ways to reach their customer, but ultimately, the company spent little time planning how to engage or retain customers after they have accessed the mobile site. What are the pros and cons of this mobile strategy?

- ○ 6.1.2 Mobile Application Strategy

  - ▪ [3 Steps to Creating an Effective Mobile App StrategyPage](#)

    This is the second of three approaches to mobile strategy in this subunit. This article discusses the use of a mobile application in addition to a mobile-friendly web presence. This strategy goes beyond reaching customers and starts to consider how to engage with them. What are the pros and cons of mobilizing your content marketing?

- ○ 6.1.3 Mobile Content Strategy

  - ▪ [Developing a Mobile Strategy that WorksPage](#)

    This third strategy approach focuses on the types of devices being used, where they are being used, and how they are being used. What are the pros and cons of having a very detailed mobile strategy? Write down some notes about how each strategy from this subunit succeeded and how they faltered.

- • 6.2 The Strategic Planning Process

  - ○ [Strategic PlanningURL](#)

    Read this chapter. Pay particular attention to what you read in section 2.2 and watch the embedded videos. This section serves as a guide on how to write an strategic plan by guiding you through the situation analysis and developing an organizational strategy formulation. Then, beneath section 2.4, the authors make the following point:

    "The strategies and actions implemented at the functional (department) level must be consistent with and help an organization achieve its objectives at both the business and corporate levels and vice versa."

In practical terms, think about implementing a new IT strategy at a medium sized firm (20–199 employees). Who would need to be involved in the planning and implementation of the strategy? Share your thoughts on the discussion forum.

- 6.3: Developing an IT Strategy

    - [Creating Your Own Technology PlanPage](#)

    Watching this video is optional but provides a detailed, step-by-step plan on how to create your own technology plan. The speaker covers hardware, software, competitive strategies, and cloud computing.

saylor.org
ACADEMY

Saylor Academy awards

Dan Rimniceanu

this certificate of achievement for

BUS206: Management Information Systems

25 iunie 2018
Issue Date

11660218
Certificate ID

Management Information Systems (MIS) is a formal discipline within business education that bridges the gap between computer science and well-known business disciplines such as finance, marketing, and management. In spite of this, most students will only take one or two MIS courses as part of their undergraduate program.
The term *Management Information Systems* has several definitions that might depend on where you look or who you ask. Common among these many definitions is that MIS represent a collection of technologies, people, and processes that manage the information and communication resources of an organization.

Even if you do not realize it, you use MIS every day. If you use email, you are using MIS, since email is an information system (though you, the user, only see one end of it). If you

log into a computer every morning and access or edit data on corporate servers, you are using information systems. In general terms, information systems encompass any interactions between organized data and people. MIS can be the means by which information is transmitted (such as the Internet), the software that displays the information (such as Microsoft Excel), or the systems that manage the data. In this course, you will learn about the components of management information systems and how to leverage them in business.

Unit 1: Introduction to Management Information Systems

This unit will introduce you to the concept of MIS and the impact it has on business organizations. Most people recognize that information systems are composed of technologies such as computers, keyboards, and networks, but technology is just one small component. Some argue that other components of MIS are far more important. Information systems are made up three high-level components: technology, people, and process. Later in the course, you will spend more time learning about the specifics of each of the three components introduced in this unit.

Innovation drives MIS. The right technology, processes, and people come together to solve problems utilizing new techniques and strategies. In this unit, you will also look at the applications of MIS in business and learn how far MIS has come since the inception of the information age.

Completing this unit should take you approximately 6 hours.

- Upon successful completion of this unit, you will be able to:
    - define what an information system is by identifying its major components;
    - describe the basic history of information systems; and
    - describe what innovation is and how technology contributes to it.
-

- ## 1.1: Introduction to Information Systems

    - [Introduction to Information SystemsURL](#)

        Read the introduction to the course textbook for an overview of the various topics involved in studying information systems. You will see that it is much more than just studying technology. After you have finished reading, reflect upon the different topics. The inclusion of which topic surprised you the most? Which topic will be the most difficult for you to understand?

- ## 1.2: The Components of an Information System

    - [What is an Information System?URL](#)

        Read Chapter 1 for an introduction to the components of information systems. This chapter begins the discussion of the history of information systems and their

role in business. This chapter covers many things at a high level; you will be going deeper in later parts of this course. After completing this reading, think about how you use information systems in your everyday life. You probably encounter them at almost every turn in some way!

- What is a Management Information System?Page

This video gives an overview of information systems and offers a few examples. How does this lecture compares to the chapter you just read?

- BUS206 Discussion ForumURL

After you have reviewed the materials in this unit, post and respond to the following topics on the course discussion board. Feel free to start your own related posts and respond to other students' posts as well.

Suppose that you had to explain to a member of your family or one of your closest friends the concept of an information system. How would you define it? Write a one-paragraph description in your own words that you feel would best describe an information system to your friends or family.

- 1.2.1: Technology

  - Exercise: Everyday Information SystemsURL

  We all interact with various information systems every day: at the grocery store, at work, at school, even in our cars (at least some of us). Make a list of the different information systems you interact with every day. Then select one or two and create a grid to identify the different technologies, people, and processes involved.

- 1.2.2: Process

  - Exercise: Enhancing Processes with TechnologyPage

  In this exercise, you will apply what you have learned about how processes may be enhanced with technology to a task you do on a regular basis.

- 1.2.3: People

  - Exercise: Analyzing MIS Job ListingsPage

  In this exercise, you will search for job listings in the areas of information systems and information technology and answer a number of questions about what you find.

- 1.3: Systems Innovation

  - Turning Technology into Business TransformationPage

The advances in information technology over the past several decades have directly led to innovations in business. In this video, you will see several examples of the significance of these changes for all aspects of business. Pay special attention to how the use of technology has influenced whole industries. After watching this video, reflect upon current trends in technology and how they affect companies.

- o [Exercise: Walmart Case StudyURL](#)

Complete exercise 5 from this chapter. The Walmart case study introduced you to how that company used information systems to become the world's leading retailer. Walmart has continued to innovate in its use of technology. Do some original research and write a one-page report detailing a new technology that Walmart (or one of its competitors) has recently implemented or is pioneering.

Unit 2: MIS Basics: Hardware, Software, Networking, and Security

As mentioned in the course introduction, much of MIS is now centered on technology. Accordingly, MIS capabilities are mostly limited to the hardware and software capabilities of a given system. Ten years ago, the average Internet user could download an MP3 music file in a few minutes over a cable. This can now be done in seconds wirelessly from just about anywhere in the developed world thanks to improvements in hardware and software. While it is nearly impossible to remain in front of technology developments, it is possible to analyze trends in technology advancements and identify what hardware and software may give you a competitive advantage.

This unit will first discuss the hardware component of technology, followed by software. The unit finishes with a discussion of networking as a component of technology.

Completing this unit should take you approximately 11 hours.

- Upon successful completion of this unit, you will be able to:
  - compare and contrast hardware and software;
  - identify the primary components of a computer and the functions they perform;
  - describe the two primary categories of software;
  - describe the advantages and disadvantages of cloud computing for companies;
  - define the term open-source and identify its primary characteristics;
  - identify the types of networks and their general functions;
  - identify the information security triad; and
  - describe the tools used to secure information technologies.
-

- 2.1: Hardware

- o [HardwareURL](#)

  This chapter focuses on how personal computers work, and then turns to other hardware devices. Be sure to read the sidebar on Moore's Law. As you read, focus on how Moore's Law might describe the different components and devices discussed in this chapter.

- o [The Hardware ComponentPage](#)

  Watch this lecture on information systems hardware. The personal computer is the primary device that has driven the information systems revolution in the past thirty years.

- o ### 2.1.1: Personal Computers

  - ▪ [Exercise: Moore's LawURL](#)

    Review the timeline of computers at the [Old Computers](#) website. Pick one computer from the listing and write a brief summary. Include the specifications for CPU, memory, and screen size. Now find the specifications of any computer on the market today and compare. Did Moore's Law hold true?

- o ### 2.1.2: Other Digital Devices

  - ▪ [Exercise: Changes in TechnologyURL](#)

    There have been advances in technology since this textbook was published. Name a recently-developed technology that the author should add to the discussion in Chapter 2.

- ### 2.2: Software

  - o [SoftwareURL](#)

    As you read this chapter, focus on how software differs from hardware. There are several ways to categorize software; the most significant difference is between systems software and application software. These resources will introduce you to the concept of open source software and cloud computing, two important concepts in business right now.

  - o [The Software ComponentPage](#)

    This lecture supports what you read in Chapter 3.

- o ### 2.2.1: Cloud Computing

  - ▪ [Exercise: Cloud ComputingURL](#)

After reviewing the unit materials, respond to the following question and post your answer on the [discussion forum](). Feel free to start your own related posts, and respond to other students' posts as well.

If you were running a small business with limited funds for information technology, would you consider using cloud computing? Find some web-based resources that support your decision. Explain your decision in at least two paragraphs. Hint: you can find materials about this decision by searching on the term "cloud computing for small business".

- o 2.2.2: Open-Source Software

  - ▪ [Exercise: Open-Source SoftwareURL]()

  Review [this article]() on the security risks of open-source software. Write a short analysis giving your opinion on the different risks discussed.

- • 2.3: Networks

  - o [Networking and CommunicationURL]()

  In this chapter, you will read about the use of communications technologies to allow our computers to send messages to each other. The evolution of these technologies has brought us the Internet and all of the wireless communications that we use today.

  - o [Exercise: Internet vs. WWWURL]()

  What is the difference between the Internet and the World Wide Web? Create at least three statements that identify the differences between the two.

- • 2.4: Security

  - o [Information Systems SecurityURL]()

  In this chapter, you will focus on several important concepts related to information security. Be sure you understand the components of the information security triad presented at the beginning of the chapter. The chapter ends with a focus on your own personal information security; you are highly encouraged to take stock in your own efforts to stay secure!

- o 2.4.1 The Information Security Triad

  - ▪ [The CIA Information Security TriadPage]()

  In this video, you will learn in more detail about the CIA Information Security Triad. After watching this video, take a moment to reflect and then write a one-sentence definition of what each of the components of the triad. Then, respond to

the following prompt and post your answer on the [discussion forum](). Feel free to start your own related posts, and respond to other students' posts as well.

In a brief paragraph, describe how you apply these components in some areas of your work life or personal life. For example, if you work at a bank, you might consider how you maintain confidentiality, integrity, and accessibility for one kind of data. Of course, be sure not to share confidential data in your post!

- 2.4.2 Tools for Information Security

  - [Exercise: Encryption TechnologiesURL]()

    What are some of the latest advances in encryption technologies? Conduct some independent research on encryption using scholarly or practitioner resources, then write a two- to three-page essay that describes at least two new advances in encryption technology.

- 2.4.3 Personal Information Security

  - [Personal Information Security DiscussionPage]()

    How are you doing on keeping your own information secure? The following exercise is meant to help you answer that question and take steps to improve your personal information security.

Unit 3: Data and Databases

Data is a collection of facts. For example, population estimates for China and the United States are data. Information is the presentation of these facts in an organized manner, that is, the presentation of these population counts side-by-side with other facts like per capita income, for example. Knowledge refers to the use of information to make informed decisions. In this case, you might consider these figures critical knowledge for making policy decisions about China and the United States. Managing data allows the government, corporations, and even individuals to apply this knowledge to their everyday lives. Managing data can be difficult because databases are often filled with more information than you need. In this unit, you will explore the challenges of data management and learn how to take data and turn it into knowledge.

We have used the word *database* a number of times in this course. We will now define and study databases in detail. Entire courses are devoted to this subject – such as [CS403: Introduction to Modern Database Systems]() – since the uses and types of databases are as varied as the businesses that use them. However, you can expect to leave this unit with enough of an understanding of databases to have a conversation with a database administrator about the needs of your team or department. This course focuses on relational databases.

Completing this unit should take you approximately 9 hours.

- Upon successful completion of this unit, you will be able to:
  - define metadata;
  - describe the differences between data, information, and knowledge;
  - define the term database and identify the steps to creating one;
  - describe the purpose of a database management system;
  - describe the characteristics of a data warehouse;
  - define data mining and describe its role in an organization; and
  - list the components of knowledge management.
-

- ## 3.1: Introduction to Data Management

  o [Data and DatabasesURL](#)

  This chapter covers the concepts of data and databases. Businesses are becoming more and more "data-driven"; understanding how data is collected, stored, and managed is essential for anyone wanting to succeed in business. Pay special attention to the sections on data warehouses and data mining, as they provide examples of how companies use data strategically.

  o ### 3.1.1: Data vs. Information vs. Knowledge

    ▪ [Data, Information, and KnowledgePage](#)

    Watch these two videos and reflect upon the different approaches to defining these terms in the two videos and the reading assignment. Which do you like best? Write a short definition for each of them yourself. We will reflect upon the knowledge management part of this topic in a later section.

  o ### 3.1.2: Utilizing Data to Make Decisions

    ▪ [Data-Driven DecisionsPage](#)

    In this video, Ben Curren explains how he utilized data to make decisions and the importance of using intuition as well. After reviewing the unit materials, respond to the following questions and post your answer on the [discussion forum](#). Feel free to start your own related posts, and respond to other students' posts as well.

    - Think about the decisions you make in your work or personal life. How could having more data help you make better decisions? What kind of data would you need?
    - How would you balance your own intuition and data to make better decisions?

  o ### 3.1.3: Knowledge Management

    ▪ [Knowledge Management, an Organisation's Weapon of ChoicePage](#)

Watch this video and reflect upon the role of information technology in knowledge management. What are the components of knowledge management? Can a company claim to be doing "knowledge management" by simply implementing one or more information systems? Compose a response in two or three paragraphs.

- 3.2: Databases
  - 3.2.1: What is a Database?

    - [Defining the Term *Database*Page](#)

      A database is a storage location for data. But what does the term database *really* mean? This exercise is meant to help you come to a deeper understanding of the term.

    - [Exercise: DatabasesURL](#)

      Review the design of the Student Clubs database earlier in this chapter. This database includes four tables: Clubs, Students, Events, and Memberships. Now review the list of data types listed in the chapter. On a spreadsheet or document, do the following:

      - Create a listing of all of the fields (columns) in each table and assign a data type to each of the fields.
      - Determine what other limits you would put on the data. Would you limit how long the text would be or how high the number should go?

  - 3.2.2: Database Management Systems

    - [Relational vs. NoSQL DatabasesPage](#)

      This is a somewhat technical video, so be sure you have read Chapter 4 before watching it. What demands will companies put on databases in the future? As data becomes more and more the lifeblood of business, databases will require new methods for processing and managing data. After watching the video, think about why the relational database model may not be the best one to serve the purposes of database management in the future. Compose your answer in a brief three-or four-slide presentation as follows:

      - Slide one should define relational databases
      - Slide two should define NoSQL databases
      - Slide three and four should describe the pros/cons of each

  - 3.2.3: Data Warehouses and Data Mining

    - [Data Warehouses and Data MiningPage](#)

      This article provides a detailed summary of the role of data warehouses and data mining in organizations and their relationship to organizational databases. As you read, pay special attention to how the data warehouses are being used to improve

decision-making in organizations. Keep a summary in your notes of how an organization you are involved with could benefit from a data warehouse and data mining.

Unit 4: Information Systems and Organization Strategy

Strategic MIS is the application of information management in the overall strategy of a business. Many corporations include a Chief Information Officer (CIO) in executive management to implement information systems to be more competitive. What good would it do for Apple to create an iPhone application that can tell where you are and serve you ads based on location if it was unable to process that information? Part of the role of the CIO would be to figure out if it is possible to do this now – and if not now, when it will be.

This unit will examine how information technology and information systems change the way organizations operate. The unit starts with an examination of some of the key technological forces that characterize the information age, which all firms must consider in their strategic planning. Next, you will learn about the special characteristics and challenges faced by business-to-business operations. The unit concludes with an examination how organizations adapt to technological changes.

Completing this unit should take you approximately 12 hours.

- Upon successful completion of this unit, you will be able to:
  - describe how information systems can provide businesses with competitive advantage;
  - describe how information technology influences Porter's Five Forces and the Value Chain model;
  - identify the different systems needed to support business processes in an organization;
  - understand how information technology combined with business processes can bring an organization competitive advantage;
  - describe each of the different roles that people play in the design, development, and use of information systems;
  - describe the career paths available to those who work with information systems;
  - explain the importance of where the information-systems function is placed in an organization; and
  - describe the different types of users of information systems.
-

- 4.1: Information Systems and Strategy

  - [Does IT Matter?URL](#)

This chapter centers around the idea of the strategic value that information systems can bring to an organization. Pay special attention to the arguments around the idea of competitive advantage. When you finish reading, reflect upon the arguments presented about the impact that IT has on competitive advantage.

- [Business ProcessesURL](#)

This chapter looks at one way that information system can bring competitive advantage through their effect on business processes. As you read this chapter, relate it to the previous chapter on competitive advantage. How are the two concepts related?

4.1.1: IT and Competitive Advantage

- [Exercise: IT and Competitive AdvantageURL](#)

After reviewing the unit materials, respond to the following questions and post your answer on the [discussion forum](#). Feel free to start your own related posts, and respond to other students' posts as well.

- Summarize Carr's argument that IT does not bring competitive advantage.
- Do some independent research and explain the current thinking on the ability of IT to provide competitive advantage.
- What is your position on IT and competitive advantage?

4.1.2: Porter's Five Forces and Value Chain

- [The Value Chain and Evaluating the IndustryURL](#)

Read the following sections on the value chain and Porter's five forces:

- [Value Chain](#)
- [Evaluating the Industry](#)

While reading these sections, think about the impact that information technology can have on these concepts. Then do the following:

- Draw a value chain diagram that highlights the role of information technology.
- List each of Porter's five forces and then explain how information technology might influence each force.
- For each of the previous two items, do some independent research to see if others agree with your analysis. Do a web search on "value chain information technology" and "Porter's five forces technology". For a more academic search, use Google Scholar.

4.1.3: Decision Support Systems

- [Decision Support SystemsPage](#)

This video is about Vancouver Coastal Health's decision support system. After watching, write a paragraph that describes your understanding of the steps to developing a decision support tool. You have now also seen an application of MIS in the workforce. What part of the VCH decision support team inspired you most?

- ○ 4.1.4: ERP Systems

  - ▪ [Exercise: ERP SystemsURL](#)

    In Chapter 8, you learned about one of the criticisms of an ERP system: ERP systems drive all businesses to use the same business processes, thus eliminating competitive advantage.

    If you were implementing an ERP system, in which cases would you be more inclined to modify the ERP to match your business processes? What are the drawbacks of doing this? Do some independent research to support your conclusions.

- • 4.2: The People in Information Systems

  - ○ [The People in Information SystemsURL](#)

    In this chapter, you will learn about the "people" component of management information systems. As you read, think about the importance that each person plays in the success of an organization, not just the successful implementation of the technology.

- ○ 4.2.1: Roles

  - ▪ [So You Want to Get a Job in Information Technology?URL](#)

    Read this article, which lists the skills needed to work in IT. It goes on to describe some of the different job categories in this sector. Compare this article to the textbook chapter. Then, create a five-slide presentation using the following guidelines:

    - • In the first slide, answer this question: What are the general skills needed to work in an IT job?
    - • In slides two through four, you should select three different job categories and create a slide for each one, which describes the main work of each category.
    - • Finally, for your last slide, do a search for one category of IT job on [Indeed](#) or [Dice](#) and post a description of the job. Does the job description match the material you read?

- ○ 4.2.2: Organization of the IT Function

  - ▪ [Find the IT Function on Organization ChartsPage](#)

This exercise will help you answer the question of where the IT function is located in different organizations.

- o 4.2.3: User Types

  - Exercise: IT User TypesURL

    What type of IT user are you? Look again at the five types of technology adopters and then write a one-page summary of where you think you fit in this model.

Unit 5: Information Systems Development

Businesses have diverse needs. While software packages for managing information exist, most software is not "plug-and-play" ready for most business applications. IT departments, in conjunction with representatives from all lines of business, must work together to develop and implement information system solutions. The IS development process can range from the simple to the extremely complicated. Managers often find themselves disagreeing about what information is most important and what is worth developing. Trade-offs between financial resources, time, and the capabilities of current information systems can lead to frustration. For this reason, IS development is a very important function within a business.

Completing this unit should take you approximately 6 hours.

- Upon successful completion of this unit, you will be able to:
  - explain the overall process of developing a new software application;
  - explain the differences between software development methodologies;
  - differentiate among types of programming languages used to develop software;
  - name and describe the major phases in the development of websites and mobile applications; and
  - identify the four primary implementation policies.
-

- 5.1: IS Development Methodologies

  - o Information Systems DevelopmentURL

    This chapter focuses on the concepts surrounding the development of information systems. It begins with a discussion of software development methodologies, then covers programming languages and tools, and finishes with a review of implementation methodologies. As you read, reflect upon all the different pieces that must come together in order for a system to be developed.

  - o Waterfall Process vs. Incremental ProcessURL

Read this article, which compares the two broad processes for developing software. Then, select one of the methodologies (SDLC, RAD, Agile, Lean) you read about in Chapter 10 and do further research on the state of the art for that particular methodology. Write a four-six paragraph essay that describes the methodology you chose, your research findings, and the types of projects that use that methodology.

- ## 5.2: Programming Languages and Tools

  - [Hour of CodeURL](#)

    Go to the Hour of Code website and complete one of the tutorials on the page. Next, reflect upon how easy or hard you thought that the tutorial was. Would you like to do another one or learn other ways to do coding?

- ## 5.3: IS Implementation Methodologies

  - [Implementation and Adoption of Nationwide Electronic Health Records in Secondary Care in EnglandFile](#)

    This study examines how selected British hospitals made the transition to electronic health records. The paper discusses how the hospitals planned and executed the transition. Pay special attention to the unexpected impacts of implementing new software.

Unit 6: Information Systems in Society and the World

Information systems' reach extends well beyond the world of business. Today it is nearly as easy to communicate with someone on the other side of the world as it is to talk to someone next door. New technologies create situations that society has never dealt with before. How do we handle the new capabilities that these technologies enable? Will societies need new laws, new social mores, to protect us from ourselves regarding technology?

This unit concludes with a look at the future of MIS. After studying the security issues and failures of various systems, the outlook can seem bleak. Wherever there is a problem in MIS, there are opportunities to find profitable solutions.

Completing this unit should take you approximately 13 hours.

- Upon successful completion of this unit, you will be able to:
  - explain the concept of globalization;
  - describe the role of information technology in globalization;
  - identify the issues experienced by firms as they face a global economy;
  - describe Nielsen's three stages of the digital divide;
  - describe what the term information systems ethics means;
  - identify criteria for the ethical use of information systems;

- define intellectual property;
- explain the protections provided by copyright, patent, and trademark;
- describe the challenges that information technology brings to individual privacy; and
- describe future trends in information systems.

-

- ## 6.1: Globalization

  - ### [Globalization and the Digital DivideURL](#)

    This chapter reviews the role that information technologies have had in the globalization of our world. As you read, pay attention to the many different changes, both positive and negative, that globalization has brought about.

  - ### 6.1.1: The Role of IT in Globalization

    - #### [The World is Flat 3.0Page](#)

      As you watch this keynote by Thomas Friedman, focus on the impact that information technology has had on globalization. After watching, respond to the following questions and post your answer on the [discussion forum](#). Feel free to start your own related posts, and respond to other students' posts as well.

      - Which of the "flatteners" do you think is having the biggest impact today?
      - What other concepts from the video stood out to you as important?

  - ### 6.1.2: Impact of Globalization on Organizations

    - #### [Exercise: GlobalizationURL](#)

      Do some original research to determine some of the regulations that a US company may have to consider before doing business in one of the following countries: China, Germany, Saudi Arabia, Turkey. Write an essay in four to six paragraphs to describe these regulations and processes.

  - ### 6.1.3: The Digital Divide

    - #### [Bridging the Digital DividePage](#)

      Complete this task, in which you will catch up on the status of either the One Laptop per Child project or the TeacherMate project.

- ## 6.2: Ethical and Legal Implications of Information Systems

  - ### [The Ethical and Legal Implications of Information SystemsURL](#)

    In this chapter, you will learn how the ubiquity of information systems today compels us to act ethically and legally. As you read, consider the sorts of ethical

questions that we must ask ourselves now that did not exist before. How does this affect you personally?

- 6.2.1: Relating IS to Ethics

  - [EthicsURL](#)

    This text provides a comprehensive overview of how information systems relate to ethics. While reading, consider the relationship between ethical action and legal remedies. After reviewing the unit materials, post and respond to both of the following questions on the [discussion forum](#). Feel free to start your own related posts, and respond to other students' posts as well.

    - Many people think that the ethical issues raised by new technologies are just the same issues in a new form. Do you agree or disagree? Has technology created a new class of ethical issues?
    - What are the difficulties raised by creating new laws and regulations to solve these issues?

- 6.2.2: Intellectual Property

  - [Exercise: Intellectual PropertyURL](#)

    Patent trolls have had a tremendous impact on our intellectual property protections over the past few years. Many groups have banded together to fight against these patent trolls. Do some original research on the effort to combat patent trolls. Write a two-page paper that discusses legislation to prevent patent trolling.

- 6.2.3: Copyright and Creative Commons

  - [Creative CommonsURL](#)

    Go to the Creative Commons website and spend some time navigating the site. Try to gain an understanding of the mission and purpose of Creative Commons. Read the summary of the various licenses Creative Commons offers, how they work, and how these licenses differ from traditional copyright. Then, use the [Creative Commons search tool](#) to find materials of interest to you licensed via Creative Commons. Next, find a resource related to MIS that you have not read or watched in this course and study it. Last, respond to the following prompts and post your answer on the [discussion forum](#). Feel free to start your own related posts, and respond to other students' posts as well.

    - Share your thoughts about the pros and cons of using a Creative Commons license.
    - Share the item you found about MIS and summarize it for others who are taking this course.

- 6.2.4: Privacy

- ▪ [Youth, Privacy, and Online MediaURL](#)

  As you read this article, reflect on how our expectations of privacy have changed over the past few generations. After you have finished reading, take some time to think about the activities that you engage in that could be subject to data collection. Does this bother you? What do you do to limit the data collected from your online activity? Write an essay of two or three paragraphs summarizing your thoughts.

- 6.3: The Future of MIS

  - ○ [Future Trends in Information SystemsURL](#)

    The final chapter of the course textbook gives an overview of the trends in information systems. As you read, think about which of these trends may affect you the most. Are you excited for or apprehensive of any of the named trends?

  - ○ [A Tour through Mary Meeker's 2016 Internet Trends ReportURL](#)

    Once a year, Mary Meeker, a partner at Kleiner, Perkins, Caufield & Byers, presents her research on the current and upcoming trends in Internet technologies. Her yearly presentation has become quite an industry event that has become a trend in itself. Find the video and/or slide deck from her latest annual presentation and review them (you can find her presentation from June 2016 [here](#)). As you watch, work to identify two or three key trends that most interest you.