

Course Learning Outcomes for Unit I

Upon completion of this unit, students should be able to:

1. Analyze the key differences between data, information, information technology (IT), and information systems (IS).
 - 1.1 Define data, information, IT, and IS.
 - 1.2 Discuss the difference between IT and IS.
 - 1.3 Illustrate the difference between information and data.

Course/Unit Learning Outcomes	Learning Activity
1.1	Unit Lesson Chapter 1 Unit I Scholarly Activity
1.2	Unit Lesson Chapter 1 Unit I Scholarly Activity
1.3	Unit Lesson Chapter 1 Unit I Scholarly Activity

Reading Assignment

Chapter 1: The Importance of MIS

Unit Lesson

In this unit, we explore the importance of management information systems (MIS). MIS have several components such as data, information, hardware, software, processes, and human elements that provide organizations with the tools for decision-making (Kroenke & Boyle, 2017).

Before we start a discussion about information systems (IS), let's first examine what a computer system is. Computers perform a number of tasks (e.g., calculations, word processing, programming, application development). A computer consists of some basic components such as hardware-like memory chips; a hard drive and motherboard, which contain the central processing unit; and software, which tells the computer what to do. There are other hardware components such as a monitor, which helps us to see what the computer is doing, and a keyboard and a mouse, which help us to input data or tell the computer what we want to do. We can apply all of this to better understand an IS. An IS contains five important components: hardware, software, data, procedures, and people (Figure1) (Kroenke & Boyle, 2017).

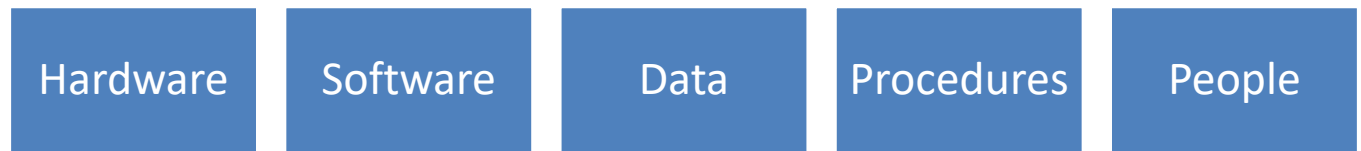


Figure 1: Five-component framework for IS
(Kroenke & Boyle, 2017)

An IS contains hardware such as personal computers, tablets, servers, and server farms. It also includes software such as operating systems and applications, which tell the hardware what to do. An IS uses data that can be organized into useful information, such as reports, and the IS uses procedures, such as instructions, to help users understand how to complete tasks (e.g., saving a file, printing a report). Lastly, an IS is used by people who input data and evaluate that data. Let's use a database as an example. The database is stored using hardware, and the interface for the database is the software. A database contains data that can be organized in some way (e.g., queries, reports), and there are procedures that instruct the users of the system on how to use the database (Kroenke & Boyle, 2017).

Compared to IS, information technology (IT) contains four components, and these four components are used for the purpose of producing information (Figure 2) (Kroenke & Boyle, 2017).



Figure 2: Four-component framework for IT

Products are the goods or commodities that support technology. *Methods* are guiding objectives, procedures, or processes that evaluate a product. *Inventions* are new ideas or innovations that provide the foundation for technological revolution. *Standards* can be thought of as the criteria for which something is evaluated. These are the four components of IT (Kroenke & Boyle, 2017).

So, in short, IS and IT are closely related, but they do not mean the same thing. One way to remember this is that you can buy IT, but you cannot purchase an IS. Let's take, for example, a system that an organization uses to monitor inventory. You can purchase cloud services to provide the technology (hardware and software, the database structure, and procedures for the operation of the system). Then, you have users who will provide the data to input into the system so that inventory can be monitored. Lastly, you have the procedures that tell your users (people) how to keep the system current. Managing this inventory system is an example of an IS (Kroenke & Boyle, 2017).

Overall, in order to maintain and manage the usage of IS, we use the term *management information systems (MIS)*.

Nonroutine Skills and the Value of IS

This unit discusses some cost-effective business applications of Facebook and Twitter. These applications did not exist 10 years ago, but in recent years, they have moved to the forefront as a communication medium. In turn, businesses recognized their potential and adopted the technology in order to gain a competitive advantage. Employees that can assess and evaluate emerging technologies will be valuable to organizations that must adapt to new technology. Facebook and Twitter are examples of reasons why business professionals should be able to recognize emerging technologies and find ways to apply them to their businesses (Kroenke & Boyle, 2017).

Business professionals should acquire job skills that are marketable (i.e., nonroutine cognitive skills) such as abstract reasoning, systems thinking, collaboration, and the ability to experiment (Kroenke & Boyle, 2017).

Abstract reasoning is the ability to have flexible thinking skills, be creative, use proper judgment, and be able to solve problems logically. In IS, abstract reasoning is the ability to construct and use a model or representation. Being able to construct a model or representation of a complex situation through abstract reasoning is an important skill for business professionals who frequently must make decisions in uncertain and highly complex situations (Kroenke & Boyle, 2017). This is a highly marketable skill. Some examples include projects plans, budgets, and business process models. For example, you would use a systems development model before deploying or installing a system (Figure 3).

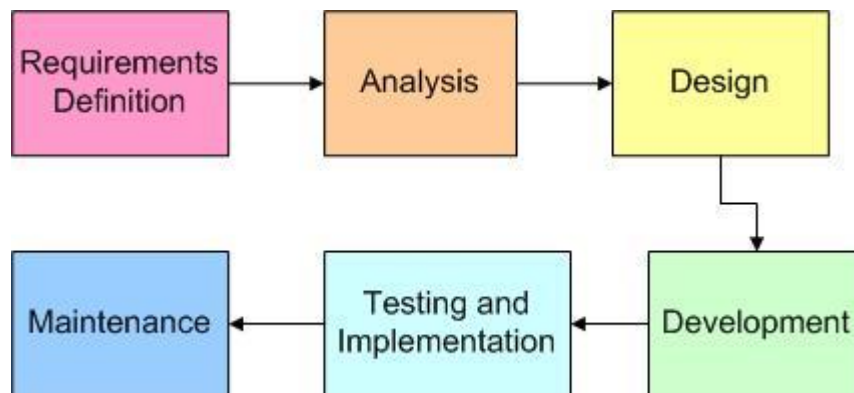


Figure 3: Systems modeling

After reviewing the Unit I Reading Assignment, think back to the Falcon Security scenario at the beginning of Chapter 1. Jennifer was unable to develop ideas for a process that would identify potential drones. She developed a model that made no sense and needed essential skills to be successful. She also claimed that she had some drone part ideas, but those ideas were not suitable for 3D printing.

Systems thinking is the ability to identify and understand how components connect and interact with one another (Kroenke & Boyle, 2017). This is an important skill because business professionals must be able to identify and understand the relationships among the elements involved in a complex situation. For example, suppose a database system was taking too long to generate reports. You could then ask questions to help isolate the problem (Kroenke & Boyle, 2017). Another way to use systems thinking is to illustrate the concept using flows and charts (Figure 4).

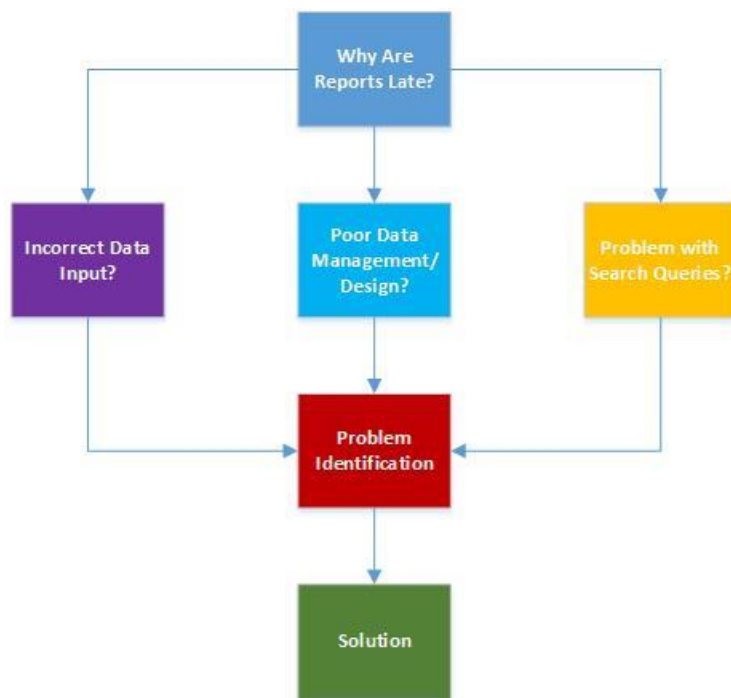


Figure 4: Systems thinking process

In the Falcon Security scenario, Jennifer was unable to understand and model the correct components and relationships between components in the firm's innovative prototype of a new platform using a 3D printer. Jennifer needed to understand the model, but she also needed to understand its components and how they interacted with one another. Systems thinking skills are often learned through practice.

Collaboration involves working with others to produce ideas such as working with a team of people to resolve a problem or to create a new product (Kroenke & Boyle, 2017). A good collaboration results in a final work product that is superior to one that would be developed by a person working alone. Collaboration is more than just dividing up the work between group members and assembling the individual contributions into a whole (a typical student approach to a group project assignment). Good collaboration involves several iterations in which ideas are contributed, reviewed, critiqued, and refined. All members contribute to the

development and refinement of ideas (Kroenke & Boyle, 2017).

In the Falcon Security scenario, Jennifer failed to demonstrate effective collaboration skills because she was unwilling to share her ideas and work-in-progress with others because she wanted to wait until she felt that she was “done.” She failed to seek out the benefit of having others review her ideas as they were developing and help her improve upon them. Collaboration skills can be improved with practice. It may be hard for some people to offer half-formed ideas to others and to subject themselves to criticism, but the benefits will help them overcome this reluctance.

Ability to experiment involves creating and testing promising new alternatives, consistent with available resources. In today's demanding business environment, new ideas will be essential to success, and businesspeople have to overcome their fear of failure and pursue new approaches rationally. When someone says, “That will never work,” he or she may be reflecting his or her fear of failure. Being unwilling to try a new way of doing things may be an accurate assessment that the approach is unworkable, but it could also be an unwillingness to work in a new way (Kroenke & Boyle, 2017).

Providing employees with the freedom to experiment will foster an environment that encourages innovation. This means the company should allow its employees to take risks and experiment with modern ideas and theories. This is especially true when a problem requires an innovative solution. This type of situation will push employees beyond what they are capable of so that they can become pioneers by thinking outside the box. Unfortunately, for employees who are not able to do this, their employment with the organization will be relatively short (Kroenke & Boyle, 2017).

In the Falcon Security scenario, Jennifer failed to demonstrate the ability to experiment because she was unable to share new ideas with others. She was willing to do what she was told, but she did not have the confidence to discuss any new ideas that she had with others in case the ideas did not work out. It is hard for some people to change their innate willingness to take risks. The best way to overcome this is to work with a group that accepts new ideas with enthusiasm and does not ridicule a member for suggesting a new approach. Once some success is gained, it will be easier to take risks in the future.

The textbook in uCertify defines job security as possessing a useful skill and not being afraid to use it (Kroenke & Boyle, 2017). The textbook also argues that marketable skills are no longer specific, task-related skills; rather, marketable skills can be strong cognitive and thinking skills (Kroenke & Boyle, 2017). Unfortunately, the more traditional task-oriented skills you learn (e.g., computer programming, accounting) will not provide you with job security. Technical skills are not irrelevant to job security, but they are not sufficient to guarantee job security. This circumstance is very different than in the 1990s when technical skills probably were sufficient to get and keep a decent job.

In conclusion, MIS is the maintenance and management of IS. Information is a term we use to describe data that has been transformed into useful information. For example, after we enter data, such as inventory numbers into a database, we can then run a report to better understand what items need to be reordered in order to keep the product in stock.

IS and IT are closely related to one another, but they do not mean the same thing. An IS is a collection of components such as hardware, software, data, procedures, and people. Examples of IS include enterprise resource planning (ERP) systems and customer relationship management (CRM) systems. IT is about using computers or computer systems to store, retrieve, manipulate, and send information.

Reference

Kroenke, D. M., & Boyle, R. J. (2017). *Using MIS* (10th ed.). New York, NY: Pearson.

Suggested Reading

In order to access the following resources, click the links below.

In this unit, you learned about how innovation can provide businesses with a competitive advantage. This video explores that topic by examining a video game developer and a t-shirt company that are using this tactic. If needed, a transcript is provided once the video is accessed.

McAuliffe, M. (Executive Producer). (2004). *Innovation for competitive advantage* (Segment 2 of 10) [Video file]. Retrieved from <https://libraryresources.columbiasouthern.edu/login?auth=CAS&url=http://fod.infobase.com/PortalPlaylists.aspx?wID=273866&xtid=34476&luid=26299>

Graphic information systems (GIS) are another interesting type of information system. This video shows how one emergency response team uses GIS. If needed, a transcript is provided once the video is accessed.

Video Education America. (2008). *Power of graphic information systems* (Segment 13 of 13) [Video file]. Retrieved from <https://libraryresources.columbiasouthern.edu/login?auth=CAS&url=http://fod.infobase.com/PortalPlaylists.aspx?wID=273866&xtid=40312&luid=72957>

Learning Activities (Nongraded)

Nongraded Learning Activities are provided to aid students in their course of study. You do not have to submit them. If you have questions, contact your instructor for further guidance and information.

To test your knowledge of the material covered in this unit, complete the activities listed below.

1. Chapter 1 Discussion Questions
2. Chapter 1 Active Review
3. Chapter 1 Using Your Knowledge
4. Chapter 1 Collaboration Exercise
5. Chapter 1 Cards

The activities are located within the chapter readings in uCertify. The Chapter 1 Discussion Questions, Active Review, Using Your Knowledge, and Collaboration Exercise are located at the end of the chapter. The cards can be accessed by clicking on the Cards icon within uCertify, which is located to the right of the chapter title, and the icon in uCertify resembles the image shown below.

