

# Information Systems

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## WHAT'S COVERED

In today's world, information systems have an enormous impact on business, education, government, entertainment, and a myriad of other areas through which people seek to be productive. Regardless of your expertise with information systems, it is probably safe to assume that you already have experience with one of the core components of an information system: the computer. In this tutorial, we will lay the groundwork for our examination of information systems by first looking at what an information system is, as well as its requisite components.

Our discussion breaks down as follows:

## 1. What Is an Information System?

An **information system** is a combination of technology, people, and processes. This combination collects, creates, distributes, and exploits useful information. Interestingly, when asked to define or describe an information system, most people will start with the ubiquitous “computers” or “databases.” However, careful inspection of our definition implies that information systems refer to both the components that make up an information system and the role that those components play within an organization.

Information systems can be incredibly complex depending on both the size and scope of the organization utilizing the system. In spite of varying levels of complexity, information systems consist of five components: hardware, software, data, people (I.T. professionals, software developers, system administrators, analysts), and process. The first three components fit under the category of technology and are what most people think of when trying to define an information system. The last two — people and process — are what separate the idea of information systems from the more technical fields, such as computer science. When thinking about information systems, it is easy to get focused on the technology components and forget that we must look beyond these tools to fully understand how they integrate into an organization. From the frontline help desk workers to systems analysts and programmers, all the way up to the chief information officer, the people involved with information systems are an essential element that must not be overlooked.

A process is a series of steps undertaken to achieve a desired outcome or goal. Information systems are becoming more and more integrated with organizational processes, bringing more productivity and better control to those processes. But, simply automating activities using technology is not enough. Using technology to manage and improve processes is the ultimate goal. Businesses hoping to gain an advantage over their competitors are highly focused on this component of information systems.

**Data** refers to information. The best way to think about data is as a collection of facts. For example, your street

address, the city you live in, and your phone number are all pieces of data. As technology has developed, the role of the computer within an information system has increased due to its ability to take data and transform it into meaningful information that organizations can use to make decisions.



#### TERMS TO KNOW

##### Information System

A combination of technology, people, and processes that collects, creates, distributes, and exploits useful information.

##### Data

Information, or a collection of facts.

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## 2. What Is a Computer?

The computer lies at the core of modern information systems. If you have ever typed a paper, sent or received an email message, browsed the Internet, or played a video game, then you have undoubtedly experienced what a computer is capable of.

A **computer** is an electronic device that uses a combination of hardware and software to manipulate data.

**Hardware** is the part of the information system that you can touch — the physical components of the technology. Computers, keyboards, flash drives, iPads, and monitors are all examples of hardware. Computer hardware is further classified based on its overall function within the system. A **peripheral** is a hardware component that is not natively part of the system. For example, a printer is a physical component; however, it is not a native part of the computer system and it must be purchased separately.

**Software** is the set of instructions that tells the hardware what to do. The primary distinction between hardware and software is that software is not tangible — it cannot be touched. Examples of application software are Microsoft Excel and Microsoft Word. Virtually all tasks completed with a computer will rely on hardware and software. For example, you may be viewing this tutorial in a web browser (software) and using your mouse (hardware) to navigate from page to page through this tutorial.

In addition to the components of hardware, software, and data, another component is communication. An information system cannot exist without the ability to communicate. A **computer network** is a group of computers connected for the purpose of communication — the sharing of data and resources. The Internet is perhaps one of the most common examples of a computer network. In fact, the Internet is a global computer network comprised of smaller networks (academic, professional, personal) that are connected to each other.



#### DID YOU KNOW

The first personal computers were stand-alone machines that did not access networks such as the Internet. However, in today's hyper-connected world, it is extremely rare that a computer does not connect to another device or to a network.



#### TERMS TO KNOW

##### Computer

An electronic device that uses a combination of hardware and software to manipulate data.

##### Hardware

The part of the information system that you can touch; the physical components of the technology.

### Peripheral

A hardware component that is not natively a part of the system.

### Software

The set of instructions that tells the hardware what to do.

### Computer Network

A group of computers connected for the purpose of communication-sharing of data and resources.



## SUMMARY

In this tutorial, you learned **what an information system is**, and why people and organizations utilize them. We discussed the five key elements present in any information system: hardware, software, networks, people, and data. Additionally, you were introduced to the idea of **the computer** as the central component of an information system, due to its data manipulation capabilities.

Source: Derived from Chapter 1 of “Information Systems for Business and Beyond” by David T. Bourgeois. Some sections removed for brevity.

<https://www.saylor.org/site/textbooks/Information%20Systems%20for%20Business%20and%20Beyond/Textbook.html>



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