**Chapter 1: Introduction to Information Systems**

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| Chapter Outline |

1.1 Why Should I Study Information Systems?

1.2 Overview of Computer-Based Information Systems

1.3 How Does IT Affect Organizations?

1.4 Importance of Information Systems to Society

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| Learning Objectives |

1. Identify the reasons why being an informed user of information systems is important in today’s world.
2. Describe the various types of computer-based information systems in an organization.
3. Discuss ways in which information technology can affect managers and non-managerial workers.
4. Identify positive and negative societal effects of the increased use of information technology.

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| Teaching Tips and Strategies |

Most of today’s college students use information in ways that were not dreamed of just a few years ago. However, because most students have grown up with information technology, they normally do not think about the whys and wherefores that underlie it.

It is therefore important for students to step back and learn the basic terms that define the foundation of Management Information Systems (MIS). Unfortunately, some of them will find this task boring or even complain they already know it all.

Because most students use technology in their everyday lives, they often fail to see the importance of MIS and how it relates to them. In order to involve students in the class, it is vital to let them know what is in it for them. This step should be taken early in the course to engage the students from the beginning. You may want to find each student’s major and explain how MIS knowledge can enhance their course of study and their chosen career. Knowing each student’s major and career goals will help you tailor examples, classroom assignments, and discussions to the students’ individual interests. Point out the “What’s In IT for Me” end-of-chapter section so that students know there are links to each major for each chapter.

Explaining how MIS has affected businesses as well as workers helps to get students interested in this class. It also helps them to appreciate the relevance of the history of how computers have evolved and how MIS and DSS applications have made managerial decision making easier and more reliable.

The importance of computer technology is underscored by examples of how companies save money by using email as an alternative to the postal service. Students should be introduced to the concept that IT must be paired with business processes to harness its potential. IT is important to business leaders all over the world. In Canada, immigration lawyers use an online system to assess potential salaries for different types of job ([*http://www.canadavisa.com/canada-salary-wizard.html*](http://www.canadavisa.com/canada-salary-wizard.html)). Students should be encouraged to become familiar with this website. Salary statistics for IT related jobs in Canada can be obtained from [*http://www.itworldcanada.com/salarycalculator/*](http://www.itworldcanada.com/salarycalculator/) [because](http://because) salary information seems to attract students’ attention, especially if they realize that if they are more technology savvy, then they will likely make more money.

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| Case 1.1: SAMS Chaos |

1. Itemize the tasks that were likely underestimated by the Ontario Ministry of Community and Social Services during the development and implementation phases of the SAMS project. Why might these tasks have been underestimated?

Answer: Interpreting “underestimated” as “inadequately performed”, it is reasonable to conclude that SAMS problems quite likely began in the early phases of the project (Chapter 13), (and took their root in existing poor IT governance (Chapter 2) and control practices (Chapter 4) within the ministry/provincial government). So, in addition to identifying the obvious task of testing, students should be encouraged to describe steps from other phases:

* Testing – to ensure the system does what it is expected to do by the developers and the users, and that it is doing it correctly
* In Systems investigation – what do we really need, new or revised software, or better procedures/adherence to procedures (to ensure that data processing is complete, accurate and authorized – i.e., better controls around use of existing system). Are our problems really the fault of the system or the system alone?
* Ensuring real, ongoing user involvement in all stages of the SAMS project
* In systems analysis – more complete, clear description of user/business requirements, TO BE DETERMINED BEFORE making any decision about whether to modify or replace the existing system, and especially before requesting quotes from software vendors.
* In assessing the quotes - careful and thorough assessment of each vendor’s software in meeting the ministry’s detailed business requirements, as well as each vendor’s reputation, reliability, service and support.
* In implementation:
  + careful planning and detailed testing of data conversion to ensure that integrity of master data is maintained;
  + choice of an appropriate conversion strategy, (such as pilot or phased), to reduce the risk of the kind of chaos that occurred at the ministry;
  + staff training for implementation tasks and for ongoing operations with the new system.

Level: Medium

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Application

AACSB Category: Reflective Thinking

1. Is it possible for the ministry to do its work without computer systems? Why or why not?

Answer: While it is possible, it is not realistic to operate manually today. This is a province-wide system, serving 900,000 citizen-clients with varying needs at any time. The system supports complicated processes, involving multiple government programs and regulations that influence eligibility, payments and services. Client data needs to be maintained and used to assess and document eligibility, calculate payments, and prepare required forms and letters. Clearly, accuracy, timeliness and security are critically important to this system and IT can best provide the means of satisfying all these requirements.

Level: Hard

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Evaluation

AACSB Category: Technology

AACSB Category: Reflective Thinking

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| Case 1.2: Are Drones ready to deploy? |

1. What are the advantages of commercial drones (in general)?

Answer: The advantages of commercial drones include many applications. They are more cost effective in applications where traditional airplanes or helicopters might have been used in the past. Drones could access areas or provide views that were not available to users in the past. Drone use was also opened to those where could not afford traditional aircraft. Companies will develop new applications for the use of drones as their design and capabilities evolve.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Analysis

AACSB Category: Technology

1. What are the disadvantages of commercial drones (in general)?

Answer: The more sophisticated drone models require specialized training to operate them. Due to their advanced capabilities, there is the potential for them to interfere with safe operation of commercial and private aircraft. In the U.S., the FAA is considering requiring the licensing of commercial drone pilots. (Auburn University was the first university in the U.S. to receive FAA approval for a program to train commercial drone pilots.)

As the use of drones expands to other venues/applications, such as camera platforms over crowds at concerts or athletic events, issues such as liability issues in the case of a crash, will have to be considered.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Analysis

AACSB Category: Technology

1. Do you think the advantages outweigh the disadvantages, or vice versa? Support your answer.

Answer: Based on current aviation industry literature, the advantages of the use of drones far exceed the disadvantages. In addition, the expanding use of drones will open up new job and business opportunities. (Your students should expand on this.)

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Analysis

AACSB Category: Technology

4. Search the Internet for a drone manufacturer near you. How much do they charge and what types of drones do they produce?

Answer: In August 2016, I found a Mississauga, Ontario based manufacturer, Aeromao, *(*[*http://aeromao.com*](http://aeromao.com)), producing commercial drones, “destined for image acquisition for mapping and surveying applications”, with three models priced from USD $9600 to $16,000, plus available upgrades for increased accuracy. Marketing material indicated that the drones meet FAA and Transport Canada standards, are individually tested and delivered ready to use, with no assembly or setup required and support documentation available on request.

Level: Easy

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Comprehension

AACSB Category: Technology

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| IT’s About Business 1.1 Grab Your Food Faster with Grabb |

1. Use Table 1.1 to consider all the different roles that individual developers of apps need to play when creating, running, and marketing their product. Describe three of these jobs in detail.

Answer: At a minimum, the student needs to consider (identify??) roles specifically related to application systems development and operation, including Applications Development, Project, Programming and Systems Managers, System and Business Analysts, and Applications Programmer. If the student is considering innovative applications to run on the Web, they may also need to include roles such as Emerging Technologies, Network and Computer Security Managers, Webmaster, Web Designer, and perhaps Database Administrator if DBMS is to be an integral part of the application software package. In addition to all these IT roles, the student would need to consider the roles involved in marketing the application and in managing the business. The three jobs to be described in detail would be best if chosen from among the key IT roles associated with a particular type of application the student has in mind.

Level: Medium

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Analysis

AACSB Category: Analytic

AACSB Category: Technology

AACSB Category: Reflective Thinking

1. Search your city and those in your province for restaurant-related or pickup apps. Compare and contrast them. Which one would you use? Why?

Answer: Answers will vary. Look in student answers for clear, relevant criteria on which they choose their favoured app. An interesting discussion that might evolve from reviewing this question with the students is in recognizing that those customer-favoured apps, which likely offer flexibility, convenience and ease of use, may also involve the use of sophisticated or complex technology in their development. Without recognizing and making use of the power of IT, businesses may miss their opportunity for gaining competitive advantage or even staying in the game.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Comprehension

AACSB Category: Technology

1. How would the IT department of a large organization such as Just Eats differ from a start-up such as Grabb?

Answer: Just Eats, started in 2000, now running multiple websites around the world would have a much larger IT department than that of the start-up, downtown Toronto based Grabb. Just Eats’ IT department would likely have a formal IT reporting structure, supporting decentralized operations geared to its major market locations. Grabb may still be a one-man operation or it may be a small, informal team of IT technical specialists, working at one location or virtually, possibly from their homes, likely under the management of the company founder, Daswani.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Comprehension

AACSB Category: Communication

AACSB Category: Technology

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| IT’s About Business 1.2 Warby Parker |

1. Provide two examples of how Warby Parker uses information technology to support its business model.

Answer: Warby Parker uses information technology:

* To maintain an online presence where their potential customers can make selections and place orders
* Offers a way for customers to upload photos to virtually try on frames.

Level: Easy

Section/Learning Objective: Section 1.2 /Learning Objective 2

Bloom’s Category: Comprehension

AACSB Category: Technology

1. How might Warby Parker further use information technology to counter major competitors who want to emulate Warby’s business model? Support your answer.

Answer: To counter competitors trying to emulate their business model, Warby Parker might:

* develop an application where customers can design their own frames from available parts.
* develop an exchange/upgrade program.

Students may have other suggestions.

Level: Medium

Section/Learning Objective: Section 1.2 /Learning Objective 2

Bloom’s Category: Application

AACSB Category: Technology

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| IT’s About Business 1.3 Saving Money and Time Using Additive Manufacturing |

1. Research online the different materials that can be used by 3D printers. Which industries could use these materials and how?

Answer: A broad array of materials can be used, based on the many additive processes and technologies now available. Raw materials include not only paper, polymers and metals, but also edible materials, rubbers, clays, thermoplastics and plastic film, metal foils, powders and alloys, ceramic materials and powders and more.

Students could discuss use in many industries, but answers need to reflect an understanding that:

* 3D printing is not appropriate for use in high volume manufacturing. It is best in small volume production (e.g., artisanal jewellery making), prototypes/samples or mold making from which dies may be cast for more conventional manufacturing;
* 3D printers can be very expensive (ranging from hundreds to thousands of dollars in price), so their use must merit their cost. Some examples of appropriate and innovative uses are to create needed tools or medical instruments in remote locations or outer space.

Level: Hard

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Evaluation

AACSB Category: Technology

AACSB Category: Reflective Thinking

2. Discuss the possible reactions of a small manufacturing business owner to the use of 3D printing to help the company print samples for production.

Answer: The small business owner’s reaction could vary, depending on whether he/she is an informed user if IT. Shock and rejection might be a response from an owner with little IT knowledge and no 3D printing knowledge. However, a better informed and open-minded owner might react positively to the prospect of saving time and resources to produce realistic samples, which might easily justify the cost of a printer.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Analysis

AACSB Category: Analytic

AACSB Category: Technology

3. Search Amazon for the current availability and price of 3D printers. Which printers do you think would be suitable for a small manufacturing business employing 20 people? What about a large manufacturing company with 5,000 employees—which printers would it purchase?

Answer: Answers will vary. Amazon’s Prices for Industrial and Scientific 3D printers ranged from less than $300 to more than $6000 US. However, suitability to business size is not necessarily determined by the price, but rather by the function that it will perform. Students’ interpretations of the question will impact their answers.

Level: Hard

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Evaluation

AACSB Category: Technology

AACSB Category: Reflective Thinking

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| IT’s About Business 1.4 Apricot Forest Helps China’s Physicians |

1. Explain how Apricot Forest’s apps will help improve the relationship between physicians and patients in China.

Answer: Apricot Forest’s apps provide a means for the doctors to maintain patient records and for their patients to contact their doctor using MedClip. The patients previously could not directly contact their doctors. It also enables the doctors to have access to patient records via a mobile app if there are treating them in a patient’s home.

Level: Easy

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Comprehension

AACSB Category: Technology

2. Explain how Apricot Forest’s apps will help improve overall health care in China.

Answer: Apricot Forest can aggregate and analyze the data the doctors enter into MedClips. This information can be supplied to companies for market research, design, and for the marketing of medical products. Overall, the company’s tools provide China’s doctors with more information about their patients.

Level: Easy

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Comprehension

AACSB Category: Technology

3. Discuss potential disadvantages of Apricot Forest’s apps to patients.

Answer: Potential disadvantages to patients include Apricot Forest selling information about them to researchers, and marketing companies. Another disadvantage is that because the apps include advertisements, marketing companies could possibly track patient/doctor clicks and target marketing towards them. They could also potentially use patient information entered by the doctor for marketing purposes.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Application

AACSB Category: Technology

4. Discuss potential disadvantages of Apricot Forest’s apps to physicians.

Answer: Potential disadvantages to doctors possibly include government health agencies using Apricot Forest apps to track the quality of service the doctor is provided their patients. Another disadvantage is that because the apps include advertisements, marketing companies could possibly track patient/doctor clicks and target marketing towards them. They could also potentially use patient information entered by the doctor for marketing purposes.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Application

AACSB Category: Technology

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| before you go on… |

Section 1.1

1. Rate yourself as an informed user. (Be honest; this isn’t a test!)

Answer: You will receive all types of answers to this question. Some will think they have a higher level of technology knowledge than they actually do.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Knowledge

AACSB Category: Technology

2. Explain the benefits of being an informed user of information systems.

Answer: Informed users tend to get more value from whatever technologies they use. You will enjoy many benefits from being an informed user of IT. First, you will benefit more from your organization’s IT applications because you will understand what is “behind” those applications (see Figure 1.1). That is, what you see on your computer screen is brought to you by your MIS department operating “behind” your screen. Second, you will be in a position to enhance the quality of your organization’s IT applications with your input. Third, even as a new graduate, you will quickly be in a position to recommend — and perhaps help select — the IT applications that your organization will use. Fourth, being an informed user will enable you to keep abreast of both new information technologies and rapid developments in existing technologies. Remaining “on top of things” will help you to anticipate the impacts that “new and improved” technologies will have on your organization and to make recommendations on the adoption and use of these technologies. Finally, you will understand how IT can be used to improve your organization’s performance and teamwork as well as your own productivity.

Level: Medium

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Comprehension

AACSB Category: Technology

3. Discuss the various career opportunities offered in the IT field.

Answer: Career opportunities in IS are strong and are projected to remain strong over the next ten years. In fact, when Money Magazine’s Best Jobs in America (http://money.cnn.com/pf/best-jobs/2015/list/index.html) listed the “top jobs” in America in 2015, 11 of the top 40 jobs related directly to information technology. These jobs (with their ranks) are:

(1) Software Architect: 10-year growth projection: 23% Median pay: $124,000

(2)Video Game Designer: (19% / $79,900)

(8) Database Designer: (23% / $88,300)

(9) Information Assurance Analyst: (37% / 96,400)

(14) User Experience Designer: (18% / $89,300)

(17) IT Program Manager: (15% / $122,000)

(27) Health Information Management Director (23% / $81,900)

(32) Software Quality Assurance Manager (15% / $110,000)

(38) IT Security Consultant: (37% / $110,000)

(39) Telecommunications Network Engineer: (15% / $90,500)

(40) Technical Consultant: (23% / $101,000)

Have your students check the site (*http://money.cnn.com/pf/best-jobs/2015/list/index.html*) for the current year.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Knowledge

AACSB Category: Technology

Section 1.2

1. What is a computer-based information system?

Answer: A computer-based information system (CBIS) is an information system that uses computer technology to perform some or all of its intended tasks. Although not all information systems are computerized, today most are. For this reason the term “information system” is typically used synonymously with “computer-based information system.”

Level: Easy

Section/Learning Objective: Section 1.2 /Learning Objective 2

Bloom’s Category: Knowledge

AACSB Category: Technology

2. Describe the components of computer-based information systems.

Answer:

● Hardware is a device such as the processor, monitor, keyboard, and printer. Together, these devices accept data and information, process them, and display them.

● Software is a program or collection of programs that enable the hardware to process data.

● A database is a collection of related files or tables containing data.

● A network is a connecting system (wireline or wireless) that permits different computers to share resources.

● Procedures are the set of instructions about how to combine the above components in order to process information and generate the desired output.

● People are those individuals who use the hardware and software, interface with it, or utilize its output.

Level: Medium

Section/Learning Objective: Section 1.2 /Learning Objective 2

Bloom’s Category: Knowledge

AACSB Category: Technology

3. What is an application program?

Answer: An application (or app) is a computer program designed to support a specific task or business process.

Level: Easy

Section/Learning Objective: Section 1.2 /Learning Objective 2

Bloom’s Category: Knowledge

AACSB Category: Technology

4. Explain how information systems provide support for knowledge workers.

Answer: Knowledge workers make decisions about situations that can significantly change the manner in which business is done. Information systems provide the databases, communications, and applications which allow them to store critical data used in analysis and tactical decision making.

Level: Easy

Section/Learning Objective: Section 1.2 /Learning Objective 2

Bloom’s Category: Comprehension

AACSB Category: Technology

5. As we move up the organization’s hierarchy from clerical workers to executives, how does the type of support provided by information systems change?

Answer: At the lower organizational levels, systems are used primarily to automate routine tasks. Moving up in the organization, systems are used to analyze information for decision making purposes.

Level: Easy

Section/Learning Objective: Section 1.2 /Learning Objective 2

Bloom’s Category: Comprehension

AACSB Category: Technology

Section 1.3

1. Why should employees in all functional areas become knowledgeable about IT?

Answer: Information systems are important for several reasons, regardless of the employee’s functional area of responsibility. (1) IT facilitates the organizational activities and processes of today’s businesses. (2) Most jobs students will go to after graduating will require some knowledge of information technology. (3) Employees’ that are able to use information technology will be able to give themselves an important advantage over their peers in the workplace. (4) Students will find that information systems will make their job easier and more efficient.

Level: Medium

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Comprehension

AACSB Category: Technology

2. Describe how IT might change the manager’s job.

Answer: IT often provides managers with near real-time information, meaning that managers have less time to make decisions, making their jobs even more stressful

Level: Easy

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Comprehension

AACSB Category: Technology

3. Discuss several ways in which IT affects employees at work.

Answer: Many people have experienced a loss of identity because of computerization. They feel like “just another number” because computers reduce or eliminate the human element that was present in non-computerized systems.

The Internet threatens to exert an even more isolating influence than computers and television. Encouraging people to work and shop from their living rooms could produce some unfortunate psychological effects, such as depression and loneliness.

They can adversely affect individuals’ health and safety. To illustrate this point, we consider two issues associated with IT: job stress and long-term use of the keyboard.

Computers can create new employment opportunities for people with disabilities by integrating speech- and vision-recognition capabilities.

Level: Easy

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Application

AACSB Category: Technology

Section 1.4

1. What are some of the quality-of-life improvements made possible by IT? Has IT any negative effects on our quality of life? If so, explain and provide examples.

Answer: The workplace can be expanded from the traditional 9-to-5 job at a central location to 24 hours a day at any location. IT can provide employees with flexibility that can significantly improve the quality of leisure time, even if it doesn’t increase the total amount of leisure time.

However, IT can also place employees on “constant call” where they are never truly away from the office, even when they are on vacation.

Level: Easy

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Application

AACSB Category: Technology

2. Describe the robotic revolution and consider its implications for humans.

Answer: In fact, “cyberpooches,” “nursebots,” and other mechanical beings may be our companions before we know it. Around the world, quasi-autonomous devices have become increasingly common on factory floors, in hospital corridors, and in farm fields. In our homes, iRobot (*www.irobot.com*) produces the Roomba to vacuum our floors, the Scooba to wash our floors, the Dirt Dog to sweep our garages, the Verro to clean our pools, and the Looj to clean our gutters.

We also have to look at advances made in building robotic devices to replace hands, legs, and arms.

To do some tasks, companies have started to replace human-workers with robotic workers.

Level: Easy

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Application

AACSB Category: Technology

3. Explain how IT has improved health care practices.

Answer: Medical personnel use IT to make better and faster diagnoses and to monitor critically ill patients more accurately. IT also has streamlined the process of researching and developing new drugs. Expert systems now help doctors diagnose diseases, and machine vision is enhancing the work of radiologists. Surgeons use virtual reality to plan complex surgeries. They have also used a surgical robot to perform long-distance surgery by controlling the robot’s movements. Finally, doctors discuss complex medical cases via videoconferencing. New computer simulations recreate the sense of touch, allowing doctors-in-training to perform virtual procedures without risking harm to an actual patient.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Application

AACSB Category: Technology

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| Discussion Questions |

1. Describe a business that you would like to start. Discuss how information technology could help you (a) find and research an idea for a business, (b) formulate your business plan, and (c) finance your business.

Answer: Answers will vary. Encourage student to go beyond simplistic approaches that merely indicate use of the internet to search for ideas and help with business planning and financing. They could include specific websites and apps they might use, online businesses they might research, software they could use to keep records of their research results, as well as software that they could use for business planning and financing, or online courses they might take to learn how to do some of these things for themselves.

Level: Medium

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Application

AACSB Category: Technology

2. Your university wants to recruit high-quality high school students from your province. Provide examples of (a) the data that your recruiters would gather in this process, (b) the information that your recruiters would process from these data, and (c) the types of knowledge that your recruiters would infer from this information.

Answer:

Grade 12 grades, AP course grades - potential for success in university courses

Location – some students may want to stay close to home

Other factors that may be unique to your school or to faculties or programs at your school

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Comprehension

AACSB Category: Technology

3. Can the terms “data”, “information,” and “knowledge” have different meanings for different people? Support your answer with examples.

Answer: Yes. Students will have different responses based on their personal experiences and possibly their majors.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Comprehension

AACSB Category: Technology

4. Information technology makes it possible to never be out of touch. Discuss the pros and cons of always being available to your employers and clients (regardless of where you are or what you are doing.)

Answer: This discussion should touch on email and Instant Messaging and their impact on a 24/7/365 business environment. If you are teaching an online class or the students are familiar with the concept, discuss how being available has changed the way you are interacting with students. Applications such as Facebook, Google+, and Twitter should also be considered in the overall discussion given that businesses have embraced these as marketing tools.

Level: Medium

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Application

AACSB Category: Technology

5. Robots have the positive impact of being able to relieve humans from working in dangerous conditions. What are some negative impacts of robots in the workplace?

Answer: Potentially reducing or eliminating some non-skilled repetitive production line jobs.

Level: Easy

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Comprehension

AACSB Category: Technology

6. Is it possible to endanger yourself by accessing too much medical information on the Web? Why or why not? Support your answer.

Answer: Discuss the issue of reliability of the sources of information and danger of self-diagnosis. Also discuss problems related to non-tested “miracle cures” and possible negative interactions with medications a patient may be taking for other conditions.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Application

AACSB Category: Technology

7. Describe other potential impacts of IT on societies as a whole.

Answer: Most of your students have grown up using technology and will not remember a time when it was not around. Open the discussion by asking how many students have Facebook (FB) and/or Google+ profiles. Ask them how they kept up with their friends before FB? Then open the discussion as to how they use Facebook/Google+, how often the access their account, how many “friends” they have and do they block any, how often they post? If any students have hundreds of friends in FB, ask why and do they consider it a problem (why or why not?) Ask how many of the students have smartphones? Ask of and how often they use text messaging on the including and for what? Do they maintain an electronic calendar to remind them of events (including birthdays and doctor appointments). This questions has a number of possibilities.

Level: Medium

Section/Learning Objective: Section 1.4/Learning Objective 4

Bloom’s Category: Analysis

AACSB Category: Technology

8. What are the major reasons why it is important for employees in all functional areas to become familiar with IT?

Answer: Hopefully this course will in the end provide an answer to the question. However the basis of the answer is to help the employee understand what is going on around them within the business and industry so that they might be able to make knowledge-based decisions on ways technology can be used to strategically support or enhance the business process.

Level: Easy

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Application

AACSB Category: Technology

9. Given that information technology is affecting every industry, what does this mean for a company’s employees? Provide specific examples to support your answer.

Answer: In order to stay competitive, organizations should look to new advances in the use of information technology. This impacts employees in many ways.

In the case of social media, the automation of the employment process by the HR department and, in a growing number of cases, the use of social media to find and track employees. Employees need to understand social media so they can use it effectively.

Another example is the use of social media for the marketing of the organization’s products or services. While some companies still advertise on search sites such as Google and Yahoo, they are now using sites as Facebook and Twitter for this.

Another area is data analytics. This is very important area for many companies. Employees not only need to understand data analysis, but how to collect, store and manage massive amounts of data.

Have your students research other examples.

Level: Medium

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Analysis

AACSB Category: Technology

10. Given the information technology is affecting every industry, what does this mean for students attending a business college or university? Provide specific examples to support your answer.

Answer: New technologies are being announced or release almost every day. In addition, researchers are discovering or developing new ways to use old technologies. Finally, old applications are being updated to utilize these advancements. What this means for business students is technologies that used or learned about as freshman may no longer be around or even replaced by the time that they graduate.

Examples of this include how businesses have embraced the use of social media, such as Facebook, since 2013. How hiring departments have embraced the use of social media sites such as LinkedIn to find applicants and use sites such as Facebook as part of their background checks.

Another example is the use of mobile apps. Up until around 2014, students had to use a computer to write research papers using a text processer such as MS-Word or Apple’s Pages. Mobile apps are now available so students can now use their tables or smartphones (if they really want to).

There are smartphone apps, such as for graphing calculators that are just powerful as a standalone calculator.

Have your students research other examples.

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Analysis

AACSB Category: Technology

11. Refer to the study at Princess Alexandra Hospital (in the “Improvements in Health Care” section). How do you feel about the study’s finding that Google searches find the correct diagnosis in 57 percent of the cases? Are you impressed with these results? Why or why not? What are the implications of this study for self diagnosis?

Answer: Ask if the students consider 57 percent a good or bad success rate? Why or why not? What are some of the implications of a false positive diagnosis? False negative?

Level: Easy

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Analysis

AACSB Category: Technology

12. Is the vast amount of medical information on the Web a good thing? Answer from the standpoint of a patient and from the standpoint of a physician.

Answer:

Patient Good: provides the patient with information that they can discuss with the doctor. Provides the patient more information and possibly options not mentioned by physician.

Bad: provides some erroneous or false information which might be misinterpreted by the patient, possibly wasting the physician’s time or causing a misdiagnosis done by the patient themselves.

Physician Good: provides current trends assisting to diagnosis and treatments. Collaboration with other physicians. If patient records are available online, can view test results that were done at other locations.

Bad: patient records security issues

Level: Medium

Section/Learning Objective: Section 1.4 /Learning Objective 4

Bloom’s Category: Analysis

AACSB Category: Technology

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| Problem Solving Activities |

1. Visit some websites that offer employment opportunities in IT. Prominent examples are: *www.dice.com*, *www.monster.ca*, *www.collegerecruiter.com*, *www.careerbuilder.ca*, *www.job.com*, *www.career.com*, and *www.simplyhired.com.* Compare the IT salaries with salaries offered to accountants, marketing personnel, financial personnel, operations personnel, and human resources personnel. For other information on IT salaries check *Computerworld*’s annual salary survey.

Answer: Students will provide comparisons about IT positions (suggest classifications – analyst, developers, support) and salary ranges using the sites listed.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Analysis

AACSB Category: Technology

2. Enter the website of UPS (*www.ups.com*).

a. Find out what information is available to customers before they send a package.

Answer: The site provides a detailed interface to interact with the company and information about its multitude of services.

b. Find out about the “package tracking” system.

Answer: Visit *http://www.ups.com/content/us/en/resources/track/check/index.html?WT.svl=Footer* to get information about the tracking system and its policies.

c. Calculate the cost of delivering a 25 cm x 50 cm x 38 cm box, weighing 18 kg, from your hometown to Montreal, Quebec (or to Vancouver, British Columbia, if you live in or near Montreal). Compare the fastest delivery against the least cost. How long did this process take? Look into the business services offered by UPS. How does the company make this process easier when you are a business customer?

Answer: Cost can vary from ~ $200 for overnight to $42 for slowest option.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Knowledge

AACSB Category: Technology

3. Surf the Internet for information about the federal government department Public Safety Canada. Examine the available information and comment on the role of information technologies in the department.

Answer: Students will discuss their findings after searching the Internet.

Level: Easy

Section/Learning Objective: Section 1.3 /Learning Objective 3

Bloom’s Category: Knowledge

AACSB Category: Technology

4. Access *www.irobot.com* and investigate the company’s education and research robots by checking the iRobot STEM section on the site. Surf the Web for other companies that manufacture robots, and compare their products with those of iRobot.

Answer: Students will discuss their findings after searching the site.

Level: Easy

Section/Learning Objective: Section 1.1 /Learning Objective 1

Bloom’s Category: Knowledge

AACSB Category: Technology

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| Team Assignments |

1. a. Create an online group for studying IT or a part of it you are interested in. Each member of the group must have a Yahoo email account (free). Go to Yahoo!: Groups (*http://groups.yahoo.com*) and at the bottom see a section titled “Create Your Own Group.”

Step 1: Click on “Start a Group Now.”

Step 2: Select a category that best describes your group (use the Search Group Categories, or use Browse Group Categories tool). You must find a category.

Step 3: Describe the purposes of the group and give it a name.

Step 4: Set up an email address for sending messages to all group members.

Step 5: Each member must join the group (select a “profile”); click on “Join this Group.”

Step 6: Go to Word Verification Section; follow the instructions.

Step 7: Finish by clicking “Continue.”

Step 8: Select a group moderator. Conduct a discussion online of at least two topics of interest to the group.

Step 9: Arrange for messages from the members to reach the moderator at least once a week.

Step 10: Find a similar group (use Yahoo!’s “Find a Group” and make a connection). Write a report for your instructor.

b. Now follow the same steps for Google Groups.

c. Compare Yahoo Groups and Google Groups.

Answer: Students will come up their report based on comparing their experiences at the two sites.

2. Review the Wall Street Journal, Toronto Star, Globe and Mail, Canadian Business (*http://www.canadianbusiness.com/*), and local newspapers for the last three months to find stories about the use of web-based technologies in organizations. Each group will prepare a report describing five applications. The reports should emphasize the role of the Web and its benefit to the organizations. Focus on issues described in this chapter, such as productivity, competitive strategies, and globalization. Present and discuss your work.

Answer: Students will come up their report based on their selected articles.

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| Chapter Glossary |

**application** (or **app**) A computer program designed to support a specific task or business process.

**business intelligence system** A system that provides computer-based support for complex, non-routine decisions, primarily for middle managers and knowledge workers.

**computer-based information system** An information system that uses computer technology to perform some or all of its intended tasks.

**dashboard** (or **digital dashboard**) A special form of IS that supports all managers of the organization by providing rapid access to timely information and direct access to structured information in the form of reports.

**data items** An elementary description of things, events, activities, and transactions that are recorded, classified, and stored but are not organized to convey any specific meaning.

**database** A collection of related files or tables containing data.

**electronic commerce systems** A type of interorganizational information system that enables organizations to conduct transactions, called business-to-business electronic commerce, and customers to conduct transactions with businesses, called business-to-consumer electronic commerce.

**enterprise resource planning systems** Information systems that correct a lack of communication among the functional area ISs by tightly integrating the functional area ISs via a common database.

**ergonomics** The science of adapting machines and work environments to people; it focuses on creating an environment that is safe, well lit, and comfortable.

**expert system** A system that attempts to duplicate the work of human experts by applying reasoning capabilities, knowledge, and expertise within a specific domain.

**functional area information system** A system that supports a particular functional area within the organization.

**hardware** A device such as a processor, monitor, keyboard, or printer. Together, these devices accept, process, and display data and information.

**information** Data that have been organized so that they have meaning and value to the recipient.

**information system** A system that collects, processes, stores, analyzes, and disseminates information for a specific purpose.

**information technology** Any computer-based tool that people use to work with information and support the information and information-processing needs of an organization.

**information technology components** Hardware, software, databases, and networks.

**information technology infrastructure** IT components plus IT services.

**information technology platform** Formed by the IT components of hardware, software, networks (wireline and wireless), and databases.

**information technology services** Services performed by IT personnel using IT components, including developing information systems, overseeing security and risk, and managing data.

**informed user** A person knowledgeable about information systems and information technology.

**interorganizational information systems** Information systems that connect two or more organizations.

**knowledge** Data and/or information that have been organized and processed to convey understanding, experience, accumulated learning, and expertise as they apply to a current problem or activity.

**knowledge workers** Professional employees such as financial and marketing analysts, engineers, lawyers, and accountants, who are experts in a particular subject area and create information and knowledge, which they integrate into the business.

**network** A connecting system (wireline or wireless) that permits different computers to share resources.

**office automation system** Software that supports the daily work activities of individuals and groups, such as software for creating documents and preparing emails

**procedures** The set of instructions for combining hardware, software, database, and network components in order to process information and generate the desired output.

**software** A program or collection of programs that enable the hardware to process data.

**supply chain** The flow of materials, information, money, and services from suppliers of raw materials through factories and warehouses to the end customers.

**transaction processing system** A system that supports the monitoring, collection, storage, and processing of data from the organization’s basic business transactions, each of which generates data.