CHAPTER 7

The Internet of Things

Have you noticed that the advertisements you see on the Internet are always related to your interests? How does the Internet know what you like and select advertisements to match? The Internet of Things (IoT) is the term used to describe *machine-to-machine* (or M2M) communication that allows this to happen. The advantages of the IoT are significant and range from personal benefits (like tracking your health information to warn you if your health is at risk) to city-wide benefits (like coordinating traffic lights to reduce traffic congestion). However, with the benefits come risks. For example, your health information could be revealed to your employers or insurance company. **How can you evaluate the advantages and the disadvantages of the IoT to ensure you achieve the positives of the technology without experiencing any of the negatives?**

In this chapter, you will

- learn vocabulary related to the Internet of Things;
- use passive voice accurately to emphasize action;
- summarize and reference to avoid plagiarism;
- edit and improve your own writing;
- recognize the differences between academic and popular texts;
- weigh advantages and disadvantages to develop a unique opinion;
- write two summaries and integrate them into a persuasive essay.

GEARING UP

A. In a group of four students, think about how you use the Internet to find information or a service. Make a list of all the websites you visit for these purposes. These are examples of human interaction with the Internet.

Purchase from Amazon,

B. In your group, list the ways you use the Internet for human-to-human communication. These are examples of how the Internet facilitates human-to-human communication.

Skype,

C. With your group, list examples of machine-to-machine (M2M) communication that assist human activity.

Traffic data on Google maps,

D. Discuss the following questions in your group: Do you believe the interactions and activities you listed in tasks A, B, and C are advantageous? Do M2M interactions have any disadvantages? What are they?

READING 2

Too Clever for Comfort

In this reading, you will learn about many different applications of M2M communication. Some of the applications are funny and entertaining, others offer significant advantages, and still others are associated with potential negative outcomes. In addition, the writer expresses a clear opinion. As a student of English who is often asked to express opinions in academic work, you may find it interesting to see how this writer expresses his views.

VOCABULARY BUILD

In the following exercises, explore key words from Reading 2.

A. Match each word or expression to its definition. When you have finished, check your answers with the class.

WORDS		DEFINITION
❶ Big Brother	_____	a) doubtful usefulness
❷ breach	_____	b) small, cleverly designed tool
❸ domestic	_____	c) show something that is usually covered or hidden
❹ dubious utility	_____	d) character in George Orwell's novel *1984* who was never seen, but was represented in posters with the slogan, "Big Brother is watching you"; used to refer to a government that watches everyone and has complete power over people's lives
❺ expose	_____	e) action that breaks a law, rule, or agreement
❻ gadget	_____	f) used to say that something is probably true
❼ hackers	_____	g) make something known that was previously secret
❽ invade	_____	h) related to life at home
❾ presumably	_____	i) people who secretly use and change information on other people's computers (informal)
❿ reveal	_____	j) get involved in something in an unwanted or annoying way

B. Fill in the blanks with the key words (first column) to complete the short story. Don't forget to capitalize or make a word plural if required.

An Imagined Future World

In the future, governments will watch their citizens more closely than ever before. This _____ approach to observing people will become common. Citizens, especially smart _____, will invent _____ that attempt to avoid governmental observation. These gadgets will be installed in _____ locations

where the governments are unlikely to find them. Governments will make laws that prevent the invention of these gadgets. However, hackers will _____ the laws and continue to develop avoidance devices. _____ everyone will want such a device, not only criminals; the potential market for these gadgets will be enormous. Governments will _____ retail stores and _____ large quantities of the devices. The citizens will _____ the government observation plans, and they will insist that such close observation serves a _____ since most citizens are good.

Before You Read

A. Carefully consider the words and expressions in the table above. Which ones seem to have negative meanings?

_____

B. Based on how these words are used, can you predict the author's opinion about the IoT? Is this different from the author's opinion in Reading 1? Discuss this with your class. Write your prediction here:

_____

While You Read

C. Read this text to determine if your prediction of the author's opinion of the IoT is correct. When you have finished, discuss with the class whether your predictions were correct.

Too Clever for Comfort

As the smart devices of the Internet of Things invade your home, hackers and Big Brother are close behind.

1. I've always been a fan of useless **gadgets**. High on my list were pizza scissors, the smartphone case that doubles as a hairbrush, and a battery-powered, swirling spaghetti fork. Lately, thanks to the Internet of Things (IoT)—loosely defined as everyday devices linked to the Internet, thereby making them smart—I've got lots of choice.

2. As far as I can tell, the IoT involves sticking a computer chip into something you can buy at Home Depot or Walmart, from fridges to baby monitors, and linking it to an app. You can buy smart toothbrushes, thermostats, and [even a personal health monitor] … Starting at $1200 (all currency in US dollars), **faucet** maker Moen has a smart shower **contraption** that allows you to control the heat of your water from your smartphone. No more waiting naked for ten or twenty [painful] seconds while the water warms up.

3. My favourite is a $199 automated cup …, made by a San Francisco company, that is advertised … as a hydration and nutrition tracker. Pour in a liquid, make sure the cup is charged up, and it will identify your drink. Pour in beer, and the word

faucet (n.): tap; device that controls the flow of water from a pipe

contraption (n.): piece of equipment that looks strange or funny, and is unlikely to work well

beer will light up on the outside. Confirmation is always appreciated, I guess, and imagine the fun you could have trying to confuse your smart cup by filling it with a mix of Coke and red wine.

4. The IoT wasn't invented merely to entertain us, of course; some of it is genuinely useful. Smart cities have the potential to solve public problems like traffic congestion. Internet-connected self-driving cars promise a transportation revolution. The IoT market is potentially massive, assuming that consumers keep buying into the dream of a connected **domestic** heaven … Gartner, an information technology research firm, estimates that more than twenty billion **gadgets** and appliances will be connected to the Internet by 2020.

5. But the IoT also has a dark side. Any object that can connect to the Internet can make you an invasion-of-privacy victim, because it can be hacked. Reports of hacking are piling up, and you have to wonder whether the IoT will lose popularity in the same way that the early IT companies lost popularity in the early 2000s. A house-renovator friend in Toronto told me that enthusiasm for home automation is already [decreasing], partly because so many of the devices, like Bluetooth-enabled door locks, are of dubious utility. But many homeowners also don't [like the thought of] turning living rooms and kitchens into potential listening devices for hackers and advertisers.

malicious (adj.): unkind and cruel

WikiLeaks (n.): multinational online media organization that publishes controversial government documents

CIA (n.): Central Intelligence Agency; the US government agency that collects information about people

6. Many of the security **breaches** so far seem **malicious**. In March, documents published by **WikiLeaks** … **reveal** that the **CIA** had launched a program called Weeping Angel, which found ways to turn Samsung Internet-connected TVs into devices that could record conversations even when sets were turned off. The CIA declined to comment … WikiLeaks also said the CIA was looking into hacking car-control systems, **presumably** making the cars vulnerable to crashes, which "would permit the CIA to engage in nearly undetectable assassinations."

ransom (n.): amount of money that is used to free someone who is being held prisoner, or get something back that was stolen

7. Last year, hackers attacked the electronic key-card system of a hotel in Austria, preventing guests from getting back into their rooms. The hotel's manager sent a **ransom** of $1800 worth of bitcoin—typically the currency of choice of blackmailers—to unlock the doors. Early this year, hackers **exposed** more than two million messages [of] parents and children playing with Internet-enabled teddy bears. What these various [breaches] proved is that many makers of consumer products can't be bothered, or can't afford, to invest in **sophisticated encryption software**.

sophisticated encryption software (collocation): computer program that creates a complicated code that prevents illegal use of the software or computer

8. Another annoyance with IoT gadgets is perfectly legal monitoring by collectors of massive amounts of consumer data, among them Amazon, Facebook, Google and Twitter. "Smart devices are all about surveillance—tracking your habits," says Jacob Silverman, author of *Terms of Service: Social Media and the Price of Constant Connection*. "The question is whether they use your data responsibly."

9. As artificial intelligence makes the IoT more sophisticated, the gadgets' ability to monitor your behavioural habits rises. The [use] of intelligent, voice-activated personal assistants like Siri (used by Apple) and Alexa (Amazon) has the potential to expose every aspect of your domestic life to Big Data capitalism. Ask Alexa a health question and you might get bombarded with ads for Fitbit exercise trackers. All this data also can be sold around the world by **data brokers**.

data brokers (n.): people who collect and sell personal information for profit

10. The best way to fight all these invasions of privacy is to [stay away from] Internet-enabled gadgets. The IoT and all its cleverness are better suited for big fixes, like making cities safer, cleaner and less congested. Besides, do you really need a
65 Bluetooth-enabled frying pan or smart garbage can?

(792 words)

Reguly, E. (2017). Too clever for comfort. *Report on Business: The Globe and Mail, 33*(9), 21.

After You Read

D. Answer the following questions to check your comprehension.

1. Based on the first paragraph of the reading, how does the author feel about "useless gadgets"?

2. After reviewing paragraphs 2 and 3, explain the author's feelings about the smart Moen faucet and the $199 automated cup. What is the author's tone in these paragraphs? How do you know?

3. In paragraph 4, what does the author suggest is a good use for the IoT?

4. The last sentence of paragraph 4 (line 25) is similar to a sentence in Reading 1 (page 183, line 15). In both readings, the writers include a statistic about the IoT. Why do you think these two very different readings contain similar sentences? You may want to use a statistic for the same purpose in your own writing.

5. What words signal to the reader that the author is going to present a different opinion about the IoT in the next paragraphs?

6. In paragraphs 5 to 10, the writer refers to many IoT devices (listed in the second column of the next table). For each application, write the potential disadvantage. This information will clarify the negative aspects of the IoT.

PARAGRAPH NUMBERS	IoT APPLICATIONS	POTENTIAL DISADVANTAGES
5	Bluetooth-enabled door lock	*Dubious utility (Do you really need it?)*
5	other "smart" appliances in living rooms and kitchens	
6	Samsung Internet-connected TV	
6	car-control systems	
7	electronic key-card system in hotel	
7	Internet-enabled teddy bears (toys)	
7	IoT consumer products	
8	Amazon, Facebook, Google, Twitter	*Extensive (though legal) personal data collection may not be used responsibly.*
9	"smart" voice-activated personal assistants	
10	Bluetooth-enabled fry pan or "smart" garbage can	

7 When you look at the table above, which (if any) of these negative aspects of the IoT worry you?

_____

E. To help you summarize the content in the final five paragraphs of the text, write the paragraph number next to its purpose.

PURPOSE OF THE PARAGRAPH	PARAGRAPH NUMBER (5–10)
❶ IoT devices can invade your privacy, and many are not that useful.	*5*
❷ In addition, hackers seem to be gathering personal information from IoT devices.	
❸ These problems won't just disappear. Increasing use of IoT devices means our personal information will be more available than ever before.	
❹ It seems that even legal organizations are using IoT devices in illegal ways.	
❺ IoT applications are better used for large (city-wide) projects than for personal devices.	
❻ Large companies collect personal data all the time, and they may not use that information wisely.	

F. Which paragraph best expresses the author's opinion about the IoT? Do you agree with the author? Why or why not?

_____

_____

My Bookshelf > My eLab > Exercises > Chapter 7 > Too Clever for Comfort