Technology in a Global Society Recent national and global issues are showing that technology is accelerating change around the world and galvanizing groups of people in new ways. Let's look at a few examples. Impact of Tools of Modern Technology Objective 1.1 Describe various technological tools being used to impact national and global issues. Social Media Tools Social media platforms like Twitter, Facebook, and Instagram enable people to connect and exchange ideas. These platforms also bring together people facing similar problems to fight for social change. For example, the Twitter hashtag #MeToo began as a way of supporting women facing sexual harassment and assault but evolved to galvanize an international movement. A simple hashtag brought to light an important social issue and was a key means for revealing how widespread the problem was. How we conduct informed discussion in the age of social media is still developing, however. Bot accounts, automated programs retweeting news stories and quotes, have been used to create discord around controversial topics in many countries—enflaming the gun control debate in the United States or fanning prejudice into vio– lence in Sri Lanka. For these and other reasons, knowing how to use and critically evaluate social media is an important skill needed by all (see Figure 1.1). Crisis–Mapping Tool Another example of the interaction of technology and society is the software tool Ushahidi. Following a disputed election in Kenya, violence broke out all over the country. Nairobi lawyer Ory Okolloh tried to get word of the violence out to the world through her blog, but she couldn't keep up with the volume of reports. However, two programmers saw her request for help and in a few days created Ushahidi. It is a crisis–mapping tool that collects information from –mails, text messages, blog posts, and tweets and then maps them, instantly making the informa– tion publicly available. The developers then made Ushahidi a free platform anyone in the world can use (see Figure 1.2). It has since been used in several international disasters. In what other ways may technology help us face times of crisis? Global Issues Objective 1.2 Describe various global social issues that are being affected by technology. Let's look at the different global social issues that are being affected by technology. Health Care Infectious diseases account for about one–fifth of all deaths worldwide. Researchers say the odds of a flu pandemic occurring in the next century are nearly 100%. Could technology help us develop and deliver vaccines to save lives? Using scientific visualization tools, scientists are developing antibodies for flu viruses and even HIV, viruses that are difficult to target because they continually change shape. Com– putationally intense modeling software is helping researchers increase the pace of vaccine production. As we learn more about the terrible consequences of concussion injuries, technology is playing a part in providing a solution. Researchers now know that even without an actual concussion, ath– letes can sustain serious damage from repeated impacts of their brain against the skull. Computer programs have collected sensor data from impacts on the field, which scientists have analyzed and used to create a new kind of helmet. College programs and the NFL now use enhanced helmets, designed to better distribute the impact of collisions. The Environment What if every cell phone in the world had built–in atmospheric sensors? Then millions of points of data measuring air and water quality from around the world could be acquired. The data could be tagged with geographical information, alerting scientists to new trends in our environment. Ideas like these are being explored by researchers around the world. Smart Internet–connected water sprinklers are another technology that is already saving water in California and other dry areas of the country. The

sprinkler system checks the weather forecast so it won't use water when rain is coming the next day. The system is showing a 30% reduction in water usage There is a serious gap in the levels of Internet access and the availability of technical tools in differ– ent regions of the world. The term for this difference in access to technology is the digital divide. One danger of a digital divide is that it prevents us from using all the minds on the planet to solve global problems. But this challenge created by technology is also being answered by it. The Next Einstein Initiative (NEI) is a plan to focus resources on the talented mathematical minds of Africa (see Figure 1.3). Cambridge professor Neil Turok founded the African Institute of Mathe– matical Sciences (AIMS) to bring together the brightest young minds across Africa with the best lecturers in the world. By capturing the enthusiasm of the world with presentations distributed through TED (ted.com) and Google's Project 10100, there is now a push to create additional AIMS centers across Africa. Technology Connects Us with Others Technology Impacts How and Why We Connect and Collaborate Objective 1.3 Describe how technology is changing how and why we connect and collabo– rate with others. Collaborating for the Benefit of Others With the arrival of many web applications that allow individuals to become "creators" of the web, a new kind of Internet has come into being. Nicknamed Web 2.0, the web now allows users to easily contribute content and connect with each other. Web 2.0 has fostered a dramatic shift across the world, from simply consuming to having the ability to volunteer and collaborate on projects. The term cognitive surplus was coined to reflect the combination of leisure time and the tools to be creative. The availability of media tools and the easy connectivity of Web 2.0, along with generosity and a need to share, also enable projects like Ushahidi to emerge. Connecting Through Business One of the most profound ways we can connect with each other is to support other people's dreams. Kickstarter helps us connect in this way by allowing people to post their ideas and to ask for direct funding. Donors are given rewards for different levels of pledges, such as a signed edition of a book or a special color of a product. This means of generating capital to start a business is known as crowdfunding, asking for small donations from a large number of people. Successful Kickstarter projects have included ice chests with integrated blenders, DNA analysis machines that could inex– pensively diagnose disease, and many entertainment projects. Over $3.9 billion of funding for businesses has been raised using Kickstarter. Business ideas are not the only projects benefiting from crowdfunding. Sites like GoFundMe allow people to crowdfund to raise money for things such as medical bills or tuition. Technology Impacts How We Consume Objective 1.4 Summarize how technology has impacted the way we choose and consume products and services. Technology is also changing how we decide what we'll purchase and how we actually buy goods and services. Marketing Marketing strategies are counting on the fact that most people have a cell phone with a camera and Internet access. Quick response (QR) codes like the one shown here let any piece of text host a direct link to online information and video content. Marketers also have to be aware of the phenomenon of crowdsourcing—checking in with the voice of the crowd. Forward–thinking companies are using this input to improve their products and services. AT&T, for example, has an app called Mark the Spot that lets customers report locations of dropped calls to help the company improve its coverage. Access Versus Ownership Even the idea of ownership is evolving. Items like cars and bikes can become "subscriptions" instead of purchases. Services like Uber and Lyft let you use your car to provide rides for

others while Zipcar allows you to use a shared car whenever you need it. Bicycles can be shared in most cities with programs like New York City's Citi Bike. It has already seen riders take over 50 million trips. These new sharing options have revolutionized the transportation industry (see Figure 1.4). Such collaborative consumption implies that we are joining together as a group to use a specific product more efficiently. There are increasing opportunities to share the services a product provides instead of owning it outright. Mounting environmental concerns and global financial pressures are other forces pushing us toward collab– orative consumption (see Figure 1.5).world, from simply consuming to having the ability to volunteer and collaborate on projects. The term cognitive surplus was coined to reflect the combination of leisure time and the tools to be creative. The availability of media tools and the easy connectivity of Web 2.0, along with generosity and a need to share, also enable projects like Ushahidi to emerge. Connecting Through Business One of the most profound ways we can connect with each other is to support other people's dreams. Kickstarter helps us connect in this way by allowing people to post their ideas and to ask for direct funding. Donors are given rewards for different levels of pledges, such as a signed edition of a book or a special color of a product. This means of generating capital to start a business is known as crowdfunding, asking for small donations from a large number of people. Successful Kickstarter projects have included ice chests with integrated blenders, DNA analysis machines that could inex– pensively diagnose disease, and many entertainment projects. Over $3.9 billion of funding for businesses has been raised using Kickstarter. Business ideas are not the only projects benefiting from crowdfunding. Sites like GoFundMe allow people to crowdfund to raise money for things such as medical bills or tuition. Technology Impacts How We Consume Objective 1.4 Summarize how technology has impacted the way we choose and consume products and services. Technology is also changing how we decide what we'll purchase and how we actually buy goods and services. Marketing Marketing strategies are counting on the fact that most people have a cell phone with a camera and Internet access. Quick response (QR) codes like the one shown here let any piece of text host a direct link to online information and video content. Marketers also have to be aware of the phenomenon of crowdsourcing—checking in with the voice of the crowd. Forward–thinking companies are using this input to improve their products and services. AT&T, for example, has an app called Mark the Spot that lets customers report locations of dropped calls to help the company improve its coverage. Access Versus Ownership Even the idea of ownership is evolving. Items like cars and bikes can become "subscriptions" instead of purchases. Services like Uber and Lyft let you use your car to provide rides for others while Zipcar allows you to use a shared car whenever you need it. Bicycles can be shared in most cities with programs like New York City's Citi Bike. It has already seen riders take over 50 million trips. These new sharing options have revolutionized the transportation industry (see Figure 1.4). Such collaborative consumption implies that we are joining together as a group to use a specific product more efficiently. There are increasing opportunities to share the services a product provides instead of owning it outright. Mounting environmental concerns and global financial pressures are other forces pushing us toward collab– orative consumption (see Figure 1.5).world, from simply consuming to having the ability to volunteer and collaborate on projects. The term cognitive surplus was coined to reflect the combination of leisure time and the tools to be creative. The availability of media tools and the easy

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