## Chapter 1

## Disruptive IT Impacts Companies, Competition and Careers

## IT at Work

### **IT at Work 1.1**

1. **How did Fitbit manage to take the title of biggest selling manufacturer of wearable technology tech and sustain it?**

Fitbit disrupted the health and fitness industry when they brought to market a smart-connected wearable activity tracker that fits effortlessly into users’ life styles and thus launched an industry and propelled themselves to market leader. Within five years, Fitbit managed to take the title of biggest selling manufacturer of wearable tech when it sold 21 million devices in one year.

1. **What could other companies who produce fitness trackers do to challenge Fitbit in the marketplace?**

*Answers may vary.* Other companies may focus on cost to target a low-end market with inexpensive products while others may focus on product development to enhance the capability and features of their device to maintain or grow respective market shares.

1. **What other features do you think consumers would like Fitbit to incorporate into its’ fitness tracker to further improve it? How would consumers and Fitbit benefit from these improvements?**

*Answers may vary.* Features could include feedback on movements to improve performance (as with time-motion studies) and alerting workers when they have had too much repetitive movement or not enough movement for good health (as in a sedentary job). Additional features might include the ability to monitor heart rate and sleep activity, waterproof devices that can be worn in the shower or pool, advanced personal training features, relaxation tools and integration with social networks.

### **IT at Work 1.2**

1. **What are two reasons why Zulpo had trouble finding qualified IT talent?**

First, finding the talent and determining if they have the necessary skills and experience and second, finding the qualified talent at a time when very few IT workers are out of work. The unemployment rate for tech workers is about 2%, according to reports on recent data from the U.S. Bureau of Labor Statistics (Bureau of Labor Statistics 2016).

1. **What type of position(s) was Zulpo trying to fill?**

A senior project manager, a network analyst and a help desk worker.

1. **What methods would you recommend to Zulpo help him in his efforts to recruit new IT personnel?**

*Answers may vary.* Provided competitive benefits such as a signing bonus, additional paid time off, flexible work schedule or work-from-home days.

## Review Questions

### 1.1 Doing Business in the On-Demand Economy

1. **What precipitated the on-demand economy?**

*Answers may vary.* Years of technological innovation and a change in consumer behavior laid the foundation for an on-demand economy. As technology companies have become more digitized, they are looking for ways to bring together consumers and providers of products and services focusing on speed, ease and convenience. A low barrier to enter the on-demand economy enables competition and growth.

1. **How is IT contributing to the success of the on-demand economy?**

*Answers may vary.* The proliferation of smartphone-connected consumers, simple and secure purchase flows and location-based services are market conditions and technological innovations that propel the on-demand economy forward. Companies are focused on the strategic use of technology platforms that consist of hardware, software, and networks that provide connectivity for diverse transactions, such as ordering, tracking, user authentication, and payments.

1. **List the six IT business objectives.**
	1. Product development
	2. Stakeholder integration
	3. Process improvement
	4. Cost efficiencies
	5. Competitive advantages
	6. Globalization
2. **What are the key strategic and tactical questions that determine an organization’s profitability and management performance?**
* Strategic direction:
	+ What do we do?
	+ What is our direction?
	+ What markets and customers should we be targeting and how do we prepare for them?
* Business model:
	+ How do we do it?
	+ How do we generate revenue & profits to sustain ourselves and build our brand?
* Business processes, procedures and technology
	+ How well do we do it?
	+ How can we be more efficient?
1. **What is a business model?**

A business model is the way an organization operates to generate revenue or to sustain themselves. Elements of a business model can include identifying customer base(s), establishing business processes and identifying business resources, as examples.

1. **What is a digital business model?**

A digital business model defines how a company makes money or sustains themselves by using digital technology. This is how a company engages customers digitally to create value via websites, social channels and mobiles devices. Companies that can adopt digital business models are better positioned to take advantage of business opportunities, adapt to changes in the market, and adjust to competitive forces and future trends.

1. **Give two examples of how companies are transitioning to digital business models.**

*Answers may vary.* NBA talent scouts no longer have to review player statistics on spreadsheets and review hours of tapes. The NBA now relies on STATS’ SportVU technology using cameras to tracks the movement of every player on the court, record ball movement and convert the movement to statistics in order to help make trading decisions. The adoption of analytics to enable decision-making is transforming the NBA from a traditional business model to a digital business model.

Casinos are moving to digital business models by using dashboards to keep casino floor staff informed of player demand and to increase the profitability of blackjack, craps, and other table games. Casinos are adopting predictive analytics to determine consumer behavior that can identify ways to increase market share and profits. The data analytics is also used to enhance the customer experience (CX) which is directly tied to customer loyalty and increases revenue.

1. **What factors are driving the move to digital business models?**

*Answers may vary.* The on-demand economy is driving traditional business models to digital business models to serve customers what they want when they want it. Business leaders are realizing that in order to move their business forward and to enable on-demand business models, they must know what steps to take to get the most out of mobile, social, cloud, big data, analytics, visualization technology and the Internet of Things (IoT). Faced with opportunities and challenges, managers need to know how to leverage IT earlier and more efficiently than their competitors.

### 1.2 Business Process Improvement and Competitive Advantage

1. **What is a business process? Give three examples.**

Business processes are series of steps by which organizations coordinate and organize tasks to get work done. In the simplest terms, a process consists of activities that convert inputs into outputs by doing work.

*Answers may vary.* Some examples of common business processes are:

* Accounting: Invoicing; reconciling accounts; auditing
* Finance: Credit card or loan approval; estimating credit risk and financing terms
* Human resources (HR): Recruiting and hiring; assessing compliance with regulations; evaluating job performance
* IT or information systems: Generating and distributing reports and data visualizations; data analytics; data archiving
* Marketing: Sales; product promotion; design and implementation of sales campaigns; qualifying a lead
* Production and operations: Shipping; receiving; quality control; inventory management
* Cross-functional business processes: Involve two or more functions, for example, order fulfillment and product development

**2. What is the difference between business deliverables and objectives?**

Objectives define the desired benefits or expected performance improvements. They do not and should not describe what you plan to do, how you plan to do it, or what you plan to produce, which is the function of processes.

**3. List and give examples of the three components of a business process.**

The three components of a business process are inputs, activities, and deliverables.

* *Inputs* are those items needed to produce the deliverables. These may be raw materials, data, knowledge, or expertise
* *Activities* are the work that transforms inputs and acts upon data and knowledge in order to produce deliverables
* *Deliverables* are the products, services, plans, or actions which result from business processes

**4. Explain the differences between formal and informal processes.**

* *Formal* processes are documented and have well-established steps. Order taking and credit approval processes are examples.
* *Informal* processes are typically undocumented, have inputs that may not yet been identified, and are knowledge-intensive.

**5. What is a standard operating procedure (SOP)?**

A standard operating procedure (SOP) is a well-defined and documented way of doing something. An effective SOP documents who will perform the tasks; what materials to use; and where, how, and when the tasks are to be performed.

**6. What is the purpose of business process management (BPM)?**

Business process management (BPM) consists of methods, tools, and technology to support and continuously improve business processes. The purpose of BPM is to help enterprises become more agile and effective by enabling them to better understand, manage, and adapt their business processes.

### 1.3 IT Innovation and Disruption

1. **What are the benefits of cloud computing?**

*Answers may vary.* With cloud computing, IT services are delivered via the Internet on-demand. Some benefits are faster application deployment, no need for upfront hardware costs, a flexible capacity for changing computing requirements, and the ability to add, or reduce, server space on-demand.

1. **What is machine-to-machine (M2M) technology? Give an example of a business process that could be automated with M2M.**

*Answers may vary.* Machine-to-machine (M2M) technology enables sensor-embedded products to share reliable real-time data via radio signals. M2M is also referred to as the Internet of Things (IoT) and is widely used to automate business processes in industries ranging from transportation to health care. By adding sensors to trucks, turbines, roadways, utility meters, heart monitors, vending machines, and other equipment they sell, companies can track and manage their products remotely.

1. **Describe the relationships in the SMAC model.**

This is the integration of social, mobile, analytics and cloud (SMAC) technologies. The cloud forms the core. Mobile devices are the endpoints. Analytics creates the information and Social networks create the connections.

1. **What impact is the SMAC model having on business?**

*Answers may vary.* The SMAC infrastructure makes it possible to meet the expectations of employees, customers, and business partners given that almost everyone is connected (social), everywhere they go (mobile), gets the information they need (analytics) and has 24/7 access to products and services (cloud).

1. **Why have mobile devices given consumers more power in the marketplace?**

*Answers may vary*. Connections and feedback via social networks have changed the balance of influence. Consumers are more likely to trust tweets from ordinary people than recommendations made by celebrity endorsements. And, negative sentiments posted or tweeted can damage brands.

1. **Explain why connectivity is important in today’s on-demand economy.**

*Answers may vary*. Companies need to connect with consumers and business partners across multiple channels and devices using digital platforms that consist of hardware, software (mobile apps), networks (social media), (embedded sensors) and cloud computing.

1. **In what ways is IT disrupting business?**

*Answers may vary*. Some of the technology megatrends disrupting business are cloud services providing connectivity, big data and data analytics, digitization, machine-to-machine (M2M) technology and the Internet of Things (IoT). Across industries, companies are attempting to transform their disconnected or disjointed approaches to customers, products, services, and operating models to an always-on, real-time, and information rich marketplace, and by doing so, many are outperforming their peers.

### 1.4 IT and You

1. **What types of IT careers have the most potential in the current hiring market?**

*Answers may vary.* Online searches for data scientist are outpacing the number of job postings by more than 20 percent and the large business consulting firm, Price-Waterhouse-Cooper, recently announced they would be adding more than 1,000 data scientists during the next two years. Other careers with potential are programming, application development, technical support, security, cloud, business intelligence, web development, database administration and project management.

1. **What factors does Zulpo take into consideration when he’s evaluating job applicants?**

Zulpo determines if the candidate has the skills, experience and personality to thrive in the position. He also factors in the cost of not hiring an “A” player.

1. **Why is IT a major enabler of business performance and success?**

*Answers may vary.* Digital technology creates markets, businesses, products, and careers. Exciting IT developments are changing how organizations and individuals do things. Business opportunities and challenges presented by today’s technology innovations are on an unprecedented scale. Cloud services, big data, mobility, digitization and the Internet of Things (IoT) are likely to disrupt many industries and shake up competitive positions.

1. **Explain why it is beneficial to be an informed user of IT.**

*Answers may vary*. Staying current in emerging technologies affecting markets is essential to the careers of knowledge workers, entrepreneurs, managers, and business leaders—not just IT and chief information officers (CIOs). Knowing how best to you use IT and how and when to interact with IT personnel, and they with you, will help you perform better at home, at work and enable you to become an informed user of technology. By being an informed user of technology, you will gain more value from IT to improve your performance and widen your career opportunities.

1. **Do you think IT job prospects are strong? Explain.**

*Answers may vary.* IT managers play a vital role in the implementation and administration of digital technology. Workers with specialized technical knowledge and strong communications and business skills, as well as those with an MBA with a concentration in an IT area, will have the best prospects. Job openings will be the result of employment growth and the need to replace workers who transfer to other occupations or leave the labor force (Bureau of Labor Statistics, 2016).

According to the U.S. Department of Labor (2016), IT Job growth is estimated at 12 percent from 2014 to 2024, faster than the average for all other occupations. This means about 488,500 new jobs. The median annual wage for computer and IT occupations was $81,430 in May 2015, which was considerably higher than the median annual wage of $36,200 for all other occupations.

Source: https://www.bls.gov/ooh/computer-and-information-technology/home.htm

## *DISCUSS:* Critical Thinking Questions

1. **Why are businesses experiencing a digital transformation?**

*Answers may vary.* Businesses are experiencing a digital transformation as digital technology enables changes unimaginable a decade ago. High-performance organizations are taking advantage of what is newly possible from innovations in mobile, social, cloud, big data, data analytics, and visualization technologies. These digital forces enable unprecedented levels of connectivity, or connectedness. In order to stay competitive and maximize the customer experience, companies must stay abreast of digital technologies and how those technologies enable their businesses to thrive.

1. **More data are collected in a day now than existed in the world 10 years ago. What factors have contributed to this volume of data?**

*Answers may vary.* The advent of mobile and social media allowing mass amounts of content to be uploaded easily has contributed enormously. The technological developments of mobile data, sensors, and near-field communications have led to more data being more easily collected. Sources of data include: mobile devices and M2M sensors embedded in everything from airport runways to casino chips (e.g., the Internet of Things); social content from texts, tweets, posts, blogs; clickstream data from the Web and Internet searches; video data and photos from retail and user-generated content; and financial, medical, research, customer, and B2B transactions.

1. **Assume you had no smartphone, other mobile device, or mobile apps to use for 24 hours. How would that mobile blackout disrupt your ability to function?**

*Answers may vary*. They likely will include no access to social media and no communication, whether social or emergency.

1. **What were three highly disruptive digital technologies? Give an example of one disruption for each.**
* *Cloud computing* – using resources, such as a file hosting service for accessing pictures, videos, software, etc. no longer depends upon a large, upfront investment to purchase that resource, nor does acquiring the resource take the amount of time it once did. Examples: Apple iCloud, DropBox.
* *Machine-to-Machine technology* – the “Internet of Things” enables sensor-embedded products to share real-time data so products may be tracked and managed remotely.

Examples: M2M provides the ability to read and/or control utility meters, heart monitors, vending machines, and other products.

* *Big Data* – data streams in from multiple channels and sources; typically unstructured data. Examples: target marketing, trend analysis, tailored products and services.
1. **Why are enterprises adopting cloud computing?**

*Answers may vary*. Cloud computing reduces costs, increases flexibility, and allows companies to dynamically adjust resources to their computing needs, thus saving money. Reacting to changes can be much more responsive and cost-effective.

1. **What is the value of M2M technology? Give two examples.**

*Answers may vary*. Products with embedded sensors can provide better service, protect against fraud, and provide reliable real-time data. This technology enables networked devices to exchange information and perform actions without the manual assistance from humans. Examples: Ford’s rain-sensing front wipers adjust wiper speed to weather conditions; utilities’ automated meter readings/smart grids, asset tracking such as sensors in casino chips prevent theft and loss, or sensors in fleet vehicles that allow tracking and routing management.

1. **Starbucks monitors tweets and other sources of big data. How might the company increase revenue from big data analytics?**

*Answers may vary.* Being aware of trends and opinions which might affect their business, they can adapt rapidly to adjust prices, create new product offerings, and provide for a better customer experience within a short time frame, compared to their competition. This could increase business and hence revenue. Other sources of data might provide insights to lower costs.

1. **Select three companies in different industries, such as banking, retail store, supermarket, airlines, or package delivery that you do business with today. What digital technologies does each company use to engage you, keep you informed, or create a unique customer experience? How effective is each use of digital technology to keeping you a loyal customer?**

*Answers may vary.*

1. **Describe two examples of the influence of SoMoClo on the financial industry.**

*Answers may vary.* Examples: Online mobile banking, use of mobile device (phone) to pay for transactions using Near Field Communication (NFC), QR-Code or Bluetooth-based technology.

1. **What is a potential impact of the Internet of things on the health-care industry?**

*Answers may vary.* Examples: Monitoring patients remotely could reduce hospital stays. Remote sensor data collection could contribute to medical care and research. Real-time location services to track devices used for treating patients. Hand hygiene compliance could track cleanliness of a healthcare worker.

1. **Why does reducing the cycle time of a business process also help to reduce errors?**

*Answers may vary.* Reduction in cycle time is achieved by automating tasks as much as possible and by optimizing other tasks. This reduces the number of human tasks to be completed and makes those tasks as routine as possible, reducing the possibility of errors.

1. **Research firm Gartner defines competitive advantage as a difference between a company and its competitors that matters to customers. Describe one use of M2M technology that could provide a manufacturer with a competitive advantage.**

*Answers may vary.* Examples: Manufacturing processes with embedded sensors can be controlled more precisely or monitored for hazards in order to take corrective action. This in turn reduces injuries, damage, and costs. Combined with big data analytics, manufacturers can improve the efficiency of their machinery and minimize energy consumption, which often is the manufacturing industry’s second-biggest expense.

1. **What IT careers are forecasted to be in high demand? Explain why.**

*Answers may vary.* Examples: many new businesses are seeking more programmers and designers. Data security threats continue to get worse, increasing the need for security specialists. The field of IT covers a wide range that includes processing of streaming data, data management, big data analytics, app development, system analysis, information security, and more. Workers with specialized technical knowledge and strong communications and business skills, as well as those with an MBA with a concentration in an IT area, will have the best prospects.

1. **Why or how would understanding the latest IT trends influence your career?**

*Answers may vary.* The development of hardware, software and services associated with mobile computing will create new careers. Big Data will impact human resources, marketing, scientific and medical research, product development, customer service, finance and other areas. IoT will impact those who design the device, software developers who code the controls and users of the devices will all be impacted. The demand for cyber security and cyber forensics will only grow. Business managers and their leadership who pay attention to IT trends will be able to take advantage of new advancements for themselves and their organizations keeping themselves relevant and marketable.

## *EXPLORE:* Online Interactive Exercises

1. **Research the growing importance of the IoT. Find two forecasts of its growth. What do they forecast?**

*Answers may vary.*

IDC predicts worldwide spending on the Internet of Things (IoT) is forecast to reach $737 billion in 2016 as organizations invest in the hardware, software, services, and connectivity that enable the IoT. According to a new update to the International Data Corporation (IDC) Worldwide Semiannual Internet of Things Spending Guide, global IoT spending will experience a compound annual growth rate (CAGR) of 15.6% over the 2015-2020 forecast period, reaching $1.29 trillion in 2020.

Source: IDC, http://www.idc.com/getdoc.jsp?containerId=prUS42209117

Business Insider predicts the following:

* Nearly $6 trillion will be spent on IoT solutions over the next five years.
* Businesses will be the top adopter of IoT solutions. They see three ways the IoT can improve their bottom line by 1) lowering operating costs; 2) increasing productivity; and 3) expanding to new markets or developing new product offerings.
* Governments are focused on increasing productivity, decreasing costs, and improving their citizens’ quality of life. We forecast they will be the second-largest adopters of IoT ecosystems.
* Consumers will lag behind businesses and governments in IoT adoption. Still, they will purchase a massive number of devices and invest a significant amount of money in IoT ecosystems.

Source: Business Insider, http://www.businessinsider.com/how-the-internet-of-things-market-will-grow-2014-10

1. **Go to “9 Successful Digital Disruption Examples” on the IT Business Edge website. Close the pop-up to view the slideshow and read the descriptions of each of the ways in which technology is disrupting our lives. Answer the following questions:**
2. **Which of the following disruptions resonated best with you and your lifestyle? Explain.**

*Answers may vary.*

1. **Which of the disruptions was most surprising to you? Why?**

*Answers may vary.*

1. **Rank order the disruptions in their order of importance to you? Write a short report explaining your rankings.**

[Ordered here as they appear in the slideshow, with excerpts]

1. A Successful Meeting in the Digital Workplace

“Today, employees can set up in-person meetings across the globe using Skype for Business, share their desktop to give presentations easily to everyone, take team-editable notes using OneNote, post notes to SharePoint for group editing and review, and save to OneDrive for future reference and easy access. But, says Paul Rigby, SVP, Business Operations with Vitalyst Response, disruptive technology tools alone won't accomplish the goal of enterprise productivity. This meeting will work only when all employees possess the knowledge and skills to utilize digital enterprise tools seamlessly and to their highest potential, creating greater workplace productivity.”

1. Adoption of the Platform Economy

“According to Craig Bachmann, senior director of the Open Digital program at TM Forum, an example of digital disruption in the workplace is found in the growing adoption of the platform economy. Organizations are increasingly using data from external ecosystems to offer new services. In addition to some of the more well-known platform players – such as Uber, which owns no cars, Facebook, which owns no content, and Airbnb, which owns no real estate – many smaller enterprises also offer platform-centric solutions using APIs that bring together buyers and sellers, such as in the areas of cloud services, security and privacy.”

1. Digital Disruption: Replacing Older Tools

“Companies have seen the way they work with technology being disrupted, says Max Dufour, partner-Digital Strategy with Harmeda. "Solutions such as Box, Office 365 or Google can replace and enhance the older tools, while saving money, and end up requiring less implementation work than the tools used 10 years ago," Dufour says.”

1. More Effective Use of Data

“Organizations continue to grapple with how to most effectively use the vast amounts of data being produced at an unprecedented velocity. Ajay Khanna, VP of Product Marketing at Reltio, explains that new modern data management innovations are disrupting the Big Data space, allowing businesses to put data to work for them. In turn, Big Data can assist in understanding markets, drive new revenue opportunities, achieve business goals and increase the bottom line.”

1. Digital Disruption and Customer Interaction

“Geoff Webb, vice president, Product Marketing and Solutions Strategy at Micro Focus, believes that digital disruption will be felt most immediately in the way many businesses interact with their customers.”

1. Improving Medical Procedures with Disruptive Technology

“When fed enough data, a computer can become as proficient as humans at medical tasks, says Dr. Darren Schulte, CEO of Apixio.”

1. Integrating the Supply Network

“The aerospace-and-defense industry is using digital tools to integrate an enormously complex supply network. According to Dave Evans, CEO of Fictiv, an example of this is a modern jet turbine engine that has hundreds of individual parts, some of which the engine manufacturer makes in-house, and others it sources from a network of dozens of vendors. "Cloud computing-based tools enable a new level of transparency between engineers and suppliers, reducing the labor required to manage design changes, and increasing speed across the entire product development process," says Evans.

"Already we're seeing surgeons conduct laparoscopic surgery with the da Vinci Surgical System, using the surgical bot to control tiny, precise movements of surgical instruments," says Dr. Schulte. As health care technology companies master data analytics at scale, expect to see the development of more services that rely on digital disruption.”

1. Real-Time Visualization

“Insureon uses real-time visualization of incoming calls, says company CEO Ted Devine. This lets the call center team see where the warmest leads are and lets managers understand at a glance where they're succeeding and where they need to pick up the pace.”

1. Challenges that Digital Disruption Presents

“Thanks to the internet, we now have disintermediation, where manufacturers and wholesalers are getting closer to the end consumer, upping the ante for customer engagement/customer experience, according to experts at Epicor Software. Customers now expect the same type of interaction that they have with any of the other brands they regularly connect with. Also, a heavier reliance on virtual business means competitive barriers to entry on a global basis have fallen away. Organizations must retool to support faster response and improved ROI, the experts advise, without sacrificing integration, integrity, and/or governance. The once optional tools are now mandatory.”

## ANALYZE & DECIDE: Apply IT Concepts to Business Decisions

1. **A transportation company is considering investing in a truck tire with embedded sensors—the Internet of things. Outline the benefits of this investment. Would this investment create a long-term competitive advantage for the transportation company?**

*Answers may vary.* Depending on the abilities of the sensors, some benefits may be: the ability to track mileage and wear of the tire, predicting when replacement is needed before downtime or an accident might occur, predicting the need for quantity purchasing of tires, etc. It could create competitive advantage by reducing downtime, reducing accidents, and reducing tire replacement costs, however, the advantage likely would be short-lived as other transportation companies also purchased similar tires.

1. **Visit the Web site of UPS (ups.com), Federal Express (fedex.com), and one other logistics and delivery company.**

a. **At each site, what information is available to customers before and after they send a package?**

*Answers may vary.*

b. **Compare the three customer experiences**.

*Answers may vary.*

1. **Visit Dell.com and Apple.com to simulate buying a laptop computer. Compare and contrast the selection process, degree of customization, and other buying features. What are the barriers to entry into this market, based on what you learned from this exercise?**

*Answers may vary.*

## ***CASES***

### Case 1.1 Opening Case: Uber, Airbnb and the On-Demand Economy

1. **In what ways are the Uber and Airbnb business similar or different?**

*Answers may vary.* Uber and Airbnb are similar in that they both have disrupted their respective markets by providing goods or services in slow-to-innovate markets. They both match consumers with an ability to request a ride or rent a house in a quick, easy to understand and affordable way. Both companies are valued in the tens of billions. They both provide a rating system for customer feedback. They are both unpopular with incumbents and regulators and are faced with many legal actions. Uber does not own any cars and Airbnb does not own any homes. They both exist with non-employees who do the real work of driving or renting their home.

Uber and Airbnb differ in the business cultures they are fostering. Uber has a company reputation of aggressive tactics that have helped fuel its growth while Airbnb works to foster a more collaborative culture. Airbnb recently invited 1500 of its hosts to San Francisco for a summit to celebrate them, ask for feedback and to network with one another all while the company is being challenged in municipalities across the world. Uber has had a myriad of publicized lawsuits, key executives fired or resigning their positions, reports of sexual harassment and toxic workplace culture issues, and is known to exploit its drivers with a 50% attrition rate due to drivers barely earning minimum wage with no benefits.

1. **How did Uber achieve its new business model?**

*Answers may vary.* Uber disrupted the existing model of the taxi industry through technological infrastructure. Consumers can request a ride, match the rider with a driver, allow you to track the arrival of the ride and provide ETA. When the ride ends, the payment is automatically made to your credit card on your account. Lastly, riders can rate their drivers and provide feedback. Uber is using on-demand technology consisting of mobile devices connected to a robust location-aware technology platform to accomplish this business model.

1. **To what extent do you think changing their business models contributed to the success of Uber and Airbnb?**

*Answers may vary.* Previously, a person had to stand by the street and wave their hand to signal a cab. Or, they may have called the cab company and ordered a cab for a certain time and place never really knowing if it was going to show up on time. The idea of pushing a button to request a ride streamlines the entire process by using mobile technology and automated processes. Decades of technological innovation has given us the smart phone apps, mobile payment platforms, GPS and mapping technology and social authentication that had allowed this type of on-demand service to proliferate. By adopting new business models, both companies were able to scale and grow their businesses gaining massive market shares with greater valuation than some companies that have been around for 25, 50 or 100 years. This type of rapid growth would not be possible with traditional organizations that have their own inventory of products, services and workforce and traditional forms of technology.

### Case 1.2: The Internet of Things Comes to the NFL

1. **Why did NFL equip its players with RFID tags?**

Increased customer demand for more statistics drove the decision to increase the quality and quantity of statistics available to coaches and fans with Radio Frequency Identification (RFID) tags.

1. **What factors contributed to the success of the IoT initiative at the NFL?**

*Answers may vary.* The NFL partnered with technology company Zebra to successfully integrate IoT and M2M technology into player analytics which will the NFL to expand their customer experience (CX) and offer new products. The NFL plans to use the data it collects to power an Xbox One and Windows NFL apps to allow fans to call up stats for each player tied into the highlight clips posted on the app. The data will also be fed to broadcasters, leveraged for in-stadium displays and provided to coaching staff and players. Zebra realized typical data scientists were not sufficient and that they also needed to be football experts to understand the XY player coordinates and data correlations. Finding the right talent to interpret the data helped fuel the success of the IoT initiative for the NFL.

1. **What other types of IoT applications can you think of that could be used in sports stadiums?**

*Answers may vary.* Providing tablets at certain seats to access real-time statistics, view instant replays and order food. Sensors that can indicate when a restroom needs toilet paper or a trash can needs emptied can help to optimize the workforce at the stadium. Cameras and sensors surrounding the ingress and egress points of the stadium integrated with a fan app could be used to reroute patrons to avoid congestion and accidents.

### Case 1.3: Video Case: What Is the Value of Knowing More and Doing More

1. **What did you learn from the video?**

*Answers may vary.* Video Synopsis. “With the growing importance of analytics in manufacturing, this video shares how Teradata, with real use cases, gives insights allowing customers to make better decisions in supply chain, marketing, and operations.”

1. **What is the value of knowing more?**

*Answers may vary*. By knowing more, business leaders and managers can make informed and timely decisions that can dramatically impact their daily operations, avoid supply chain issues and help to retain customers. By knowing more, organizations can gain insight into their customer base to improve customer retention. Organizations can gain visibility into the supply chain in order to cut spending, lower inventory costs and increase profitability. Organizations can combine enterprise systems to allow real-time visibility into global profit and loss data and can provide customers enhanced access to inventory via mobile apps.