



February 29, 2016

TO: Members, Subcommittee on Commerce, Manufacturing, and Trade

FROM: Committee Majority Staff

RE: Hearing entitled “The Disrupter Series: Wearable Devices”

I. INTRODUCTION

On Thursday, March 3, 2016 at 10:00 a.m. in 2123 Rayburn House Office Building, the Subcommittee on Commerce, Manufacturing, and Trade will hold a hearing entitled “The Disrupter Series: Wearable Devices.”

II. WITNESSES

- Doug Webster, Vice President for Service Provider Marketing, Cisco;
- Suresh Palliparambil, American Sales and Business Development Director, NXP
- Meg Burich, Director Commercial Development and Marketing, Adidas Digital Sports;
- Thomas D. Bianculli, Vice President, Emerging Technology Office, Zebra Technologies; and
- Scott R. Peppet, Professor of Law, University of Colorado Law School.

III. BACKGROUND

A. *Overview: Wearable Technologies*

Wearable technology defines a market in which Internet-connected devices or apparel can be physically worn by an individual.¹ Commonly referred to as “wearables,” these devices are “electronic technologies or computers that are incorporated into items of clothing and accessories.”² This is done through smart sensors that are equipped with sophisticated sensory and scanning features that are embedded into shoes, shirts, watches, and other things that are worn by the user to detect, diagnose, monitor, and communicate the health and performance data of the user.³ Today, there are several different kinds of wearable technologies on the market. Common examples of these products include watches, glasses, and “smart” fabrics that are able to track a user’s fitness, health, and wellness related activities.⁴

¹ See <http://www.wearabledevices.com/what-is-a-wearable-device/>

² Id.

³ Id.

⁴ See <http://www.wearable.com/wearable-tech/what-is-wearable-tech-753>; See also: <http://kascope.com/wearable-technology-regulations-what-product-designers-need-to-know/>

As wearable technologies used for fitness and health applications have gradually matured in the marketplace, developers have found other innovative uses for these products that extend to industries such as education, professional sports, transportation, manufacturing, retail, entertainment, and many others. In retail, for example, wearables are being used to improve customer experiences and increase the efficiency of retail operations.⁵ Using data from wearable technology, retailers can personalize marketing and notify customers of ongoing promotions and customize offerings through their wearable devices when they visit a store.⁶ Retailers can also use wearables to streamline communication and in-store collaboration among its employees, and use line-of-sight wearables – wearables that gather information acquired from a user’s eyes – to optimize space utilization and store layouts.⁷ This is intended to help retail employees and customers more easily navigate stores and locate specific products that align more accurately with consumer preferences.⁸

Sports teams also are using wearable technology to improve athlete performance and reduce the risk of injury. The data generated from wearables allows coaches and athletic trainers to receive real-time information on the field of play about an athlete’s performance, including heartrate, speed, acceleration, force of impact in contact sports, and other measurements.⁹ Based on the data collected, coaches can implement data-driven exercise, workout, and practice plans that do not strain an athlete beyond their capability, but instead help to optimize their performance.¹⁰ Similarly, athletic trainers are using the information generated from wearables to better assess an athlete’s recovery time and inform return-to-play considerations to protect the athlete from further injury.¹¹

B. Manufacturing Impact

The manufacturing industry is using what is referred to as “industrial wearables” to revolutionize traditional ways of manufacturing operations and processes.¹² Industrial wearables are helping manufacturers to improve supply chain logistics - through line monitoring and warehouse management- and enhance workflow production processes.¹³ Wearables can help distribute information to employees without taking them away from the production line, assisting workers to carry out assignments and allowing them to diagnose and fix problems more rapidly.¹⁴ Manufacturers are also using wearables to maximize maintenance processes in real-time in plant operations or in remote locations. Manufacturers can use the information generated

⁵ See <http://www.deloittdigital.com/us/blog/wearables-the-impact-on-retail>

⁶ Id.

⁷ Id.

⁸ Id.

⁹ See <http://www.athleticbusiness.com/equipment/tracking-technology-revolutionizes-athlete-training.html>

¹⁰ Id.

¹¹ Id.

¹² See <http://www.washingtonpost.com/sf/brand-connect/ge/mwc-opening-day/#/>

¹³ Id.

¹⁴ See <http://exclusive.multibriefs.com/content/wearable-technologys-impact-on-the-manufacturing-industry>

from wearables to eliminate inefficiencies in employee scheduling or training, cutting the time it takes workers to complete tasks.¹⁵

In addition to improvements in factory floor efficiency and workplace productivity, manufacturers are using wearables to enhance employee safety.¹⁶ Industrial wearables can track an individual's vital signs and movements, or facilitate communications in potentially hazardous situations.¹⁷ The technology can also "heighten workers' situational awareness by continuously collecting data on the jobsite itself," and provide safety alerts or other prompts to employees in the field to take certain safety precautions.¹⁸

C. Economic Impact

The adoption of wearable technology is expected to have a significant impact on the U.S. economy due to its potential to augment and extend the capabilities and reach of the user.¹⁹ Additionally, the data generated from wearables helps businesses to cut costs, increase employee productivity, enhance job and customer satisfaction, and create competitive advantages for small businesses.²⁰ It is projected that wearable technology in the workplace can increase productivity by as much as 8.5 percent and increase employee satisfaction by 3.5 percent.²¹ These productivity projections are helping to spur the growth of wearables available on the market. By the end of 2015, there were an estimated 200 million wearable devices on the market.²² By 2018, it is predicted that the wearable technology market will be worth \$8.36 billion with over 780 million wearable devices on the market.²³

Rapid innovation in wearable devices, applications, and platforms promise transformative benefits for every sector of the economy. Wearable technology provides a means to "leverage the power of personal information" and "consolidate the functionality of multiple devices into a single integrated system."²⁴ The technology's ability to improve the cost effectiveness of business operations, enhance accuracy, lessen risks, and reduce fraud represent additional benefits that could profit multiple industries and revolutionize the world we understand and experience today.

D. Protecting Personal Information

¹⁵ Id.

¹⁶ Id.

¹⁷ See <http://www.sadlerco.com/wearable-technology-in-the-workplace/>

¹⁸ See <https://brainxchange.events/blog/using-wearable-tech-for-workplace-safety/>

¹⁹ See <https://www.media.mit.edu/wearables/mithril/intro/topic2.html>.

²⁰ See <http://tech.co/impact-wearable-technology-small-business-2015-04>

²¹ See <http://www.forbes.com/sites/salesforce/2014/09/07/wearable-tech-business/#553468793e57>

²² See <http://www.techrepublic.com/article/the-dark-side-of-wearables-how-theyre-secretly-jeopardizing-your-security-and-privacy/>

²³ See <http://www.forbes.com/sites/salesforce/2014/09/07/wearable-tech-business/#553468793e57> and see also <http://www.techrepublic.com/article/the-dark-side-of-wearables-how-theyre-secretly-jeopardizing-your-security-and-privacy/>

²⁴ Id.

The proliferation of Internet-connected devices creates many opportunities for improved workplace and personal efficiency, productivity, safety, health and wellness. The data generated from wearable technologies in particular can unleash a new era of data-driven development and progress where unexpected insights can be discovered.²⁵ However, despite promising economic and societal forecasts for wearable technology, the types of personal information collected from these devices gives rise to data privacy and security concerns. With the wearable technology market still in its nascent stages, the challenge, as with other connected devices, applications, and platforms in the Internet of Things ecosystem, will be to create an environment that fosters continued competition and innovation while providing appropriate protections for consumers' privacy and security.

E. Federal Trade Commission Activity

In January 2015, the Federal Trade Commission (FTC) released a staff report on the Internet of Things where it discussed the privacy and security implications of wearable technology and other connected devices. In the report, Commission staff acknowledged the potential value and benefits of connected devices and things, but cautioned that additional harms could befall users of wearable technology if the device is not properly secured.²⁶ Given the early stages of the Internet of Things' development, the Report determined that specific legislation addressing this marketplace was not needed at this time.²⁷ The report concludes with a commitment from Commission staff to "enforce laws, educate consumers and businesses, and engage with consumer advocates, industry, academics, and other stakeholders...to promote appropriate security and privacy protections."²⁸

In January 2016, the FTC released a report on Big Data summarizing the discussions of a public workshop held by the agency on September 15, 2014, *Big Data: A Tool for Inclusion or Exclusion*. In the report, the Commission offered suggestions on how businesses could maximize benefits and minimize the risks of big data analytics generated from connected devices like wearables, particularly with respect to low-income and underserved populations.²⁹ The report recommends that companies familiarize themselves with the Fair Credit Reporting Act, equal opportunity laws, and the Federal Trade Commission Act when implementing big data practices through the use of wearables or other connected devices into their business operations.³⁰

IV. ISSUES

The following issues will be examined at the hearing:

²⁵ See <https://fpf.org/wp-content/uploads/FPF-principles-for-wearables-Jan-2015.pdf>

²⁶ See <https://www.ftc.gov/system/files/documents/reports/federal-trade-commission-staff-report-november-2013-workshop-entitled-internet-things-privacy/150127iotrpt.pdf>

²⁷ Id.

²⁸ Id.

²⁹ See <https://www.ftc.gov/system/files/documents/reports/big-data-tool-inclusion-or-exclusion-understanding-issues/160106big-data-rpt.pdf>

³⁰ Id.

- How wearables disrupt consumers and employers engagement in commerce? What obstacles exist for widespread adoption of these devices?
- How wearables impact data-driven innovation, economic growth, and job creation?
- How policymakers should approach wearable technology and should it be different from other connected devices given wearables' proximity to the user?
- How is the marketplace addressing cybersecurity and privacy concerns in connection with wearable technology?
- What type of infrastructure is needed to support wearable technology and related applications?

V. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Paul Nagle or Olivia Trusty of the Committee Staff at (202) 225-2927.