U.S. HOUSE OF REPRESENTATIVES
COMMITTEE ON ENERGY AND COMMERCE

May 19, 2018

TO: Members, Subcommittee on Digital Commerce and Consumer Protection

FROM: Committee Majority Staff

RE: Hearing entitled "Internet of Things Legislation"

I. INTRODUCTION

The Subcommittee on Digital Commerce and Consumer Protection will hold a hearing on Tuesday, May 22, 2018, at 10:15 a.m. in 2322 Rayburn House Office Building. The hearing is entitled "Internet of Things Legislation."

II. WITNESSES

- Tim Day, Senior Vice President, Chamber Technology Engagement Center, U.S. Chamber of Commerce;
- Dipti Vachani, Vice President Internet of Things Group; General Manager of the Strategy and Solutions Engineering Division, Intel; and,
- Michelle Richardson, Deputy Director, Freedom, Security, and Technology Project, Center for Democracy and Technology.

III. BACKGROUND

A. Internet of Things

The Internet of Things (IoT) refers to a growing network in which connected devices, services, and objects collect and exchange data.[1] Almost any physical object can be transformed into a "smart device" by equipping it with microchips, sensors, and wireless communication capabilities.[2] Such smart devices are being used to optimize home appliances, automobiles, manufacturing, health devices, community services, and so much more.

IoT devices offer vast benefits, to both businesses and consumers, as well as society more broadly. For example, advancements in the development of self-driving cars promise to improve roadway safety and, in doing so, has the potential to save thousands of lives each year. Additionally, communities are increasingly integrating advanced technology into infrastructure, which offers a number of societal benefits. For example, communities can now measure and monitor traffic in real-time, which allows for better management and an overall reduction in

[1] http://www.businessinsider.com/internet-of-things-devices-applications-examples-2016-8
[2] https://www.mediapost.com/publications/article/273797/10-consumer-benefits-from-the-internet-of-things.html

congestion. As with traffic congestion, communities can more efficiently manage other services that result in lower costs to citizens and an improved experience.[3]

Consumer applications, such as wearable technology, in-home smart speakers, smart appliances, and the like, also offer many benefits. Consumers now enjoy more responsive services, shorter feedback loops, and enhanced experiences. Increasingly, consumers are turning to wearable technology, as this market is expected to reach 162.9 million units by 2020.[4] Further, business IoT applications, such as smart manufacturing, are already improving efficiency and productivity of operations, which ultimately reduce overhead and costs benefiting the end user. Smart manufacturing uses real-time, accurate information to allow companies to better manage their workforce, seek new business opportunities and help drive out costs of inefficiency. As a result, it is projected that the installed base of manufacturing IoT devices will increase to 923 million by 2020.[5]

B. Economic Impact

IoT is revolutionizing many industries and, in doing so, having a substantial economic impact. According to a study that analyzed "more than 150 use cases" were analyzed, "ranging from people whose devices monitor health and wellness to manufacturers that utilize sensors to optimize the maintenance of equipment," IoT has "a total potential economic impact of $3.9 trillion to $11.1 trillion a year by 2025."[6] Further, by 2025, IoT is projected to create $1.1 trillion to $2.5 trillion in value annually in the health sector;[7] $.9 trillion to $2.3 trillion in value annually in manufacturing;[8] $100 billion to $300 billion in value in urban infrastructure;[9] approximately $100 billion in value in agriculture; and approximately $50 billion in value in vehicle use.[10]

Additionally, analysts are predicting that by 2020, annual revenues for IoT vendors selling hardware, software, and other IoT solutions may exceed $470 billion[11] and that by 2025, the IoT market will grow to an installed base of 75.4 billion, marking a remarkable 489 percent increase from just 2015.[12] As devices increasingly become connected and companies continue to explore IoT-based solutions, developers contributing to IoT will be needed. As a result, the IoT market is projected to create 4.5 million developer jobs by 2020.[13] Accordingly, the IoT industry is currently having a substantial economic impact and that impact will undoubtedly significantly increase moving forward.

---

[3] https://www.mercatus.org/publication/projecting-growth-and-economic-impact-internet-things
[4] http://www.businessinsider.com/wearable-technology-iot-devices-2016-8
[5] http://www.businessinsider.com/internet-of-things-in-manufacturing-2016-10
[6] https://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world
[7] https://www.mercatus.org/publication/projecting-growth-and-economic-impact-internet-things
[8] *Id.*
[9] *Id.*
[10] *Id.*
[11] http://www.dyogram.com/2017/04/internet-of-things-iot-market-potential-trends-in-2017-and-beyond/
[12] *Id.*
[13] http://www.techrepublic.com/article/why-10-million-developers-are-lining-up-for-the-internet-of-things/

C. Regulatory Landscape

No single Federal agency addresses all aspects of IoT.[14] In fact, many Federal agencies are "developing and distributing IoT-related guidelines, seeking input on and making policy recommendations, and convening or participating on working groups that support the development of voluntary consensus standards.[15] Additionally, IoT cuts across a number of industries and sectors. From smart manufacturing to healthcare devices and automobiles to smart community initiatives, IoT is continually becoming ubiquitous. As a result, there are numerous efforts to develop industry standards, best practices and ways in which the secure development of IoT can advance. However, many of the efforts and information that exist today are sector or industry specific and, with respect to Federal agencies, no compilation of Federal action, whether it be policy recommendations, guidelines, regulations, or the like, currently exists. Therefore, it is clear that there is a "need for improved collaboration across the federal government"[16] and, given the ubiquitous nature of IoT-related issues, such collaboration benefits from a compendium of information on who is doing what in the IoT space.

IV. LEGISLATION

H.R.___, State of Modern Application, Research, and Trends of IoT Act (SMART IoT Act).

Section 1. Short Title.

Section 1 provides that the Act may be cited as the "State of Modern Application, Research, and Trends of IoT Act" or the "SMART IoT Act."

Section 2. Study and Report on Internet of Things.

Section 2 provides that the Secretary of Commerce shall conduct a study on the state of the internet-connected devices industry.

This section requires the Secretary, through outreach to the private sector, to develop and conduct a survey of entities in the internet-connected devices industry to develop: a comprehensive list of the industry sectors that develop internet-connected devices; a comprehensive list of the industry sectors that use internet-connected devices; a comprehensive list of public-private partnerships that are focused on IoT, as well as industry-based bodies that have developed or are currently developing industry standards; and a description of the ways in which those entities develop, use, or promote the use of IoT devices.

This section requires the Secretary to develop a comprehensive list of Federal agencies with jurisdiction over entities in the IoT industry; identify which Federal agency or agencies entities in the internet-connected devices industry interact with; identify all interagency activities

[14] https://www.gao.gov/assets/690/686106.pdf
[15] *Id.* at 13-14
[16] *Id*. at 20

that are taking place among Federal agencies; develop a description of the jurisdiction and expertise of the Federal agencies who assert jurisdiction over entities in the internet-connected devices industry; identify all regulations, guidelines, mandatory standards, voluntary standards and other policies that currently exist; and identify Federal Government resources that exist for consumers and small businesses.

This section requires the Secretary, within 1 year of enactment, to submit a report to Congress that contains the results of the study and recommendations for the growth of the U.S. economy through the secure advancement of internet-connected devices.

This section defines Federal agency as defined in section 551 of title 5, United States Code and internet-connected device as a physical object that is capable of connecting to the internet, either directly or indirectly, to communicate information at the direction of an individual and has computer processing capabilities for collecting, sending, or receiving data.

V. ISSUES

The following issues may be examined at the hearing:

- What Federal agencies are currently doing, including with respect to regulations, policy recommendations and community engagement, on IoT issues.

- What efforts can be taken to promote interagency collaboration to ensure Federal agencies are not inconsistent or duplicative on IoT-related issues.

- What regulatory barriers exist to the continued development of IoT devices and how the Federal government can promote IoT adoption.

- What IoT applications currently exist and how future IoT integration will help create jobs and improve individuals' lives.

VI. STAFF CONTACTS

If you have any questions regarding this hearing, please contact Melissa Froelich or Bijan Koohmaraie of the Committee staff at (202) 225-2927.