June 2, 2016

Via Electronic Mail

The Honorable Lawrence E. Strickling
Assistant Secretary of Commerce for Communications and Information
U.S. Department of Commerce
1401 Constitution Avenue, NW
Washington, DC 20230

Re: Comments on *The Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things*
Docket No. 160331306-6306-01 (April 6, 2016); Notice of Extension (May 11, 2016)

Dear Assistant Secretary Strickling:

The Fashion Innovation Alliance (FIA) submits these comments to the Department of Commerce, National Telecommunications and Information Administration in response to the notice for public comment on *The Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things*, published in the *Federal Register* on April 6, 2016. *See* 81 Fed. Reg. 19,956 (April 6, 2016).

The Fashion Innovation Alliance represents leaders in fashion and technology committed to shaping the future of fashion tech—from smart textiles to wearables and from e-commerce to mobile apps. The economic impact of fashion tech continues to increase, with the wearables market estimated to be worth $25 billion by 2019.[1] Many fashion tech products are connected to the Internet: smart apparel and accessories are connected to sensors detecting heart rate, breathing, and other body functions; rings and bracelets are able to link text messages and consumer data directly to users' smartphones and apps. Fashion tech is generating significant interest among consumers—not only for its ability to track lifestyle activities and ensure connectivity to consumers' smart devices—but also for its sophisticated aesthetics and design.

[1] *Wearables Market to Be Worth $25 Billion by 2019*, CCS Insight, August 2015, *available at* http://www.ccsinsight.com/press/company-news/2332-wearables-market-to-be-worth-25-billion-by-2019-reveals-ccs-insight.

DISCUSSION

The Fashion Innovation Alliance appreciates the opportunity to comment on recommendations to best foster innovation and economic growth for the Internet of Things (IoT). The Department noted in its *Federal Register* request that "IoT has the potential to catalyze new user applications and give rise to new industries."[2] Fashion tech, for example, represents one of the new industries arising from the Internet of Things. Many of the leaders in fashion tech are developing innovative ways to measure and better understand the body's capabilities and limitations; allow consumers to have more human interaction with friends and family; and overall lead more meaningful and productive lives. Also, the growth of smart manufacturing and wearable technology in the United States will help to create more jobs and professional opportunities in new areas, such as machine tech and innovative ways to integrate technology into textiles.

Policies to Advance IoT Without Limiting Innovation

Any government regulations and policies related to the Internet of Things will have an impact on fashion tech, especially connected clothing, smart accessories and fitness tracking devices. Many fashion tech entrepreneurs and organizations have designed and launched smart apparel and accessories to not only help push humanity forward, but also to help make consumers' lives more efficient, enjoyable, and overall more productive. FIA values the privacy of the consumers using fashion tech products and services, and we recommend that any new policies governing IoT create an environment that supports and advances the ever-growing fashion tech industry without limiting innovation.

Innovation Center for IoT

The Alliance recommends that the federal government create an innovation center with business tools and initiatives to support the growing startups and entrepreneurs designing fashion tech products and services, similar to the U.S. Patent and Trademark Office's (USPTO) programs and initiatives. Such programs include: the USPTO's Inventors Assistance Center; the Intellectual Property Awareness and Assessment Tool, developed jointly by the USPTO and the National Institute of Standards and Technology (NIST); and the USPTO's Patent Pro Bono Program available across the United States. While intellectual property protection is vital to the success of any fashion tech company, building a culture with sound privacy and cybersecurity policies is also important to the success and long-term growth of both emerging and established fashion tech businesses. For these reasons, the FIA recommends that IP protection, privacy, and cybersecurity be the largest focus of the IoT innovation center.

The Commerce Department is best suited to develop an innovation center for the Internet of Things, given the Department's offices are already responsible for IP protection, privacy, and security. Many of the companies in fashion tech are startup organizations, and collectively have the vision and power to create significant benefits and opportunities for the national economy. An innovation center with the appropriate tools and resources would provide tremendous social

[2] *See* The Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things, 81 Fed. Reg. 19956, 19957 (Apr. 6, 2016)

and economic value for not only the companies and their talent, but also the broader communities that the companies serve.

Interdisciplinary Learning and Development Program for Fashion Tech

The Alliance also recommends an interdisciplinary public-private partnership program for learning and development to support the advancement of the Internet of Things for fashion tech, similar to the Defense Department's public-private partnership for the Revolutionary Fibers and Textiles Manufacturing Innovation Institute.[3] The learning and development program would take an interdisciplinary approach to include science, technology, engineering, art + design, and math (STEAM). The program would build upon the current federal initiatives to promote science and technology education and also include training opportunities for students and graduates interested in designing and developing Internet-connected products and services. Critically, such a program would emphasize the interdependence of STEAM skills and knowledge areas in fostering innovation.

As fashion tech and the related fields of study continue to merge and expand, there will be an increased need for students and young professionals to be skilled in such areas as computing, art, and design. A learning and development program for fashion tech will help to meet the workforce needs, while also allowing students to have interdisciplinary experience in the various fields related to fashion tech.

Response to Questions

As requested by the Department of Commerce, we have included the number corresponding to the Department's questions and our responses below.

*Question 1*c. What are the most significant new opportunities and/or benefits created by IoT, be they technological, policy, or economic?

Response. The Internet of Things, especially for the area of fashion tech, has presented enormous benefits and opportunities, both for consumers and for the human talent working in this growing field. Wearable tech has become more sophisticated in its data tracking capabilities. As the technology gets smaller, fashion and style are integrated in increasingly important ways. The benefits of monitoring and sharing data from wearable tech across multiple applications and devices leads to improved wellness, better management of users' daily schedules, and increased performance.

For example, there are now a number of smart jewelry products that are linked to consumers' smartphones, allowing users to spend more time focused on the faces of their friends and family

[3] DOD press release on the Award of New Revolutionary Fibers and Textiles Manufacturing Innovation Hub Lead, *available at* http://www.defense.gov/News/News-Releases/News-Release-View/Article/710462/dod-announces-award-of-new-revolutionary-fibers-and-textiles-manufacturing-inno.

instead of staring at their phones. There have been numerous studies[4] noting that the presence of mobile devices in social settings hinders human relationships. Accessories linked to users' smartphones could have the opposite effect by allowing users to control data and notifications in less intrusive ways.

The economic benefits resulting from the IoT continue to increase as well, with the wearables market estimated to be worth $25 billion by 2019.[5] According to the International Data Corporation's *Worldwide Wearables Forecast, 2016-2020*, "the wearables market is heading for continued double-digit growth each year."[6]

This expansion of IoT will also lead to more partnerships for fashion brands looking to integrate technology into their apparel and accessories, resulting in more professional opportunities for the fashion designers, technologists, and retailers, as well as students interested in the fashion tech field.

Question 6. What technological issues may hinder the development of IoT, if any?

Response. Governments will need to make available greater amounts of unlicensed spectrum for Wi-Fi as the number of IoT products continues to increase, especially for fashion tech. Unlicensed spectrum powers the data services that many fashion tech companies have secured for smart apparel, accessories, and even personalized style and shopping apps. Wi-Fi has become the dominant way that many consumers connect to their smart devices, resulting in Wi-Fi networks becoming increasingly congested. Thus, ensuring more unlicensed spectrum is critical to providing better coverage and more access to new fashion tech products and services.

Question 15. What are the main policy issues that affect or are affected by IoT? How should the government address or respond to these issues?

Response. Intellectual property (IP) protection, privacy, cybersecurity, and access to capital will all play key roles in the development of IoT policy. Many of the policy issues affecting companies offering IoT products and services—such as reforms to the current patent system, encryption, privacy, and the cybersecurity implications of connected technology—affect the broader innovation economy and not just the Internet of Things. Thus, the Alliance recommends that when considering changes to current laws and regulations affecting the Internet of Things, policymakers refrain from addressing these issues solely within the context of IoT, but also take into account the digital economy as a whole.

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[4] *The Effect of Technology on Face to Face Communication*, The Elon Journal of Undergraduate Research in Communications, Vol. 6, No. 1, Spring 2015.

[5] *Wearables Market to Be Worth $25 Billion by 2019*, CCS Insight, August 2015, *available at* http://www.ccsinsight.com/press/company-news/2332-wearables-market-to-be-worth-25-billion-by-2019-reveals-ccs-insight.

[6] *Worldwide Wearables Forecast, 2016-2020*, International Data Corporation, April 2016, *available at* http://www.idc.com/getdoc.jsp?containerId=US40692016.

There are multiple agencies charged with implementing policies and enforcement efforts for IP protection, privacy, funding, and cybersecurity, including the Departments of Commerce, Homeland Security, and Justice, as well as the Federal Trade Commission (FTC), the Federal Communications Commission (FCC), the U.S. Small Business Administration (SBA), and the U.S. Securities and Exchange Commission (SEC). All play different key roles in educational and enforcement efforts associated with the IoT as well as resources for capital and research funding necessary to fuel IoT growth. While the Commerce Department, FTC, Justice, and HHS may be better suited to handle the privacy-related issues, DHS and the Justice Department have worked extensively on cybersecurity guidance and the implementation of the Cybersecurity Information Sharing Act. The SBA's Office of Investment and Innovation provides access to capital and federal research dollars for tech entrepreneurs. The SEC—charged with protecting investors and implementing small business policies around crowdfunding—will also play an important role given the number of startups seeking capital for innovative IoT products.

Question 26. What role should the Department of Commerce play within the federal government in helping to address the challenges and opportunities of IoT?

Response. There should be one agency responsible for overseeing the inter-agency coordination of the IoT. The Commerce Department would be best suited for that role, given the offices under the Department, including the Economics and Statistics Administration, the International Trade Administration, the National Institute of Standards and Technology, the National Telecommunications and Information Administration, and the U.S. Patent and Trademark Office. In addition to the offices within the Commerce Department, the following agencies should be consulted during any federal inter-agency coordination regarding the regulation of the IoT: Department of Justice, Department of Homeland Security, Department of Health and Human Services, the Federal Communications Commission, and the Federal Trade Commission. We also recommend that any inter-agency coordination efforts include the U.S. Small Business Administration and the U.S. Securities and Exchange Commission, given the importance of funding and access to capital for startups developing IoT devices, and both entities' roles related to small business policy.

Question 27. How should government and the private sector collaborate to ensure that infrastructure, policy, technology, and investment are working together to best fuel IoT growth and development?

Response. The Alliance recommends that the federal government consider a two-pronged approach to collaboration with the private sector.

First, a series of roundtable discussions in various geographic regions focused on specific topics related to the Internet of Things, including: intellectual property, privacy, and security. The roundtable discussions should include experts from academia, government, and industry.

Second, there should be a forum for undergraduate and graduate-level students pursuing studies integral to the Internet of Things, including STEAM, privacy, and cybersecurity. For fashion tech, this may include students designing and innovating the latest technologies integrated into apparel, footwear, and accessories. Students represent the future of startups and entrepreneurs

driving the Internet of Things, and those that have been immersed in the widespread adoption of digital technology can help to provide a diverse perspective about the role of government with respect to technology, privacy, and security issues.

Conclusion

The Fashion Innovation Alliance appreciates the opportunity to submit these comments and would be happy to provide you with additional information or clarification. For the reasons stated above, the Alliance respectfully requests that any new policies governing IoT consider the broader impact of the digital economy as a whole without limiting the innovation powering fashion tech.

Respectfully submitted,

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