

Before the
NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION
DEPARTMENT OF COMMERCE
Washington, DC 20230

In the Matter of)
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The Benefits, Challenges, and Potential Roles for the) Docket No. 170105023-7023-01
Government in Fostering the Advancement of the) RIN 0660-XC033
Internet of Things)
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COMMENTS OF SAMSUNG ELECTRONICS AMERICA

Samsung Electronics America (“Samsung”) appreciates this opportunity to comment on the Department of Commerce’s “Fostering the Internet of Things” (the “Green Paper”).¹ Samsung has had a U.S. manufacturing presence for nearly 40 years and recently committed to increasing its investment in the U.S. for the development and deployment of Internet of Things (“IoT”) technologies. Investments like Samsung’s will help unleash an IoT that will benefit consumers, grow the economy, and create jobs in the United States.

The Green Paper accurately observes that the “prospective benefits of IoT to personal convenience, public safety, efficiency, and the environment are clear.”² But the IoT’s benefits are more than a prospect; they are the current reality in consumer, industrial, infrastructure, scientific, and other settings.³ Clearing the path for the IoT will drive the U.S. economy and create American jobs, and the task now for the government and the private sector is to ensure

¹ NTIA, Request for Comments on the Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things, 82 Fed. Reg. 4313 (Jan. 13, 2017), https://www.ntia.doc.gov/files/ntia/publications/fr_iot_notice_rfc_01132017.pdf.

² Department of Commerce, *Fostering the Internet of Things* 1 (Jan. 2017) (“Green Paper”), https://www.ntia.doc.gov/files/ntia/publications/iot_green_paper_01122017.pdf.

³ See, e.g., Samsung, Comments on the Benefits, Challenges, and Potential Roles for the Government in Fostering the Advancement of the Internet of Things, at 2 (June 2, 2016) (“Overall, the potential benefits to consumers, industry, governments, and society are too numerous to count; they include fitness and wellness . . . energy management, transportation and urban planning, environmental controls, smart government, increased civic engagement, and public safety.”) (“Samsung, June 2016 Comments”), https://www.ntia.doc.gov/files/ntia/publications/samsung_ntia_iot_letter_6-2-16-c1.pdf.

that progress continues. The Green Paper identifies appropriate public policy considerations that the government and the private sector must address in partnership together to fully enable an IoT that makes our society safer, more efficient, and more sustainable, and establishes a higher quality of life for all. Many of the Green Paper's principles and recommended actions, if implemented, would set the U.S. approach to the IoT at the proper balance of free market innovation and deployment of new technologies on the one hand and limited, targeted government engagement on the other.

The Department of Commerce has a vital role to play facilitating continuing private sector leadership in IoT development and in ensuring that the U.S. government as a whole approaches the IoT in a consistent manner. The Department also has a critical role to play in ensuring that the federal government does *not* impose unnecessary regulations that would hamper IoT innovation or deployment. As the Green Paper recognizes, private sector leadership is critical to the success of the IoT in particular and technology growth and development in general.⁴ But private sector leadership does not preclude a limited government role in the IoT, including through collaboration between the government and the private sector. To the contrary, collaboration between the government and private sector is essential to addressing challenges such as security and maintaining an open, global market for IoT technologies. These comments highlight the specific areas in which public-private collaboration is most needed, including by recommending three guiding principles that the Department should formally adopt.

⁴ See Green Paper at 2 (“Encouraging private sector leadership in technology and standards development, and using a multistakeholder approach to policy making, have been integral elements of the government’s approach to technology development and growth.”).

I. THE BENEFITS OF PRIVATE SECTOR LEADERSHIP ON THE IOT

The IoT is a fitting area to promote Secretary Wilbur Ross’s goals of “spur[ring] growth and innovation in communities across America” and “setting standards for our increasingly technical society.”⁵ With the right policy approach, the U.S. can ensure a ripe environment for industry-led IoT investment and innovation, driving job creation and domestic economic growth. Indeed, the quantifiable value of a U.S. embrace of IoT development and adoption could be tremendous.⁶ And, consistent with the Administration’s free market priorities, private sector leadership – not regulation – is the most essential component to realizing the benefits and economic value that will flow from the IoT.

Samsung’s record of investment in the United States demonstrates how the private sector, operating in a regulatory environment that encourages bold ideas and experimentation, can create a cycle of technological progress and innovation, economic and job growth, and investment. Samsung has had a presence in the U.S. since 1978 and has grown to over 18,000 U.S.-based employees, with the recent acquisition of HARMAN International Industries, Inc.⁷ In the nearly 40 years since Samsung laid roots in the United States, Samsung and its subsidiaries have invested billions of dollars here by building cutting-edge facilities and creating thousands of jobs in the process. By way of example:

- In pursuit of transforming transportation using smart technology and connectivity, Samsung established its Automotive Electronics Business Team in 2015 and has

⁵ Jen Wiczner, *What Wilbur Ross Said About Trump and Cybersecurity at His Confirmation Hearing*, FORTUNE (Jan. 18, 2017), <http://fortune.com/2017/01/18/wilbur-ross-confirmation-hearing-donald-trump/> (Testimony of Wilbur Ross).

⁶ One study predicts that the IoT will have an economic impact of as much as \$11 trillion by 2025. McKinsey Global Institute, *The Internet of Things: Mapping Beyond the Hype 2* (June 2015), <http://www.mckinsey.com/business-functions/digital-mckinsey/our-insights/the-internet-of-things-the-value-of-digitizing-the-physical-world>.

⁷ Samsung Newsroom U.S., *Samsung’s Footprint in the United States 2017* (Feb. 23, 2017), <https://news.samsung.com/us/uspa-footprint-2017-1/>.

since acquired Connecticut-based car solutions manufacturer HARMAN in March 2017 for \$8 billion.⁸

- Samsung subsidiary Samsung Austin Semiconductor (“SAS”) has built one of the most advanced semiconductor manufacturing facilities in the world in Austin, Texas. Since 1997, SAS has invested more than \$17 billion in expansion and maintenance of its campus in Austin and, more recently, SAS has invested another \$3.6 billion into the regional economy of central Texas that supports 10,755 jobs in and \$498 million in annual salaries. New investments this year in SAS facilities will enhance production to meet growing industry demands for advanced system-on-chip products made for mobile and other electronic devices. By the end of June 2017, it plans to invest more than \$1 billion to boost production of system chips at its Austin facilities in the United States to meet growing demand.⁹
- Another subsidiary, Samsung Semiconductor, is a center for semiconductor design and innovation based in the U.S.’s innovation capital, Silicon Valley. Occupying a 1.1 million square foot space¹⁰ and with more than 330 employees,¹¹ this facility is the hub of research and development and sales operations for the company’s memory chip and processor business. Samsung is the world’s largest memory chip vendor and second-largest maker of processors.
- Samsung NEXT is Samsung’s start-up accelerator, also based in Silicon Valley. It has a \$150 million venture fund targeted at early-stage startups focused in disruptive innovation, notably virtual reality, artificial intelligence, IoT, and other new frontier technologies.¹² Samsung NEXT currently manages a portfolio of over 40 early stage companies that “make the world a better, more connected place.”¹³
- The Samsung Strategy and Innovation Center (“SSIC”), also based in Silicon Valley, is a platform for Samsung to establish partnerships with visionary entrepreneurs and innovators.¹⁴ SSIC has established a \$100 million Catalyst Fund dedicated to start-

⁸ Samsung Newsroom U.S., *Samsung Electronics Completes Acquisition of HARMAN* (Mar. 10, 2017), <https://news.samsung.com/us/samsung-electronics-completes-acquisition-of-harman/>.

⁹ Samsung Newsroom U.S., *Samsung Austin Semiconductor Continues Central Texas Growth with More than \$1 Billion in Investment* (Nov. 1, 2016), <https://news.samsung.com/us/samsung-austin-semiconductor-sas-continues-central-texas-growth-with-more-than-1-billion-in-investment/>.

¹⁰ *Samsung Continues to Expand Operations in the Bay Area*, THE REGISTRY (Dec. 29, 2012), <http://news.theregistrysf.com/samsung-continues-to-expand-operations-in-the-bay-area/>.

¹¹ John Woolfolk, *Samsung Details Plans for San Jose Expansion*, MERCURY NEWS (Jan. 13, 2013), <http://www.mercurynews.com/2013/01/18/samsung-details-plans-for-san-jose-expansion/>.

¹² Fitz Tepper, *Samsung Is Launching a \$150M Fund to Invest in Emerging Tech Startups*, TechCrunch (Jan. 4, 2017), <https://techcrunch.com/2017/01/04/samsung-is-launching-a-150m-fund-to-invest-in-emerging-tech-startups/>.

¹³ Andra Keay, *Samsung Launch Accelerator and \$1.1 Billion in Funds*, ROBOHUB (Feb. 5, 2013), <http://robohub.org/samsung-launch-accelerator-and-1-1-billion-funds/>.

¹⁴ *About*, Samsung Strategy & Innovation Center, <http://www.samsung.com/us/ssic/about/> (last accessed Mar. 13, 2017).

ups focusing on disruptive ideas, components, systems, and infrastructure including IoT to fuel innovative technologies and business models.¹⁵

- Samsung Research America (“SRA”) and its 300 full time employees is headquartered in Mountain View, California.¹⁶ SRA has more than twenty technology centers across North America that research and build new core technologies to enhance the competitive edge of Samsung products.¹⁷

Samsung has long invested in the United States because of an environment ripe for private sector leadership, investment, and technological innovation. Samsung is committed to continuing such investment in the U.S. for the development and deployment of IoT technologies. In addition to investing an additional \$1 billion in Samsung Austin Semiconductor (planned in the first half of 2017), Samsung has also committed another \$1.2 billion in U.S.-centered IoT investments and research and development through 2020.¹⁸

Investments in IoT in the U.S., such as those by Samsung, will help unleash an IoT that will benefit consumers, grow the economy, and create scores of U.S. jobs.

II. GUIDING PRINCIPLES FOR THE U.S. GOVERNMENT’S APPROACH TO IOT POLICY

In the near future, the IoT ultimately will touch nearly every economic sector and break every regulatory silo, thus increasing the number of entities – including federal agencies – with IoT interests. In this complex and evolving landscape, it is more important than ever that the federal government focus on maintaining an environment suited for private sector leadership, investment, and innovation. To maintain such an environment and thereby help further

¹⁵ Ryan Lawler, *Samsung Launches Strategy And Innovation Center, Will Invest \$1.1 Billion On Innovation Through Two Funds*, TechCrunch (Feb. 4, 2013), <https://techcrunch.com/2013/02/04/samsung-strategy-and-innovation-center/>.

¹⁶ *Samsung Research America, Inc.*, FindTheCompany, <http://listings.findthecompany.com/l/18795662/Samsung-Research-America-Inc-in-Mountain-View-CA> (last accessed Mar. 9 2017).

¹⁷ Samsung Research America, *About Us*, <http://www.sra.samsung.com/about-us/> (last accessed Mar. 9. 2017).

¹⁸ Samsung Newsroom U.S., *Internet of Things (IoT)*, <https://news.samsung.com/us/tag/internet-of-things-iot/> (last visited Mar. 13, 2017).

embolden IoT investment and innovation in the U.S., Samsung encourages the Department to reaffirm its well-established, market-oriented policy toward emerging technologies, which rests on the pillars of “private sector leadership in technology and standards development” and a collaborative, multistakeholder approach to policymaking.¹⁹ Further, Samsung encourages the Department to advocate for other federal agencies to adopt these approaches, and to intervene if an agency seeks to impose a premature, inconsistent, or overly prescriptive regulatory regime.

In particular, Samsung believes the best way for the Department to encourage a “whole-of-government” IoT approach that encourages investment and innovation is to articulate clear and concrete guiding principles, consistent with the recommendations set forth in the Green Paper – and then evangelize those guiding principles here and abroad. Samsung specifically urges the Department to adopt the following three guiding principles to guide the U.S.

government’s approach to the IoT: (1) the human-centered nature of the IoT; (2) the criticality of openness; and (3) the fundamental importance of collaboration.

Human-Centeredness. A basic truth about any innovation – whether it is a connected device or something else – is that it must improve consumers’ lives or businesses’ efficiency and success. Otherwise, consumers and business will not adopt the technology. Delivering this value is Samsung’s mission, and the company is committed to developing technology that not only helps to solve important economic, governmental, and social challenges but also is highly usable. As IoT devices become smaller, more numerous, and more connected to physical systems, keeping end users at the center of device and system design becomes more important.

¹⁹ See Green Paper at 2.

In addition to continuing to highlight how the IoT will improve lives and society,²⁰ and the importance of usability to the IoT's success²¹ the Department should reinforce these values with fellow agencies. Arriving at a more coherent and holistic federal approach toward the IoT is important, but such an effort must keep at the forefront the need (and potential) to deliver benefits and value to consumers.

Openness. Samsung strongly endorses the Green Paper's support for a globally connected, open, and interoperable IoT environment. This kind of environment – if based on industry leadership – will encourage IoT innovation, scale, affordability, and improved functionality. To make this environment a reality, the government should refrain from adopting IoT-specific mandates – which could fragment, delay or even derail new business- and consumer-friendly innovations – and instead encourage industry-driven, consensus-based standards. Samsung also encourages the Department to guard against government actions that would pick winners or losers, whether intentionally or otherwise, and thus ensure an open IoT environment that supports devices and applications from a diverse array of sources.

An open IoT environment also is fully consistent – and in fact, interrelated – with strong security and privacy protections. The Green Paper recognizes that security is a challenge for the IoT,²² a challenge that has been recognized by leaders in Congress. As Representative Greg Walden, now Chairman of the House Energy & Commerce Committee, noted during a November 2016 hearing, the IoT provides “incredible, potentially life-saving benefits that our

²⁰ See *id.* at 8-10.

²¹ *Id.* at 44 (“A wide range of standards addressing different aspects of IoT applications – technology, connectivity, interoperability, functionality, security, usability, etc. – will be needed.”).

²² See *id.* at 24-30.

society is learning to embrace,”²³ but a failure to secure the IoT will put those benefits at risk. Thus, the United States must find a way to become “more secure without sacrificing the benefits of innovation and technological advances.”

Samsung follows industry best practices to incorporate security and privacy protections at the device design stage.²⁴ This approach not only leads to effective security and privacy protections but also allows Samsung and other companies to incorporate these important protections into an open platform. Samsung’s ARTIK – a hardware-based, open, and secured platform, available to all IoT innovators, that delivers interoperability between IoT devices and apps – best serves as an example of how openness and security can be combined to benefit the IoT ecosystem. ARTIK enables secure device registration based on a hardware root of trust that enables a secure operating environment and securely connects devices to the cloud using TLS and certificates issued by a trusted certificate authority. Every device, app, and user interaction can be secured with open Internet standards-based authentication and authorization, and ARTIK protects data privacy with built-in identity and permissions managements. In fact, open technology, like ARTIK, can help all innovators in the IoT ecosystem address significant challenges, like security and privacy, in a cost-sensitive and effective manner without hindering the deployment of the IoT.

The Department should advance policies that simultaneously promote IoT openness and security. Prescriptive or IoT-specific regulation is not the way to get there; it will not allow industry in the United States to build a secure and innovative IoT, nor will it help keep jobs or

²³ Statement of the Honorable Greg P. Walden Chairman, Subcommittee on Communications and Technology Joint Hearing on “Understanding the Role of Connected Devices in Recent Cyber Attacks” With the Subcommittee on Commerce, Manufacturing, and Trade, at 1 (Nov. 16, 2016), <http://docs.house.gov/meetings/IF/IF17/20161116/105418/HHRG-114-IF17-MState-W000791-20161116.pdf>.

²⁴ Samsung, June 2016 Comments, at 2.

create new jobs in the U.S. After all, security threats are global, but regulation is not. In this regard, the Green Paper correctly recognizes that “[t]he range of IoT devices and applications, as well as the many potential attack vectors and harms, may preclude a single, prescriptive solution.”²⁵ The Green Paper also recognizes that incorporating security into IoT design is preferable to security that is “bolted on” later in the development process.²⁶ Samsung encourages the Department to go further in any subsequent IoT policies, however, and recognize that IoT openness and security can and should go together.

Collaboration. Finally, Samsung encourages the Department to recognize the fundamental importance of collaboration between the government and the private sector, as well as within industry. This principle is implicit in some of the Green Paper’s findings but warrants explicit identification in future Department IoT statements.

As one example, collaboration is an element of creating industry-driven, consensus-based standards and policies.²⁷ Collaboration is also an inherent part of the public-private partnership that is necessary to, among other things, secure networks in general and the IoT in particular from sophisticated cyber threats.²⁸ The Department can play a useful role in identifying risks and convening discussions of best practices, but the Department should still allow industry to develop the solutions.

As with openness, the Department should consider expressly adopting “collaboration” as a guiding principle for government IoT engagement. Doing so would signal to other federal agencies the utility of looking first to collaboration before resorting to prescriptive regulation

²⁵ Green Paper at 26.

²⁶ *Id.* at 28.

²⁷ *See id.* at 3.

²⁸ *See id.* at 24 (discussing cybersecurity as a policy area “that will require coordinated engagement by all stakeholders”).

that could suppress innovation or impair the market's ability to respond to consumer preferences. The Department could buttress these principles and actions by endorsing and advocating for a predictable, consistent, whole-of-government approach toward the IoT.

CONCLUSION

The principles set forth above guide Samsung's company-wide efforts to build an IoT that serves consumers, makes businesses more efficient, and improves the infrastructure on which Americans depend. If embraced at a high level by the Administration and the federal government, these principles will yield the same benefits, in addition to driving job creation and economic growth. Samsung is proud of its leadership in demonstrating that the IoT can offer strong security and fully support innovation, and the company stands ready to be a resource for the Department on IoT policy issues. Samsung looks forward to working with the Department on our shared vision of an open, interoperable, and secure IoT for American businesses, consumers, and municipalities.

Respectfully submitted,

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