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Telecommunications and Information Administration,
Attn: IOT RFC 2016
U.S. Department of Commerce
1401 Constitution Avenue, NW
Room 4725
Washington, DC 20230.

(Submitted electronically via iotrfc2016@ntia.doc.gov.)

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

In response to the National Telecommunications and Information Administration's (NTIA's) request for comments, I write on behalf of the more than 1.1 million members of the National Association of REALTORS® (NAR) America's largest trade association, which includes NAR's eight residential and commercial real estate institutes, societies, and councils. REALTORS® are involved in all aspects of the residential and commercial real estate industries, and belong to one or more of the 1,200 local associations and boards, and 54 state and territory associations of REALTORS®.

NAR, whose members identify themselves as REALTORS®, represents a wide variety of real estate industry professionals. REALTORS® have been early adopters of technology and are industry innovators who understand that consumers today are seeking real estate information and services that are timely, accurate, convenient and comprehensive. Increasingly, technology innovations are driving the delivery of real estate services and the future of REALTORS®' businesses.

As consumers increasingly embrace technology on the home front, NAR is playing a lead role in shaping the evolution of the Internet of Things (IOT) including smart homes, smart buildings and even smart community spaces. Central to these efforts is a new lab in NAR's Chicago headquarters managed by our Center for Real Estate Technology (CRT). CRTLabs provides input on the development of hardware and software real estate applications across an array of technology products including environmental controls, security systems, connected lighting and more. NAR is also promoting the creation of technology standards among manufacturers that will improve interoperability in a fully integrated smart home environment.

NAR recognizes that increased information about homes captured by internet-enabled devices can help listing agents better market properties, and environmental data captured by municipal smart devices can help buyers' agents determine the best neighborhood for their clients. In the not-too-distant future, NAR predicts Multiple Listing Services (MLSs) will be augmented with data feeds from outside sources providing environmental information such as traffic and air quality data. IOT technologies will create opportunities for MLSs to add real consumer value to the home shopping experience.

At the same time, the range and sheer number of connected devices will have a unique impact on consumers, industry and policymakers alike. For these reasons, NAR is keenly interested in policies that affect how IOT develops and grows into the future.

Privacy & Security
Homes today are often constructed with "smart" or networked technology built into everyday appliances and devices, and sometimes right into the walls of a building. This technology is being used to monitor temperature, security and lighting. While this offers convenience to homeowners, these devices may collect personal information or have unpatched vulnerabilities that put privacy and security at risk.

Consumers know they need to protect their information, but most feel unprepared to install and maintain the right tools to do so, according to network security firm Nominum. In a September 2015 survey, the company found that although 78 percent of Americans expect to see smart home technology in new houses, 71 percent perceive technology as a threat to their personal data.

CRTLabs works to promote security in the IoT space by working with device manufacturers to review IoT device and application code to ensure they include standard security practices. CRT is also working in partnership with a group called BuildItSecure.ly, a group of information security researchers as another mechanism for code review and bug fixes. They are also working with universities and government agencies (Dept. of Energy's BTO VOLTTRON project) to improve security and privacy for IOT devices.

CRT has been using the site Shodan (https://www.shodan.io/), a search site that allows you to find insecure internet enabled devices, to locate any devices from companies CRT is actively working with and informing those companies of those issues. CRT has offered to assist in fixing bugs.

In addition, CRTLabs is promoting Underwriters Laboratories' (UL) work on the Cybersecurity Assurance Program (http://www.ul.com/cybersecurity/). UL and NAR look to collaborate on future projects promoting security and safety with these devices.

Finally, NAR has also partnered with the Online Trust Alliance (OTA). OTA is a non-profit with the mission to enhance online trust and user empowerment while promoting innovation and the vitality of the Internet. Its goal is to help educate businesses, policy makers and stakeholders while developing and advancing best practices and tools to enhance the protection of users' security, privacy and identity. OTA supports collaborative public-private partnerships, benchmark reporting, and meaningful self-regulation and data stewardship.

In October, 2015 NAR and the Online Trust Alliance (OTA) partnered to create a "Smart Home Checklist" to assist consumers in addressing privacy and data security concerns arising from the networked home. https://otalliance.org/system/files/files/initiative/documents/ota_smarthome_check_list.pdfThis guidance is intended to help homebuyers, sellers and renters manage smart devices and appliances in the home and better protect themselves against cyber criminals.

Interoperability
At the moment, there is no mutually agreed upon vision for how smart devices should interact. Many companies have put forth their own products as the answer, but a more coherent approach is needed. Private industry can and should lead the development and adoption of standards for IOT. Collaboration across all industry sectors will be needed to control and make sense of the data produced by IOT.

NAR believes that IOT technology standards are critically important because they help keep IOT devices more secure (having one agreed upon protocol or method of data transfer) as there are fewer opportunities for attack. Standardization also means the ability for more applications and integrations with other products and projects, thus making it easier for consumers to access and interact with these devices.

Transfer of Ownership
Transfer of ownership issues are an additional area of concern for IOT devices in the home. As more homes deploy smart devices, a standard way of transferring the physical devices and software to new homeowners is necessary. More and more vendors are entering the market with devices for specific functions. So, for instance, a seller may have a thermostat, a smart camera, and smart lights that are from three different manufacturers and are all being included as fixtures for the home. Each one of these devices has a separate account used by the seller. At the time of closing and transfer, there currently is no easy way to reset these devices and transfer to the new owner of the home. In order to get ahead of this problem, CRT is working with manufacturers to improve this process.

Open Standards
Finally, support for open standards will allow developers to identify the best ways to encrypt and protect consumers' personal information, whether it's transmitted to their phones or being generated within the walls of their own homes. As smart homes become more commonplace, this will be a crucial step in the technology's development.

NAR believes that no IOT specific legislation/regulation is needed at this time. As the field becomes more robust, there may be a need for oversight. NAR then would advocate for common sense privacy and data security legislation that is carefully and narrowly tailored to minimize the regulatory burden such a law could place on small businesses. Furthermore, any privacy and security *legislation should be flexible and technology-neutral, while also providing clear rules of the road for companies about such issues as when to provide privacy notices to consumers and offer them choices about data collection and use practices.*

REALTORS® are excited about the opportunities afforded by IOT technology. NAR supports NTIA's efforts to foster innovation and expansion of the IOT marketplace. NAR and its members look forward to working with the NTIA to foster policies that encourage innovation while protecting consumer privacy.

Sincerely,

Tom Salomone
2016 President, National Association of REALTORS®