



March 11, 2016

The Honorable Deb Fischer  
454 Russell Senate Office Building  
Washington, DC 20510

The Honorable Cory A. Booker  
359 Dirksen Senate Office Building  
Washington, DC 20510

The Honorable Kelly Ayotte  
144 Russell Senate Office Building  
Washington, DC 20510

The Honorable Brian Schatz  
722 Hart Senate Office Building  
Washington, DC 201510

Dear Senators Fischer, Ayotte, Booker, and Schatz:

As an organization representing more than 200 PhD-granting computing departments, 14 industrial research labs, and six affiliated professional computing societies, the Computing Research Association commends you for the introduction of S. 2607, the Developing Innovation and Growing the Internet of Things (DIGIT) Act. We appreciate your efforts to establish a national strategy on the Internet of Things in thoughtful anticipation of the large impact this technology will have on the United States and its citizens. CRA's member institutions are deeply involved in this area, identifying and leading work on the research challenges that, once solved, will enable the full potential of the Internet of Things (IoT).

While the DIGIT Act captures the interests of many of the stakeholders in IoT, we ask that you consider a focus on the continued need for research by expanding the scope of the strategic planning called for in the Act to include the need to identify and solve research challenges constraining progress in this area.

CRA itself is helping lead this research effort through the work of our Computing Community Consortium, chartered to anticipate and enable high-impact research in the computing research community. The CCC has established a task force – chaired by Ben Zorn from Microsoft Research and Shwetak Patel from the University of Washington – that seeks to identify and delineate the research challenges created by the Internet of Things and related technologies that connect computing to the physical world. Over the last year this task force has been establishing consensus from the computing community around the research challenges created by IoT and has prepared white papers specifically outlining some of these challenges for the area in general<sup>1</sup> and for the specific topic of Smart Communities<sup>2</sup> as well.

These activities have led us to articulate a number of key areas of research that will overcome current and future barriers to the widespread development and adoption of IoT. Among these, we would in particular highlight that existing best practices in building robust and secure systems are insufficient to address the new challenges that IoT systems will present. IoT systems will be more deeply embedded into our daily lives and people will interact with and depend on them more than any previous computer systems. IoT systems

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<sup>1</sup> "Systems Computing Challenges in the Internet of Things"  
<http://cra.org/ccc/wp-content/uploads/sites/2/2015/09/IoTSystemsChallenges.pdf>

<sup>2</sup> "Smart Communities Internet of Things"  
<http://cra.org/ccc/wp-content/uploads/sites/2/2015/01/SmartCity-whitepaper-v9.pdf>



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are inherently cyber-physical-human systems bringing together people, the physical world, and software/hardware in ways that demand innovation. Beyond basic security and privacy, research that seeks to make these systems more usable, manageable, understandable, and efficient is necessary. Therefore, we encourage you to consider expanding the scope of the Strategic Planning called for in S. 2607 to include the Working Group's consideration of additional research required to address the hard technical challenges that these 50 billion connected devices are likely to create. Additionally, we ask you to consider adding to the "Nongovernmental Stakeholders" section of the act (Sec. 3.(b)(4)) an explicit reference to representatives from the computing research community.

Thank you again for introducing this important legislation in anticipation of an important technical trend. We would be happy to answer any questions you might have about this request or brief you on our efforts in the space. We appreciate all your efforts to advance the Internet of Things and look forward to working with you as this moves forward.

Sincerely,

*Susan B Davidson*

Susan B. Davidson

Chair, Board of Directors