

# STATE OF MODERN APPLICATION, RESEARCH, AND TRENDS OF IOT ACT

NOVEMBER 2, 2018.—Committed to the Committee of the Whole House on the State  
of the Union and ordered to be printed

Mr. WALDEN, from the Committee on Energy and Commerce,  
submitted the following

## R E P O R T

[To accompany H.R. 6032]

[Including cost estimate of the Congressional Budget Office]

The Committee on Energy and Commerce, to whom was referred the bill (H.R. 6032) to direct the Secretary of Commerce to conduct a study and submit to Congress a report on the state of the internet-connected devices industry in the United States, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

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## PURPOSE AND SUMMARY

The State of Modern Application, Research, and Trends of IoT Act (SMART IoT Act) directs the Secretary of Commerce to establish a compendium of information regarding the Internet of Things (IoT) ecosystem. The purpose of the SMART IoT Act is for the Secretary of Commerce (Secretary) to create a first-of-its-kind compendium on both private industry and Federal government activities with respect to IoT efforts.

With respect to the private industry, the Secretary is to identify which industry sectors develop IoT devices, both consumer and industrial, and which industry-based bodies have developed or are developing standards, as well as identifying those standards. With respect to the Federal government, the Secretary is to identify which agencies have jurisdiction over IoT, current interagency activities on IoT issues, and what Federal regulations, guidelines, standards, and other policies exist.

The report will advance the development and deployment of IoT based solutions by providing industry-based standards and government resources related to IoT in a single location. Consolidating this information should help identify whether any current Federal activity is inconsistent, duplicative, or if there are gaps in needed Federal activity. Identifying this information is intended to help advance interagency collaboration and provide information regarding industry-based developed or developing standards.

## BACKGROUND AND NEED FOR LEGISLATION

IoT refers to a growing network of connected devices equipped with microchips, sensors, and wireless communication capabilities. These smart devices connect through a network to the cloud or a datacenter to share, exchange, and analyze data to gather insights used to solve problems or enable new capabilities. IoT devices are used to optimize everything from home appliances to automobiles and manufacturing to community services. IoT devices offer benefits to businesses, consumers, and society. For example, advancements in vehicle technology, such as the development and deployment of self-driving cars, have the potential to improve roadway safety and save thousands annually. Communities are integrating technology into their infrastructure for a variety of purposes, including to reduce overall traffic congestion and to improve waste management services.<sup>1</sup>

Consumer applications, such as wearable technology, in-home smart speakers, and smart appliances, also offer potential benefits directly to consumers. Increasingly, consumers are turning to wearable technology, as this market is expected to reach 162.9 million units by 2020.<sup>2</sup> Business IoT applications, such as smart manufacturing, are already improving efficiency and productivity of operations, which can ultimately reduce costs to end users. Smart manufacturing uses real-time, accurate information to allow companies to improve workforce management, seek new business opportunities, and help drive out costs of inefficiency. As a result, it is pro-

<sup>1</sup> <https://www.mercatus.org/publication/projecting-growth-and-economic-impact-internet-things>

<sup>2</sup> <http://www.businessinsider.com/wearable-technology-iot-devices-2016-8>

jected that the installed base of manufacturing IoT devices will increase to 923 million by 2020.<sup>3</sup>

IoT is revolutionizing a variety of industries and having a substantial effect on major U.S. economic sectors. By 2025, IoT is projected to create \$1.1 trillion to \$2.5 trillion in value annually in the health sector; \$.9 trillion to \$2.3 trillion in value annually in manufacturing; and \$100 billion to \$300 billion in value annually in urban infrastructure.<sup>4</sup> Analysts predict that by 2020, annual revenues for IoT vendors selling hardware, software, and other IoT solutions may exceed \$470 billion<sup>5</sup> and that by 2025, the IoT market will grow from an installed base of 15.4 billion devices in 2015 to 75.4 billion.<sup>6</sup> This market is projected to create 4.5 million developer jobs by 2020.

IoT cuts across many industry sectors and multiple Federal agency jurisdictions. In fact, many Federal agencies are developing and distributing IoT-related guidelines and making policy recommendations.<sup>7</sup> Currently, many of the efforts and information that exist about the IoT ecosystem are siloed, whether it be industry-based best practices and standards or Federal action. No single-source compilation of this information exists, and through meetings with stakeholders and hearings on this legislation, it became clear that such a compendium, as created by the SMART IoT Act, will help advance IoT development and deployment of IoT-based solutions.

#### COMMITTEE ACTION

On May 22, 2018, the Subcommittee on Digital Commerce and Consumer Protection held a hearing on a discussion draft entitled “State of Modern Application, Research, and Trends of IoT Act” or “SMART IoT Act.” The Subcommittee received testimony from:

- 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.

On June 13, 2018, the Subcommittee on Digital Commerce and Consumer Protection met in open markup session and forwarded H.R. 6032, without amendment, to the full Committee by a voice vote. On July 12, 2018, the full Committee on Energy and Commerce met in open markup session and ordered H.R. 6032, without amendment, reported to the House by a voice vote. H.R. 6032 was similar to the discussion draft.

#### COMMITTEE VOTES

Clause 3(b) of rule XIII requires the Committee to list the record votes on the motion to report legislation and amendments thereto. There were no record votes taken in connection with ordering H.R. 6032 reported.

<sup>3</sup> <http://www.businessinsider.com/internet-of-things-in-manufacturing-2016-10>

<sup>4</sup> <https://www.mercatus.org/publication/projecting-growth-and-economic-impact-internet-things>

<sup>5</sup> <https://www.forbes.com/sites/louiscolombus/2016/11/27/roundup-of-internet-of-things-forecasts-and-market-estimates-2016/#205c3fa4292d>

<sup>6</sup> *Id.*

<sup>7</sup> <https://www.gao.gov/assets/690/686106.pdf>

## OVERSIGHT FINDINGS AND RECOMMENDATIONS

Pursuant to clause 3(c)(1) of rule XIII of the Rules of the House of Representatives, the Committee held a hearing and made findings that are reflected in this report.

## NEW BUDGET AUTHORITY, ENTITLEMENT AUTHORITY, AND TAX EXPENDITURES

In compliance with clause 3(c)(2) of rule XIII of the Rules of the House of Representatives, the Committee finds that H.R. 6032 would result in no new or increased budget authority, entitlement authority, or tax expenditures or revenues.

## CONGRESSIONAL BUDGET OFFICE ESTIMATE

Pursuant to clause 3(c)(3) of rule XIII, the following is the cost estimate provided by the Congressional Budget Office pursuant to section 402 of the Congressional Budget Act of 1974:

U.S. CONGRESS,  
CONGRESSIONAL BUDGET OFFICE,  
*Washington, DC, August 13, 2018.*

Hon. GREG WALDEN,  
*Chairman, Committee on Energy and Commerce,  
House of Representatives, Washington, DC.*

DEAR MR. CHAIRMAN: The Congressional Budget Office has prepared the enclosed cost estimate for H.R. 6032, the SMART IoT Act.

If you wish further details on this estimate, we will be pleased to provide them. The CBO staff contact is Stephen Rabent.

Sincerely,

MARK P. HADLEY  
(For Keith Hall, Director).

Enclosure.

*H.R. 6032—SMART IoT Act*

H.R. 6032 would direct the Department of Commerce to study and report on the state of the industry for internet-connected devices. The study would include a survey of industry sectors that develop internet-connected devices, the status of industry-based standards, and a description of the ways entities develop, use, and promote those devices. The study also would include a list of federal agencies with jurisdiction over the industry and all federal and industry-based regulations, guidelines, and policies on internet-connected devices that have been implemented. Finally, the report would include recommendations for growing the economy through advancing internet-connected devices.

Using information from the National Telecommunications and information Administration about the cost of similar efforts, CBO estimates that implementing H.R. 6032 would cost \$2 million to conduct the study and issue the report; such spending would be subject to the availability of appropriated funds.

Enacting H.R. 6032 would not affect direct spending or revenues; therefore, pay-as-you-go procedures do not apply.

CBO estimates that enacting H.R. 6032 would not increase net direct spending or on-budget deficits in any of the four consecutive 10-year periods beginning in 2029.

H.R. 6032 contains no intergovernmental or private-sector mandates as defined in the Unfunded Mandates Reform Act.

The CBO staff contact for this estimate is Stephen Rabent. The estimate was reviewed by H. Samuel Papenfuss, Deputy Assistant Director for Budget Analysis.

#### FEDERAL MANDATES STATEMENT

The Committee adopts as its own the estimate of Federal mandates prepared by the Director of the Congressional Budget Office pursuant to section 423 of the Unfunded Mandates Reform Act.

#### STATEMENT OF GENERAL PERFORMANCE GOALS AND OBJECTIVES

The goal of H.R. 6032 is to create a compendium of information with respect to which industry sectors are developing internet-connected devices and which Federal agencies have jurisdiction over entities in those industry sectors. Such a compendium of information will help identify whether any current Federal activity is inconsistent, duplicative, or if there are gaps in Federal activity. Identifying this information is intended to help advance inter-agency collaboration and provide information regarding industry-based developed or developing standards.

#### DUPLICATION OF FEDERAL PROGRAMS

Pursuant to clause 3(c)(5) of rule XIII, no provision of H.R. 6032 is known to be duplicative of another Federal program, including any program that was included in a report to Congress pursuant to section 21 of Public Law 111–139 or the most recent Catalog of Federal Domestic Assistance.

#### COMMITTEE COST ESTIMATE

The Committee adopts as its own the cost estimate prepared by the Director of the Congressional Budget Office pursuant to section 402 of the Congressional Budget Act of 1974.

#### earmark, limited tax benefits, and limited tariff benefits

In compliance with clause 9(e), 9(f), and 9(g) of rule XXI of the Rules of the House of Representatives, the Committee finds that H.R. 6032 contains no earmarks, limited tax benefits, or limited tariff benefits.

#### DISCLOSURE OF DIRECTED RULE MAKINGS

Pursuant to section 3(i) of H. Res. 5, the Committee finds that H.R. 6032 contains no directed rule makings.

#### ADVISORY COMMITTEE STATEMENT

No advisory committees within the meaning of section 5(b) of the Federal Advisory Committee Act were created by this legislation.

## APPLICABILITY TO LEGISLATIVE BRANCH

The Committee finds that the legislation does not relate to the terms and conditions of employment or access to public services or accommodations within the meaning of section 102(b)(3) of the Congressional Accountability Act.

## SECTION-BY-SECTION ANALYSIS OF THE LEGISLATION

*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 list of the industry sectors that develop internet-connected devices; a list of public-private partnerships focused on the adoption and promotion of internet-connected devices, as well as industry-based bodies, including international bodies, that have developed or are developing industry standards; the status of those industry-based standards; and a description of the ways in which entities or industry sectors develop, use, or promote the use of internet-connected devices.

Section 2 provides that the Secretary must 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 that are taking place among Federal agencies; develop a brief description of the jurisdiction and expertise of the Federal agencies who have 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 to evaluate internet-connected devices.

Section 2 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 through a network, to communicate information at the direction of an individual and has computer processing capabilities for collecting, sending, receiving, or analyzing data.

## CHANGES IN EXISTING LAW MADE BY THE BILL, AS REPORTED

This legislation does not amend any existing Federal statute.