

Request for Public Comment on the NTIA paper “Fostering the
Advancement of the Internet of Things”

GS1US Submission

MARCH 2017

A RESPONSE TO THE NATIONAL TELECOMMUNICATIONS AND INFORMATION ADMINISTRATION GREEN PAPER “FOSTERING THE ADVANCEMENT OF THE INTERNET OF THINGS”

GS1 US applauds the National Telecommunications and Information Administration (NTIA) and the Department of Commerce consultation process on the Internet of Things (IoT). We appreciate the opportunity to comment on the green paper outlining guiding principles and an approach to support the advancement of the IoT.

In response to the questions posed - the GS1 US feedback is summarized as follows:

- 1. Is our discussion of IoT presented in the green paper regarding the challenges, benefits, and potential role of government accurate and/or complete? Are there issues that we missed, or that we need to reconsider?**

GS1 US agrees with the NTIA that the IoT is a transformational revolution in global technology with the potential to benefit “public safety, health care, government, the environment and improve the daily lives of workers and consumers”. GS1 US thinks the industrial internet is being worked on aggressively and the area that can benefit most from government involvement is in driving an industry-inclusive and a data-carrier agnostic approach to drive interoperability of systems for the benefit of the consumer. GS1, therefore, has interest to see more focus on the Consumer Internet of Things (C-IoT)

The Emergence of The Consumer IoT

Consumers are changing the ways in which they interact with retailers, brands and products, both in the physical world and online. They increasingly demand that their shopping experiences be relevant, timely, personal, secure and seamless. More and more, these interactions occur with, and between, smart-connected devices. Behind this change is the IoT.¹ As a key market disruptor, the IoT will have a profound impact on stakeholders across industries and around the world.

¹ The term the “Internet of Things” was coined at the Auto-ID Centre at the Massachusetts Institute of Technology during the early days of RFID development work. In 1999, the vision was to connect “things” to object-specific data on the internet, which could then be accessed using a unique tag attached to the object. A set of standards was built around the three core concepts of identification, data capture and information sharing. That work spurred the creation of EPCglobal®, a GS1 subsidiary, and continues to be foundational to the GS1 system of standards.



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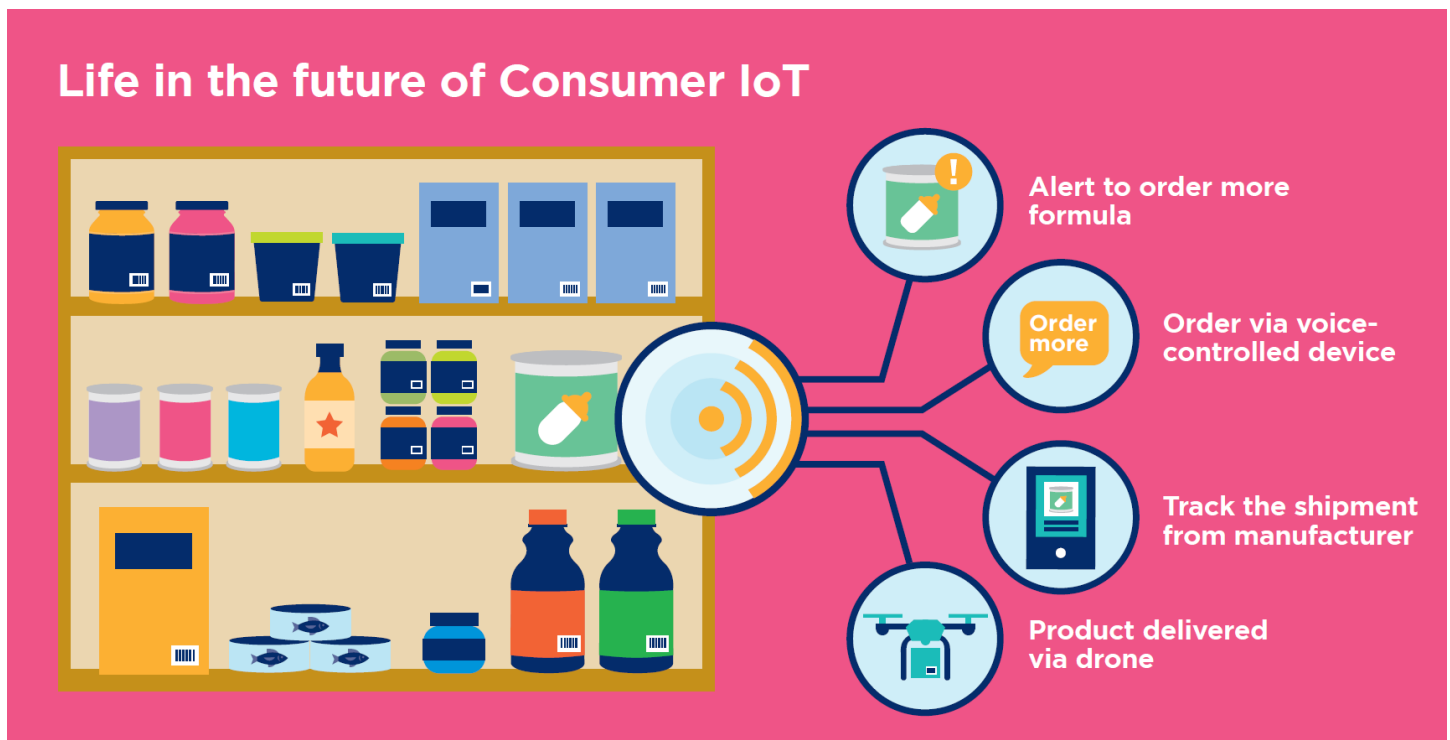
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The C-IoT represents a move beyond the traditional boundaries of today’s supply chain and focuses on the “life” of a product post-purchase. This extension of the supply chain is referred to as the “consumption chain”. These activities and interactions include set up, installation, use, customization, storage, subscription, replenishment, maintenance, repair, reorder, resale, share, and disposal. Focusing on this new landscape of product use enables industry and government to extend the conversation far beyond the point-of-sale, bringing greater value to the consumer. Some of these innovations, such as conversational interfaces (Amazon Alexa, Google Home), smart stores (Amazon Go) and even delivery robots (Starship), could be highly disruptive. More and more companies are winning the loyalty of the end user by delivering significant value, rather than just the product or service itself.

This move into the age of the Consumer Internet of Things (C-IoT) is driven by the needs of all citizens. As an example usecase of C-IoT (see illustration below), one can easily imagine a future in which a consumer’s pantry alerts Amazon Alexa to order more baby formula, using a small camera, RFID tag or a Wi-Fi-enabled scale. Once the item is ordered, the parent would be able to track the shipment and confirm the product’s authenticity—directly with the manufacturer—upon delivery. If a problem arises, they could request a replacement by simply asking Alexa. The new product would be fulfilled through an Uber delivery service or a robot/drone.



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2. Is the approach for Departmental action to advance the Internet of Things comprehensive in the areas of engagement? Where does the approach need improvement?

Promoting Standards and Technology Advancement

GS1 US strongly agrees with NTIA that a wide range of standards addressing different aspects of IoT applications – technology, connectivity, interoperability, functionality, security, usability, etc. – are needed and that a private-sector-led approach to standards development with appropriate government participation is fundamental to the success of the IoT.

The green paper states “... GS1 was concerned about the confusion that could arise from too many standards...”² We would like to take this opportunity to clarify our comments³ and provide additional context. We intended to make it clear that the integration of multiple technologies in IoT applications requires a high-level of interoperability between the various components of a solution. Open standards are critical to ensure full interoperability of end user IOT solutions.

Critical learnings from the introduction of barcodes in the 1970s have helped GS1 to understand the importance of broadly inclusive processes in developing appropriate and responsible policies. As an organization devoted to the development of standards that allow for global interoperability for some of the largest companies in the world, we are convinced of the importance of requiring interoperability in the public policy domain. Our key message is that system interoperability and open standards are the goal. Fragmented standards, protocols and services—all of which impede competition and hurt consumers—will be the most significant bottlenecks for the advancement of future C-IoT success stories, such as the baby formula example outlined earlier. It is necessary to build on open global standards - specifically around data identification, capture, and share to ensure that consumer needs and business processes run seamlessly.

3. Are there specific tasks that the Department should engage in that are not covered by the approach?

4. What should the next steps be for the Department in fostering the advancement of IoT?

² https://www.ntia.doc.gov/files/ntia/publications/iot_green_paper_01122017.pdf page 44

³ https://www.ntia.doc.gov/files/ntia/publications/gs1_us_ntia_iiot_rfc_5.31.16_final.pdf



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Proposed Future Framework:

A framework for C-IoT standards will benefit manufacturers, brands, vendors, and consumers. This framework should be inclusive in its approach, data-carrier agnostic, secure and open. It should be a modular approach that promotes competition and drives data exchange and commerce for decades. Of course, embracing consumer privacy through the responsible use of technology and systems will continue to be key as we move forward.

Government and private sector/industry can benefit significantly by partnering on the issues facing us in the IoT future. GS1 US urges government to leverage existing standards used by industry in the data identification, capture, and share standardization space and only create new standards where absolutely necessary. Additionally, in order to succeed, the IoT governance platform must be sufficiently open to allow value for all parties to be recognized. GS1 US believes strongly in the power of bringing representatives of all stakeholders to the table when discussing problems facing industry in order to encourage a wide array of perspectives and ultimately craft a sustainable solution which benefits all players. Only then will true engagement, adoption, and actual usage of any solution occur.

Specifically, GS1 US recommends that NTIA create a workstream around data standardization. GS1 US's expertise in the realms of unique product identification and zero-power devices allows the organization to advance standards-based, seamless interoperability. As a neutral, not-for-profit global organization with the most widely-adopted numbering system for trade items in the world, GS1 US is well positioned to co-facilitate this workstream with NTIA to focus on the foundational standards for Consumer IoT.

Conclusion

GS1 US appreciates the NTIA advocating for industry-led, consensus-based, international standards for IoT technologies and applications in its bilateral and multilateral engagements. The government can help to encourage the development and growth of the market for IoT devices by being a leading consumer and adopter of IoT; helping to address the workforce issues that will arise due to the deployment of IoT; and helping to better understand, plan for, and respond to IoT through quantification and measurement of the deployment and use of IoT.



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Three key messages:

- GS1 US acknowledges that the broad scope of IoT is relevant and important, but would like to see more focus on the Consumer Internet of Things
- System interoperability and open standards are the goal
- GS1 US recommends that NTIA create a workstream around data standardization

GS1 US will play a pivotal role in accelerating the pace at which “things” can be efficiently identified, interconnected and made interactive. We look forward to working with NTIA and other stakeholders in the deployment of IoT.

About GS1 US

GS1 US is a local member organization of GS1®. GS1 US is a not-for-profit member organization established over 35 years ago by the grocery industry to administer and manage Universal Product Codes, also known as U.P.C.'s. The U.P.C. remains one of the most successful standards in history – with billions of barcodes scanned daily worldwide. This method of identifying products and capturing product data has evolved into what is now known as the GS1 System, the world's most widely used supply chain standards, which include:

- globally-unique numbering formats (identification numbers) for identifying supply chain objects;
- barcodes and radio frequency identification (RFID) for capturing identification numbers; and
- data synchronization and electronic information exchange for sharing data.

About GS1

GS1® is a neutral, not-for-profit, global organization that develops and maintains the most widely used supply chain standards system in the world. GS1 Standards improve the efficiency, safety, and visibility of supply chains across multiple sectors. With local Member Organizations in over 110 countries, GS1 engages with communities of trading partners, industry organizations, governments, and technology providers to understand and respond to their business needs through the adoption and implementation of global standards. GS1 is driven by over a million user companies, which execute more than six billion transactions daily in 150 countries using GS1 Standards.



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