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AI- Standards
National Institute of Standards and Technology
100 Bureau Drive, Stop 2000
Gaithersburg, MD 20899
Re: Docket No. NIST -2019-08818 – RFI: Developing a Federal AI Standards Engagement Plan

Thank you for the opportunity to provide the following comments in response to the National Institute of Standards and Technology's (NIST's) request for information on artificial intelligence (AI) standards.

Background
ASTM International is a leading, globally-recognized, non-profit organization in the development and delivery of voluntary consensus standards. For more than 120 years, ASTM has served society by providing a global forum for the development and publication of voluntary consensus standards for materials, products, systems, and services. Today, over 12,000 ASTM standards are used by ninety industrial sectors in the United States and around the world to improve product quality, protect the environment, enhance health and safety, and strengthen market access and trade. Over 30,000 individuals from 135 countries, including manufacturers, retailers, consumers, regulators, academics and researchers, serve on ASTM's 148 technical committees.

ASTM has a long history of working in conjunction with federal agencies to develop standards that meet evolving regulatory needs. According to the National Institute of Standards and Technology (NIST) Standards Incorporated by Reference Database, there are over 2,500 standards from ASTM International incorporated by reference in the US Code of Federal Regulations. A strong and effective reliance on the non-governmental sector for development and maintenance of the standards in use across all sectors of our economy is supported by OMB Circular A119 and codified by Congress through P.L. 104-113 – The National Technology Transfer and Advancement Act (NTTAA).

Several ASTM technical committees are developing standards to support the reliable, robust, and trustworthy systems that use AI.

ASTM Technical Committees
ASTM Committee F15 on Consumer Products was formed in 1973 and maintains over 100 standards. Subcommittee F15.75 on Connected Products is working on a standard to provide guidance for consumer Internet of Things (IoT) as it relates to connected product hazards. It will apply to consumer products connected to the internet that need testing and evaluation of software to prevent cybersecurity vulnerabilities and software weaknesses that could compromise safety-related performance of the product and create a safety hazard.

Consumer IoT product (CIP) means a physical object that transmits or receives data remotely through a network, other than a mobile phone or personal computer, primarily intended for consumer use remotely through a network. Examples of these types of products include baby monitors, wearable health trackers, and connected appliances. Consumer IoT standards will be intended to apply in conjunction with product specific standard requirements to address the overall system safety of a connected end product.

ASTM Committee F45 on Driverless Automatic Guided Industrial Vehicles was formed in 2014. This Committee addresses issues related to performance standards and guidance materials for 'automatic'- (e.g., automatic guided vehicles) through 'autonomous'- (e.g., mobile robots) unmanned ground vehicles (A-UGVs) with industrial applications. A-UGV applications include, but are not limited to: indoor warehouse, manufacturing, and medical facilities and outdoor security and shipyards. It also works closely with industrial vehicle safety standards organizations.

ASTM Committee F38 on Unmanned Aircraft Systems was formed in 2003 and maintains over 15 standards. This Committee addresses issues related to design, performance, quality acceptance tests, and safety monitoring for unmanned air vehicle systems. F38 is working on standards to assist unmanned aircraft in detection and avoidance and containing complex functions sometimes referred to as "autonomous."

ASTM Committee F42 on Additive Manufacturing (AM) Technologies was formed in 2009 and maintains over 22 standards. This committee addresses standards related to the process of creating three-dimensional objects by the successive addition of material – whether plastic, metal, ceramic, or composite. Artificial intelligence, machine learning (ML), and deep learning (DL) are used in the selection of AM materials and the development of AM devices/systems to find the best combinations of processing routes to obtain required properties or functionalities. Such technologies help rapidly suggest candidate materials for AM or predict functionalities of devices/systems based on multiple AM design parameters. Such digital, smart AM frameworks operate by reducing the huge design space needed for materials, guiding processes, and facilitating integration of complex data from design, processing, characterization, and simulation. In addition, AI/ML/DL for AM are intimately connected with other data-intensive activities such as AM data management/databases with respect to the data FAIR (findable, accessible, interoperable, and reusable) principles, as well as data-driven areas such as integrated computational materials engineering (ICME) and the Materials Genome Initiative (MGI) to identify structure-property-processing-performance relationships.

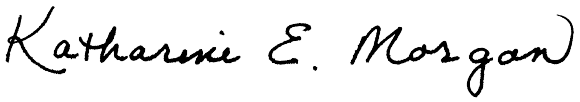
Conclusion

While government engagement is important at all points in the development process, it is most effective when invested at the front end of standards development activities. Government engagement at the technical committee level provides critical technical information and strategic input for improving public safety or advancing the competitiveness of U.S. industry.

Many of today's most complex problems require the deployment of new technologies that are, in part, linked to the development and application of standards. ASTM technical committees - such as those listed above - continue to work with a diverse array of stakeholders to develop voluntary consensus standards that advance innovation and enhance the protection of public health and the environment. Federal agencies should continue their effective reliance on the private sector for the development and maintenance of voluntary consensus standards to support competitiveness as it looks to carry-out its mission more effectively and efficiently. As NIST creates a plan for Federal engagement in the development of technical standards we hope that we can be a resource in the planning process.

Thank you for the opportunity to submit these comments. Please feel free to contact Anthony R. Quinn in the ASTM Washington Office at 202-223-8484 to discuss these comments.

Sincerely,



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