



Alliance for AI in Healthcare (AAIH)
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July 19th, 2019

Subject: AAIH Comment-Draft Plan for Federal Engagement in Developing Technical Standards and Related Tools

Dear NIST,

The **Alliance for Artificial Intelligence in Healthcare (AAIH)** welcomes the opportunity to comment on the NIST Public Draft: **“U.S. Leadership in AI: A Plan for Federal Engagement in Developing Technical Standards and Related Tools.”**

By way of introduction, the **AAIH is a 501(c4) not-for profit** formed in January 2019 as the **global advocacy organization** for the advancement and use of Artificial Intelligence (AI) in healthcare applications. The AAIH is a membership-based organization with **over 25 stakeholders** (<https://www.theaaih.org/members>), who either **develop or utilize AI** in biomedical R&D, devices and diagnostic systems, and clinical applications. Our membership ranges from large healthcare to leading-edge start-ups, research & medical institutions, technology providers, etc. The public draft mentions that standards development in the United States relies *“largely on the private sector to develop voluntary consensus standards”*. We echo and fulfill this need through our primary constituency of **industry and academia** member organisations.

AAIH members work **collectively to identify common challenges** and develop strategic priorities to **address industry wide concerns**. Our organization generates work products through the collaborative efforts of our six standing committees, each focused on separate, broad areas of interest (Education, Federal Engagement, Investment, Communications, Industry Performance & Data Analytics, **Technology & Standards Development**).

We believe that especially in the **highly regulated arena of healthcare**, the establishment, utilization, and sustained improvement of standards in the AI space requires a multipronged and coordinated approach across the healthcare continuum. This is the basis of our philosophy of a **member-driven approach to Public Private Partnership**, which will be critical to standards development. To that end, AAIH, led by the **Technology and Standards Development Committee**, is currently developing the following **standards and documents**:

- **AAIH-WP-1: AI in Health Primer (White Paper):** (In final review)
 - Introduces AI to the lay public and how it may integrate into the healthcare sector
 - Defines key terminology integral to clear communication between developers, regulators, and end-users
 - Exec Summary shared during Federal Engagement Day; draft of full paper for public comment will be released end of July 2019
- **AAIH-WP-2: AI Standards Landscaping (White Paper):** (Under development)
 - Describes the AI standards needs and overall landscape covered in healthcare e.g., AI for drug discovery and development, AI for clinical applications, etc.
 - Describes how these areas relate to one another and how they relate to advancing healthcare through the use of data



- Describes areas that are being addressed by other organizations and bodies; highlights existing gaps
- **AAIH-WP-3: Best Practices for AI in healthcare (White Paper):** (Under development)
 - Defines an overarching strategic process and “top” best practices to enable healthcare companies and ultimately patients to realize the benefits of adopting AI
- **Other AI Standards and Documents to be developed by AAIH:**
 - AAIH-SD-1: Data Challenges
 - AAIH-SD-2: Data Standards
 - AAIH-SD-3: AI-enabled IND and NDA filing
 - AAIH-SD-4: AI Models Standards
 - AAIH-SD-5: AI Interchange Protocols
 - AAIH-SD-6: AI Technology Recommendations
 - AAIH-SD-7: AI Platforms Recommendations

We also realize the linkages and implications of **international policy in normalizing AI standards** among emerging governmental strategies. To that end, led by our **Federal Engagement and Regulatory Affairs Committee**, we recently hosted an interactive workshop with industry, academia, and Federal Agency perspectives (NIH, DOE, NCI, FDA, etc.) around a need for and potential areas for **Public Private Partnership**, and are continuing to engage our member organizations, collaborators, and stakeholders in other **jurisdictions to foster cross-border harmonization**.

Please see our comments on the draft and appendices in the following pages, and we look forward to continued engagement and collaboration with NIST at this critical juncture in the development of American leadership in AI.

Respectfully submitted *on behalf of AAIH*,

AAIH Technology & Standards Development Committee Members

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COMMENT #	COMMENTER	TYPE i.e., Editorial Minor Major	LINE # PAGE etc.	RATIONALE for CHANGE	PROPOSED CHANGE
1	AAIH	Major	L-23, P-3	New Recommended Content	<p>EXECUTIVE SUMMARY</p> <p>Less than two years ago, the National Science and Technology Council (NSTC) submitted the report “Preparing for the Future of Artificial Intelligence”, which surveyed the then current state of artificial intelligence (AI) research, including current and potential applications, and identified questions that progress in AI raises for society and public policy.</p> <p>While much has changed in the intervening months, the need for industry-wide AI standards has only grown. One major consensus exists: that Government needs to play a more active role in helping shape the conversations about important issues, monitor the safety and fairness of applications as they develop, and adapt regulatory frameworks to encourage innovation while protecting the public.</p> <p>I. Standards and Artificial Intelligence</p> <p>On February 11, 2019, the President issued an Executive Order (EO 13859) emphasizing the importance of Artificial Intelligence (AI) to the future of the U.S. economy and national security. The order further directed Federal agencies to take a variety of steps designed to ensure that the nation maintains its leadership in AI development.</p> <p>The Order and the many responses received[1] reflect the state of existing standards in regard to the development of AI technologies, and the many limitations on the ability to understand, trust, and analyze the decisions of AI systems. These limitations affect the adoption of AI technologies – technologies that have the promise of not only encouraging economic growth and future innovations, but also improving people’s lives by advancing healthcare, addressing environmental issues, developing more effective transportation systems, refining criminal justice outcomes, and more. By promoting the voluntary adaptation of AI standards and encouraging transparency, trustworthiness, and AI risk management strategies, the United States can mitigate limitations, spur innovation, and further American global leadership.</p> <p>Technical standards are defined, for the purpose of this Plan, as “a document, established by consensus and approved by a recognized body, that provides for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.”[2] Key factors affecting the development of AI standards include timing; the development of accountability frameworks; and the considerations of sector-specific needs versus industry-wide standards (vertical versus horizontal standards).</p> <p>Legal, ethical, and societal considerations can also come into play as developers and policy makers consider whether and how to factor in risk management. Ultimately, it is up to system owners to determine what risks they are willing to accept, which to mitigate, and which to avoid.</p> <p>II. U.S. Government AI Standards Priorities</p>

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					<p>AI standards needs are expansive and challenging, and it is widely acknowledged that serious work on AI-specific standards has only recently begun. This plan enumerates the scope of standards efforts that merit strong Federal government involvement as well as those characteristics and attributes that should be prioritized when considering AI standards. The scope of AI standards efforts that merit strong Federal involvement are those which are: (a) inclusive and accessible; (b) open and transparent; (c) multi-channel; (d) consensus-based; and (e) globally relevant and non-discriminatory. Specific characteristics that the Federal government should prioritize include standards that are (a) innovation-oriented; (b) embrace both horizontal and vertical applications; (c) have a clearly-stated and transparent provenance; (d) address the need to monitor and manage AI systems; (e) reflect the current state of development and understanding of AI technologies, risk, and societal implications; (f) are regularly updated; (g) are effective in measuring and evaluating AI system performance; and are (h) human-centered, harmonized with clear language, and sensitive to ethical considerations.</p> <p>Federal agencies contributing to the development of standards leading to trustworthy and transparent AI must first understand and articulate the anticipated role that AI has on agency operations, its regulations, and regulated entities. Additionally, they should provide a vision of how AI will beneficially impact the nationwide stakeholders and communities served by the agency’s mission.</p> <p>III. Recommended Federal Government Standards Actions to Advance U.S. AI Leadership America’s success and prospects as the global leader in AI technologies demands that the Federal government play an active role in developing AI standards. In addition to the guidance provided regarding priorities and levels of engagement called for in the previous section of this plan, <i>the Federal government should commit to deeper, consistent, long-term engagement in AI standards development activities to help the United States accelerate the development of trustworthy AI technologies.</i> Three specific recommendations iterated in this Plan include:</p> <ul style="list-style-type: none"> ● Recommendation 1: Bolster AI standards-related knowledge, leadership, and coordination among Federal agencies to maximize effectiveness and efficiency. ● Recommendation 2: Promote focused research to advance and accelerate broader exploration and understanding of how aspects of trustworthiness can be practically incorporated within standards and standards-related tools. ● Recommendation 3: Support and expand public-private partnerships to develop and use AI standards and related tools to advance trustworthy AI. ● Recommendation 4: Strategically engage with international parties to advance AI standards for U.S. economic and national security needs. <p>Despite recent advances and the potential popularity of AI technologies, there are still many challenges facing their successful implementation, deployment, and adoption. These recommendations, we believe, will pave the way for smoother and greater adoption of AI technologies that will enhance the lives of Americans in ways that we cannot yet even fathom.</p>

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					[1] https://www.nist.gov/topics/artificial-intelligence/comments-received-rfi-about-federal-engagement-artificial [2] (https://www.iso.org/standard/39976.html).
2	AAIH	Editorial	L-4, P-2	Grammar error	Why Is A Plan for Federal Engagement in AI Technical Standards is Needed?
3	AAIH	Editorial	L-4-13, P-2	Inconsistent and irregular capitalization of section titles. Should probably use sentence case (preferred) or title case https://capitalizemytitle.com/	<i>One example:</i> Practical Steps for Agency Engagement In AI Standards Practical steps for agency engagement in AI standards
4	AAIH	Editorial	L-26-29, P-4	Reworded for clarity	On February 11, 2019, the President issued an Executive Order (EO 13859) emphasizing the importance of Artificial Intelligence (AI) to the future of the U.S. economy and national security. The order further directed Federal agencies to take a variety of steps designed to ensure that the nation maintain its leadership in AI development.
5	AAIH	Editorial	L-25, P-4	Grammar error	Why Is A Plan for Federal Engagement in AI Technical Standards is Needed?
6	AAIH	Editorial	L-35,P-4	Grammar error	frameworks that underpin frameworks to underpin
7	AAIH	Editorial	L-36-37, P-4	Reworded for clarity	Since Federal agencies are today's primary players in developing AI technologies that more effectively achieve desired outcomes, the agencies should be directly involved in prioritizing and developing AI technical standards.
8	AAIH	Editorial	L-38, P-4	Grammar error: missing period at end of sentence.	...major players in developing and using AI technologies. ²
9	AAIH	Minor	L-40,P-4	Consistent Terminology	<i>One example:</i> The order directs the Secretary of Commerce The EO directs the Secretary of Commerce
10	AAIH	Editorial	I-45-47,P-4	Reworded for clarity	It focuses on the Federal government's role in advancing AI best practices and prioritizes research that supports the development of technically sound 'fit for purpose' standards.

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11	AAIH	Editorial	L-47, P-4	Reworded for clarity	...and fit for purpose germane standards.
12	AAIH	Editorial	L-48, P-4	Reworded for clarity	...for the purposes of this plan, AI...
13	AAIH	Editorial	L-48-49, P-4	Reworded for clarity and grammar best practices	...AI technologies and systems are considered to be those which comprise of software and/or hardware that can learn to solve complex problems...
14	AAIH	Editorial	L-53, P-4	Consistent terminology; gender-neutral terminology	unmanned autonomous vehicle systems
15	AAIH	Editorial	L-57-66, P4-5	Reworded for clarity	Today, the ability to understand, trust, and analyze the decisions of AI systems is limited, thereby limiting their adoption for economic growth and future innovations. Hence, increasing trust in AI technologies is a key element in accelerating their use to benefit society. Among the characteristics that relate to trustworthy AI technologies are accuracy, reliability, robustness, security, safety, and privacy. Ideally, all these aspects of AI should be considered early on in the design process and tested during the development and use of AI technologies. AI standards and related tools, along with AI risk management strategies, can help to address this limitation and spur innovation.
16	AAIH	Minor	L-62,L-63, P-5	Additional Content	Among the characteristics that relate to trustworthy AI technologies are accuracy, ethical standards associated with AI, industry standards (e.g., ISO, IEEE), standardization on the outcomes of an AI solution, reliability, robustness, security, explainability, safety, and data privacy
17	AAIH	Editorial	L-68, P-5	Reworded for clarity	For the purposes of this plan, ...
18	AAIH	Editorial	L-84-91, P-5	Reworded for clarity	Industry standards in the United States are often developed within the private sector on an ad hoc, voluntary basis, occasionally in collaboration with academic and government agencies. The Federal role typically includes providing agency requirements for unique standards projects; contributing technical expertise to standards development; incorporating voluntary standards into policies and regulations; and citing standards in agency procurements. This use of voluntary consensus standards that are open to contributions from multiple interested parties, especially in the private sector, is consistent with our market-driven economy and has been endorsed in Federal statute and policy.
19	AAIH	Editorial	L-93-97, P-5	Reworded for clarity	It is worth noting that some foreign governments play a more central role in the development of industry standards; they use processes and regulations to inform domestic industrial and innovation policy, sometimes at the expense of a competitive, open marketplace. The steps outlined in this plan will help foster public trust and confidence in AI technologies, while protecting the civil liberties, privacy, and American values in their application in order to fully realize the potential of AI technologies for the American people.

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20	AAIH	Editorial	L-98-106, P-6	Reworded for clarity	The timing of standards development can greatly influence the state of technologies. Premature efforts can result in standards that do not reflect the state of the affected technology or may not reflect a critical mass of technological understanding. This can yield standards that are not fit-for-purpose and can have an adverse impact on innovation. Alternatively, development efforts timed too late may promote standards that counter accepted market practices and existing infrastructure, also hindering innovation. Regular review and update are key elements of the process that will ensure that standards reflect technological innovations and take into account changing economic and societal systems.
21	AAIH	Editorial	L-107-114, P-6	Reworded for clarity	<p>Another key component to developing AI standards is the development of accountability frameworks for IT, at large. IT encompasses all technologies that engage in the capture, storage, retrieval, processing, display, representation, security, privacy, and/or interchange of data and information. Currently, there is no overreaching, global strategy; different countries use various different Standards Developing Organizations (SDOs) that govern different aspects of IT using a wide range of models to address varying standardization needs.</p> <p>The rapid innovation in IT has been accompanied by competition among SDOs in areas of market relevance (e.g., cloud computing, cybersecurity, Internet of Things). This has encouraged SDOs to streamline their consensus-building processes to develop and approve timely, technically sound standards that meet current market needs.</p>
22	AAIH	Editorial	L-136-144, P-7	Reworded for clarity	<p>NOTE: We understand that his is a quote, but the language in the quote is confusing. we would keep the reference, but not the quote and rewrite as suggested below:</p> <p>Second, common standards can serve as a mechanism to evaluate and compare AI systems. For example, incorporating AI into the judicial decision-making process would require significant algorithmic transparency. Without such clarity as defined by clear, measurable algorithmic standards, it can be prohibitively difficult to objectively evaluate whether a particular AI system works to expectations, or does so better than another similar system. This potential fallacy generates a lack of trust and discourages the adoption of these technologies. For this reason and others, the development of technical standards will be a key component to determining whether an AI system is appropriate for use in a particular context.</p>
23	AAIH	Editorial	L-146-151, P-7	Reworded for clarity	There is a growing number of cross-sector (horizontal) and sector-specific (vertical) AI standards, with many others in development by SDOs. These SDOs have established liaisons that facilitate information exchange and collaboration on standards development. Some areas, such as communications, have well established and regularly maintained standards in widespread use. Other aspects, especially as regards to trustworthiness, are only now being considered, if at all.
24	AAIH	Editorial	L-157-159, P-7	Reworded for clarity	And lastly, even where standards are noted as available, each area will need additional standards as AI technologies improve and their use becomes more widespread.

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25	AAIH	Editorial	L-160, P-7	Reworded for clarity	...and some standards efforts are being undertaken... ...and efforts to develop standards are being undertaken...
26	AAIH	Editorial	L-160-171, P-7	Reworded for clarity	As shown in Table 1, standards efforts are ongoing in all areas. That said, some areas are more primed for further standards development than others. These include standards for concepts and terminology, data, human interaction, metrics, networking, performance testing and reporting methodology, as well as standards targeted to specific vertical domains. Standardization of AI safety, risk management, and some aspects of quality assurances such as explainability or security, are in their formative stages and would benefit especially from research to provide a strong technical basis for development. By defining common vocabularies, establishing the essential characteristics of trustworthy AI technologies, and identifying best practices within the life cycle of an AI system, these standards can accelerate the pace of innovation. Similarly, human interaction and performance testing standards spur innovation by establishing the ‘rules of the game’ and forming a baseline from which new technologies emerge. FOOTNOTE 12: Governance of IT, for instance, can be defined as consisting of the principles that assist organizations in their ability to understand and effectively fulfill their legal, regulatory, and ethical obligations in their use of IT. Governance of IT is a component of organizational governance. An example of a standard is ISO/IEC 38500:2015 Information technology — Governance of IT for the organization. FOOTNOTE 13: Privacy standards may or may not be specific to AI. They can encompass IT-related issues and operations or may be much broader. For example, broader standards might focus on an organization’s overall approach to potential problems that individuals experience arising from system, product, or service operations with data. For example, see the IEEE P7000™ series of standards under development, including P7002 - Data Privacy Process.
27	AAIH	Editorial	L-184-188,P-9	Reworded for clarity	Data standards and data sets in standardized formats, including metadata for training, validation, and testing of AI systems. Data standards are vital in the measuring and sharing of information relating to the quality, utility, and access of data sets, preserving privacy, assisting potential users in making informed decisions about the data’s applicability to their purpose, and helping prevent misuse.
28	AAIH	Editorial	L-189 L-191, P-9	Additional Content	Standardizing response of AI systems. Example for interoperability between AI systems and a standard response format to avoid misunderstanding between systems.
29	AAIH	Editorial	L-204, P-9	Reworded for clarity	...complexity, risk, uncertainty, and economic impact, and legality (e.g. compliance with the U.S.’s anti-discrimination laws).
30	AAIH	Editorial	L-205-207, P-9	Reworded for clarity	Benchmarks and evaluations such as promoting challenges aimed at addressing strategically selected scenarios that can drive innovation; these challenges will also provide objective data to validate and track the evolution of AI technologies.

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31	AAIH	Editorial	L-210-212, P-9	Reworded for clarity	Tools for accountability and auditing to enable examination of an AI system’s output (e.g., decision-making or prediction), including traceability, which will provide a record of events and include information regarding their implementation, testing, and completion.
32	AAIH	Editorial	Table 1, P-8	Content Needs Clarification	<ul style="list-style-type: none"> - Missing: Reliability, Explainability - Table requires additional explanation; how can standards be “available” while concurrently under development? References should be provided to these available standards
33	AAIH	Major	L-213, P-9	Content Needs Clarification	Title seems inappropriate (“HELP WANTED: Data Standards and Data Sets”). Suggestion: “The need for standards surrounding data access and sensitivity”
34	AAIH	Editorial	L-217-221, P-10	Reworded for clarity	...limited to: Federal government security classification; the presence of law enforcement-sensitive data; proprietary data; acquisition-sensitive data; personal information such as biographic, biometric, and contextual data; Freedom of Information Act (FOIA) exemptions; and even fees that might be required for data access.
35	AAIH	Editorial	L-225-231, P-10	Reworded for clarity	One successful example of a high-impact, community-based, AI-relevant benchmark program is the Text Retrieval Conference (TREC). Started by NIST in 1992, TREC provides the infrastructure necessary for large-scale evaluation of information retrieval methodologies. More than 250 groups have participated in TREC, including academic and commercial organizations both large and small. The standardized, widely available, and carefully constructed set of data put forth by TREC has been credited with revitalizing research on information retrieval.
36	AAIH	Editorial	L-253-258, P-11	Reworded for clarity	Like several other pioneering areas of science and technology, the development of AI raises a host of legal, ethical, and societal issues that create real and perceived challenges for developers, policy makers, and users – including the general public. These are matters appropriate for discussion in the policy realm, whether in overarching or in narrow terms. Standards are one tool for implementing or informing policies and principles related to such issues.
37	AAIH	Major	L-264-266, P-11	Content Needs Clarification	<p>Original statement: “While stakeholders in the development of this plan expressed broad agreement that societal and ethical considerations must factor into AI standards, it is not clear how that should be done and whether there is yet sufficient scientific and technical basis to develop those standards.”</p> <p>-The claim is that stakeholders BROADLY AGREE that there must be standards in the area of AI ethics, and yet this is dismissed as not plausible since it’s “not clear how that should be done”. This whole section needs to be fleshed out significantly, to include what the ethical concerns are, what scientific evidence exists and what specifically is lacking, etc.-</p>

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38	AAIH	Editorial	L-272-276, P-11	Reworded for clarity	Legal, ethical, and societal considerations can also come into play as developers and policy makers consider whether and how to factor in risk management. Some standards and standards-related tools aim to provide guidance for evaluating risk, which can be used by developers and policy makers. Ultimately, it is up to system owners to determine what risks they are willing to accept, which to mitigate, and which to avoid.
39	AAIH	Editorial	L-278-281, P-11	Reworded for clarity	<p>STANDARDS DEVELOPMENT EFFORTS THAT MERIT FEDERAL ENGAGEMENT</p> <p>When deciding which standards efforts merit strong Federal government involvement, NIST should prioritize efforts that are not duplicative of existing IT standards. Efforts that merit Federal agency involvement include those that embrace the following foundational principles:</p>
40	AAIH	Editorial	L-282-286, P-11-12	Reworded for clarity	<ul style="list-style-type: none"> • Inclusive and accessible: to encourage input reflecting diverse communities of users, developers, vendors, and experts, Stakeholders should include representatives from diverse technical disciplines as well as experts and practitioners from non-traditional fields, with a special emphasis on ethicists, economists, legal professionals, and policy makers: essentially, accommodating anyone who desires a “seat at the table,” regardless of resources.
41	AAIH	Editorial	L-287-291, P-12	Reworded for clarity	<ul style="list-style-type: none"> • Open and transparent: AI standards should operate in a manner that (a) provides an opportunity for participation by all those directly- and materially-affected; (b) has well-established and readily accessible operating rules, procedures, and policies that provide certainty about decision making processes; (c) allows timely feedback for further consideration of the standard; and (d) ensures prompt availability of the standard upon adoption.
42	AAIH	Editorial	L-341-366, P-13-14	Reworded for clarity	<ul style="list-style-type: none"> • Orientation towards Innovation to keep pace with rapid technological changes, including maximum flexibility, technology and platform neutral, and a preference for performance-based – versus prescriptive – requirements that can accommodate varied approaches in meeting the standard’s provisions. • Applicability across sectors (horizontal) to allow for wide-scale deployments in multiple areas of industry, government, and society. • Focused on particular sectors and applications (vertical), especially where there are specific risks and impacts. • Clearly stated provenance and intended use or design (“intent of design”) to allow users to decide whether an AI system that is intended for one application is appropriate for other applications based on the data or algorithms used, or if the level of risk is deemed acceptable. • Address the need to monitor and manage AI systems throughout a product’s entire lifecycle.

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					<ul style="list-style-type: none"> • Reflective of the early stage of development and understanding of AI technologies, risk, and societal implications so that standards initiatives appropriately represent the state of AI technological feasibility and understanding. • Regularly updated to reflect the rapid pace of change in AI technology and to avoid locking out new developments and knowledge, both in regards to technological and social impacts. • Effective in measuring and evaluating AI system performance to assist in determining degree of risk, deciding on fit-for-purpose and readiness, considering conformance, and monitoring effectiveness. • Human-centered to ensure that human interactions and values are considered during AI data collection, model development, testing, and deployment. • Harmonized and using clear language to define AI-related terms and concepts and to promote interoperability. • Sensitive to ethical considerations, identifying and minimizing bias, and incorporating provisions that protect privacy and reflect the broader community’s notions of acceptability.
43	AAIH	Editorial	L-361-362, P-14	Recommendation based on best practices	Human-centered to ensure that human interactions and values are considered during AI data collection, model development, testing, and deployment. To ensure that contextual nature of human decision making is embedded within AI.
44	AAIH	Editorial	L-368-375, P-14	Reworded for clarity	AI standards needs are expansive and challenging, and it is widely acknowledged that serious work on AI-specific standards has only recently begun. U.S. engagement in establishing AI standards is critical; without the appropriate level of professional and governmental oversight and involvement in creating and monitoring AI standards, U.S. interests, U.S.-based companies, and other U.S.-based stakeholders may be disadvantaged.
45	AAIH	Editorial	L-388-390, P-14	Reworded for clarity	<ul style="list-style-type: none"> • Monitoring: In order to address a unique set of needs or interests, either follow a specific standards effort or follow a set of broader programs and evolving standards being produced by SDOs.
46	AAIH	Editorial	L-471, P-17	Additional Content	Support to build talent pool by encouraging AI research
47	AAIH	Minor	L-484, P-17	Additional Content	Conduct research to inform risk management strategies including identifying, monitoring and mitigating risks
48	AAIH	Editorial	L-492-497,P-17	Reworded for clarity	Strategically increase participation in the development of technical AI standards in targeted venues. Participation may include a variety of engagement options ranging from monitoring to leading – especially at the early stage of standards development where major decisions need to be made about scoping and leadership. In making decisions about involvement in standards development, consider the priorities and guidelines cited in Section 2(A) and (B) and SDO activities cited in Appendix II.

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49	AAIH	Editorial	L-459, P-16	Additional Content	Industrialization of AI support systems like in intelligent sensors, chips with out-of-the-box AI capabilities
50	AAIH	Editorial	L-502-503,P-17	Reworded for clarity	Lead efforts to assess the trustworthiness of AI systems and establish benchmarks. In addition, ensure that these benchmarks are widely made available; result in best practices; and improve AI evaluations and methods for verification and validation.
51	AAIH	Editorial	L-509-511,P-18	Reworded for clarity	<ul style="list-style-type: none"> Champion U.S. AI standards priorities in activities related to the development of international AI standards. Partner and accelerate the exchange of information as regards to AI standards and related tools between Federal officials and counterparts in like-minded countries.
52	AAIH	Minor	P-19	Consistent Terminology	Data standards brief definition in Appendix
53	AAIH	Content Addition	Appendix II	<p>According to the "THE NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH AND DEVELOPMENT STRATEGIC PLAN: 2019 UPDATE" (https://www.nitrd.gov/pubs/National-AI-RD-Strategy-2019.pdf), it is mentioned that "Artificial intelligence presents tremendous opportunities that are leading to breakthroughs in improved healthcare...", therefore it is suggested to add AAIH (Alliance for Artificial Intelligence for Healthcare) as an example of a global organization that is developing AI standards in healthcare.</p>	<p>AAIH - https://www.theaaih.org/ is the global advocacy organization for the advancement and use of AI in healthcare applications with over 25 organizations developing or applying AI in healthcare to improve patients' lives and create more efficient, sustainable, and accessible healthcare systems.</p> <p>The AAIH, led by the Technology and Standards Development committee, is currently developing the following standards and documents:</p> <ul style="list-style-type: none"> AAIH-WP-1: AI in Health Primer (White Paper): (In final review). <ul style="list-style-type: none"> Introduces AI to the lay public and how it may integrate into the healthcare sector Defines key terminology integral to clear communication between developers, regulators, and end-users Exec Summary shared during Federal Engagement Day; draft of full paper for public comment will be released end of July 2019 AAIH-WP-2: AI Standards Landscaping (White Paper): (Under development) <ul style="list-style-type: none"> Describes the AI standards needs and overall landscape covered in healthcare e.g., AI for drug discovery and development, AI for clinical applications, etc. Describes how these areas relate to one another and how they relate to advancing healthcare through the use of data Describes areas that are being addressed by other bodies; highlighting existing gaps AAIH-WP-3: Best Practices for AI in healthcare (White Paper): (Under development) <ul style="list-style-type: none"> Defines an overarching strategic process and "top" best practices to enable healthcare companies and ultimately patients to realize the benefits of adopting AI Other AI Standards and Documents to be developed by AAIH: <ul style="list-style-type: none"> AAIH-SD-1: Data Challenges AAIH-SD-2: Data Standards AAIH-SD-3: AI-enabled IND and NDA filing AAIH-SD-4: AI Models Standards

AAIH Comments on Draft Plan for Federal Engagement in Developing Technical Standards and Related Tools for AI Technologies

COMMENT #	COMMENTER	TYPE i.e., Editorial Minor Major	LINE # PAGE etc.	RATIONALE for CHANGE	PROPOSED CHANGE
					<ul style="list-style-type: none"> ○ AAIH-SD-5: AI Interchange Protocols ○ AAIH-SD-6: AI Technology Recommendations ○ AAIH-SD-7: AI Platforms Recommendations
54	AAIH	Minor	P26	They only mention (LUA) Torch which is no longer developed and has been replaced by PyTorch which is, after TensorFlow, one of the most popular ML frameworks.	PyTorch is an open-source machine learning library. It has an extensive ecosystem of tools and libraries that extend PyTorch and support development in computer vision, NLP and more.
55	AAIH	Content Addition	P18	Considering adding a conclusion	<p>Conclusion</p> <p>Less than two years ago, the National Science and Technology Council (NSTC) submitted the report “Preparing for the Future of Artificial Intelligence”, which surveyed the then current state of artificial intelligence (AI) research, including current and potential applications, and identified questions that progress in AI raises for society and public policy.</p> <p>Much has changed in the intervening months, but the need for industry-wide standards has only grown. One major consensus exists: that Government needs to play a more active role in helping shape the conversations about important issues, monitor the safety and fairness of applications as they develop, and adapt regulatory frameworks to encourage innovation while protecting the public.</p>