



Office of Science & Technology Policy,
Eisenhower Executive Office Building,
1650 Pennsylvania Avenue,
Washington, DC 20504

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Request For Information: Preparing For The Future Of Artificial Intelligence

The Internet Association submits these comments in response to the White House Office of Science and Technology Policy (OSTP) request for information regarding the policy implications of Artificial Intelligence (AI).

The Internet Association represents almost 40 of the world's leading Internet companies.¹ Our mission is to foster innovation, promote economic growth, and empower people through the free and open internet. As the voice of the world's leading Internet companies, our job is to ensure that all stakeholders understand the benefits the internet brings to our economy. Several Internet Association member companies have made significant investments in AI technology. For example, Amazon's Science team, eBay's Expertmaker structured data team, Facebook's AI Research Lab, and Google's cross-company AI research team all are leading advancements in the AI field. And beyond these specific examples, it is clear that overall private sector investment in AI technology has increased significantly in past years, from \$1.7 billion in 2010 to \$14.9 billion in 2014,² making the OSTP's request for information an important and timely one.

In its request for information, OSTP asks a range of questions related to AI, some of which highlight issues beyond the IA's mission. However, insofar as the questions relate to our expertise, we request that OSTP and the administration in general adhere to the following three principles as they consider AI policy going forward:

- First, although AI raises interesting public policy questions, they are not necessarily uncharted territory. In fact, U.S. policymakers have immersed themselves in similarly complex debates before and have developed significant institutional expertise and skills that are transferable to the AI space.
- Second, the U.S. government can and does play an important role in fostering AI technology both at home and abroad. This role ranges between practical policies such as support for STEM education at home and engaging in sophisticated economic diplomacy abroad.

¹ The Internet Association's members include Airbnb, Amazon, Coinbase, DoorDash, Dropbox, eBay, Etsy, Expedia, Facebook, FanDuel, Google, Groupon, Handy, IAC, Intuit, LinkedIn, Lyft, Monster Worldwide, Netflix, Pandora, PayPal, Pinterest, Practice Fusion, Rackspace, reddit, Salesforce.com, Snapchat, Spotify, SurveyMonkey, Ten-X, TransferWise, TripAdvisor, Turo, Twitter, Uber Technologies, Inc., Yahoo!, Yelp, Zenefits, and Zynga.

² Trabulsi, Andrew. "The Future of Artificial Intelligence," Institute for the Future, via Quid, June 2015. These figures exclude M&A activity in the AI space.



- Third, while AI deployment and use is not without risk, this risk is manageable and there are demonstrable economic and non-economic benefits associated with AI. Thoughtful public policy demands a careful weighing of these benefits against perceived risks so that the benefits can be fully realized.

1. Existing Policy Frameworks Can Adapt to Artificial Intelligence

Before delving into policy specifics, the IA submits that it is advisable for policymakers to draw parameters around what artificial intelligence is and is not since this is an open debate that may trigger fearful policy responses where they are not needed.

For Internet Association members, AI refers to the engineering discipline that aims to create intelligent machines that work and react like humans.³ Differently stated, AI is computational systems and devices made to act in a manner that can be deemed intelligent. Machine learning refers to an aspect of artificial intelligence that focuses on making predictions from a set of examples. Related to this, robotics are autonomous mechanical systems that sometimes incorporate techniques of artificial intelligence or machine learning.

Artificial intelligence is *not* a science fiction technology. AI has been around for several decades and has developed at a steady but relatively slow pace compared to other technologies from which it can be benchmarked, including broadband internet and mobile telephony. To illustrate this point, in 1966 the Register of Copyrights identified computer authorship as one of the three “major problems” facing the Copyright Office. In fact, the register flagged this as a “crucial question” in his annual report that year⁴ and yet it remains an open question to this day. This 50-year old anecdote suggests that knee jerk policy reactions to AI are neither needed nor advisable.

Against this backdrop, the Internet Association submits that although AI may raise some interesting public policy questions, they are not necessarily new and existing policy frameworks can adapt to it in an orderly and timely way. Furthermore, U.S. policymakers have a proven track record in this regard. A leading example of this flexibility in practice is the so-called ‘common law of privacy’ developed by the Federal Trade Commission over the past twenty years. The FTC has used its framework common law statute to develop case law and policy guidance to industry in the areas of privacy and data security. As new technologies have emerged, the FTC’s common law approach has been applied to them in a relatively seamless way. These diverse technologies include mobile payments, the Internet of Things, and RFID. There is little reason to think why the same framework could not also successfully be adapted to AI.

2. Government’s Role in Fostering Artificial Intelligence

The U.S. government can and will play an important role in fostering AI technology both at home and abroad. This role ranges between practical policies such as support for STEM education at home and engaging in sophisticated economic diplomacy abroad.

³ Miller, Stephen. “Computer Scientist Coined ‘Artificial Intelligence’, WSJ 26. Oct 2011.

⁴ REGISTER OF COPYRIGHTS, SIXTY-EIGHTH ANNUAL REP. OF THE REGISTER OF COPYRIGHTS (1966).



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The Internet Association fully acknowledges that government plays an important role in research and development of new technologies. After all, the internet itself would not exist had DARPA and the NSF not invested in their early stage research decades ago. Similarly, the government can also play a pivotal role in AI research and development.

A key variable in this research function, for both the public and private sectors, will be ensuring that personnel engaging in it are diverse and come from a variety of socio-economic backgrounds. Unfortunately, these personnel do not currently exist due to a lack of investment in STEM education. Currently, fewer than one in five high school students has ever taken a computer science course—a figure that has fallen by 24 percent over the past two decades⁵—and only 7 percent of high schools offer the Advanced Placement course in Computer Science.⁶ Government can play an important role in remedying this STEM education diversity gap by promoting expanded access to computer science education through programs such as the Computer Science for All Initiative for K-12 students and the Tech Inclusion Initiative. These programs will create a diverse talent pipeline for all research, including in the AI field.

Within government itself, AI deployment can play a role in strengthening e-government, making government more efficient and responsive to citizens. The Internet Association supports efforts like the U.S. Digital Service that seek to build technical capacity within government across agencies, including increased deployment of machine learning where applicable.

Finally, government continues to play a significant role in promoting and protecting U.S. technology interests abroad. Like the internet, AI is the product of international collaborative research and it is important that this approach is followed as AI technologies leave the research lab and enter the global economy. Internet governance works best when international governance forums are multistakeholder in nature. The same logic should apply to AI governance. It is also important that the U.S. leverage its diplomatic network in support of pro-innovation legal regimes overseas in fields such as standard setting and copyright as they relate to AI. A prototype for this role already exists in the recently announced digital attaché program created at the International Trade Administration within the Department of Commerce.

3. AI's Benefits and Risks Require Careful Balancing

While AI deployment and use is not without risk, there are demonstrable benefits – both economic and non-economic - associated with it. Thoughtful public policy in this space demands a careful weighing of these benefits against perceived risks so that the benefits can be fully realized.

The economic impact from AI deployment will be both direct GDP growth from industries developing and selling AI technologies and also indirect GDP growth as other industries adopt AI technologies and realize the productivity gains associated with it. In 2016, the Analysis Group estimates this economic impact to range between \$1.49 trillion and \$2.95 trillion globally over the

⁵ “The Nation’s Report Card,” Washington, D.C.: The National Center for Education Statistics, Institute of Education Sciences, U.S. Department of Education, 2011.

⁶ National Center for Education Statistics, “Table 91: Number of public school districts and public and private elementary and secondary schools: Selected years, 1869-70 through 2009 -10” (2011).



next ten years.⁷ Even the conservative end of this range would suggest that AI's economic benefits are likely to be significant. Also included in AI's economic benefits is the consumer surplus that the technology creates as it lowers search and transaction costs for consumers through applications such as eBay's personalized shopping experience. As explained by eBay's CEO Devin Wenig in a recent blog, by using AI technology eBay is working "to help improve shipping and delivery times, trust, pricing, and more" for eBay's customers.⁸

Beyond this direct economic impact headline, it is important also to pause to consider the beneficial uses that AI will be put to before weighing its risks. Beneficial potential applications for machine learning that automates analytical modeling include detecting molecular structures in vast amounts of biological data that is predictive of certain diseases and protecting against consumer fraud. Applications for machine vision already include providing object descriptions for the blind and car safety systems that detect pedestrians and cyclists. These applications create health and safety benefits for society overall.

As with these benefits, analysis of the risk associated with AI should be grounded in rigorous research that is supported by empiricism to the fullest extent possible. One risk already under the spotlight is the extent to which AI machine learning may produce suboptimal results when the data upon which it based its analysis is incomplete and therefore skewed against underrepresented demographics. The FTC flagged these concerns in the consumer arena when it counseled in its Big Data report to consider "whether data sets are missing information about certain populations, and take steps to address issues of underrepresentation and overrepresentation."⁹ Related to this, the agency counseled companies "to consider whether biases are being incorporated at both the collection and analytics stages of big data's life cycle."¹⁰

In order for all demographics to realize the benefits of AI (and for possible regulatory scrutiny to be avoided) these data gaps will need to be addressed. The Gates Foundation recently announced an investment of \$80 million¹¹ to help foster increased data collection for women in developing countries, a demographic that is sorely underrepresented. These data will be used to improve health and economic opportunity outcomes for girls and women since, according to Melinda Gates, "closing the gender gap means closing the data gap." Government could also play a role in this context by overseeing the release of robust and high quality datasets to responsible actors engaged in AI research.

⁷ Global Economic Impacts Associated with Artificial Intelligence, at 2, Analysis Group, Inc. (2016).

⁸ Artificial Intelligence: Applying Deep Science to Everyday Commerce, Devin Wenig, eBay President & CEO, May 25, 2016, <https://www.ebayinc.com/stories/news/artificial-intelligence-applying-deep-science-to-everyday-commerce/>

⁹ Big Data, A Tool for Inclusion or Exclusion, Understanding the Issues, Federal Trade Commission, January 2016.

¹⁰ *Id.*

¹¹ To Close the Gender Gap, We Have to Close the Data Gap, Melinda Gates via Medium, May 17, 2016. <https://medium.com/@melindagates/to-close-the-gender-gap-we-have-to-close-the-data-gap-e6a36a242657#.7j1dimwnw>



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Conclusion

The Internet Association thanks the White House OSTP for shining a timely spotlight on AI and its future in our society. Our members share your interest and look forward to continued dialog with OSTP as AI technology moves forward and realizes its long-promised potential.

Respectfully submitted,

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