

OVERVIEW OF ADMINISTRATION ACTIVITIES IN ARTIFICIAL INTELLIGENCE

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Assistant Director for Artificial Intelligence
Office of Science and Technology Policy
The White House



AI: an Administration Perspective

This Administration is committed to continued U.S. leadership in AI and ensuring AI benefits the American people and reflects American values.

*“**We’re on the verge of new technological revolutions** that could improve virtually every aspect of our lives, create vast new wealth for American workers and families, and open up bold, new frontiers in science, medicine, and communication.”*

- President Donald J. Trump

*“**Artificial intelligence holds tremendous potential as a tool to empower the American worker, drive growth in American industry, and improve the lives of the American people.** Our free market approach to scientific discovery harnesses the combined strengths of government, industry, and academia, and uniquely positions us to leverage this technology for the betterment of our great nation.”*

- Michael Kratsios, Deputy Assistant to the President for Technology Policy



President's Executive Order: Maintaining American Leadership in Artificial Intelligence

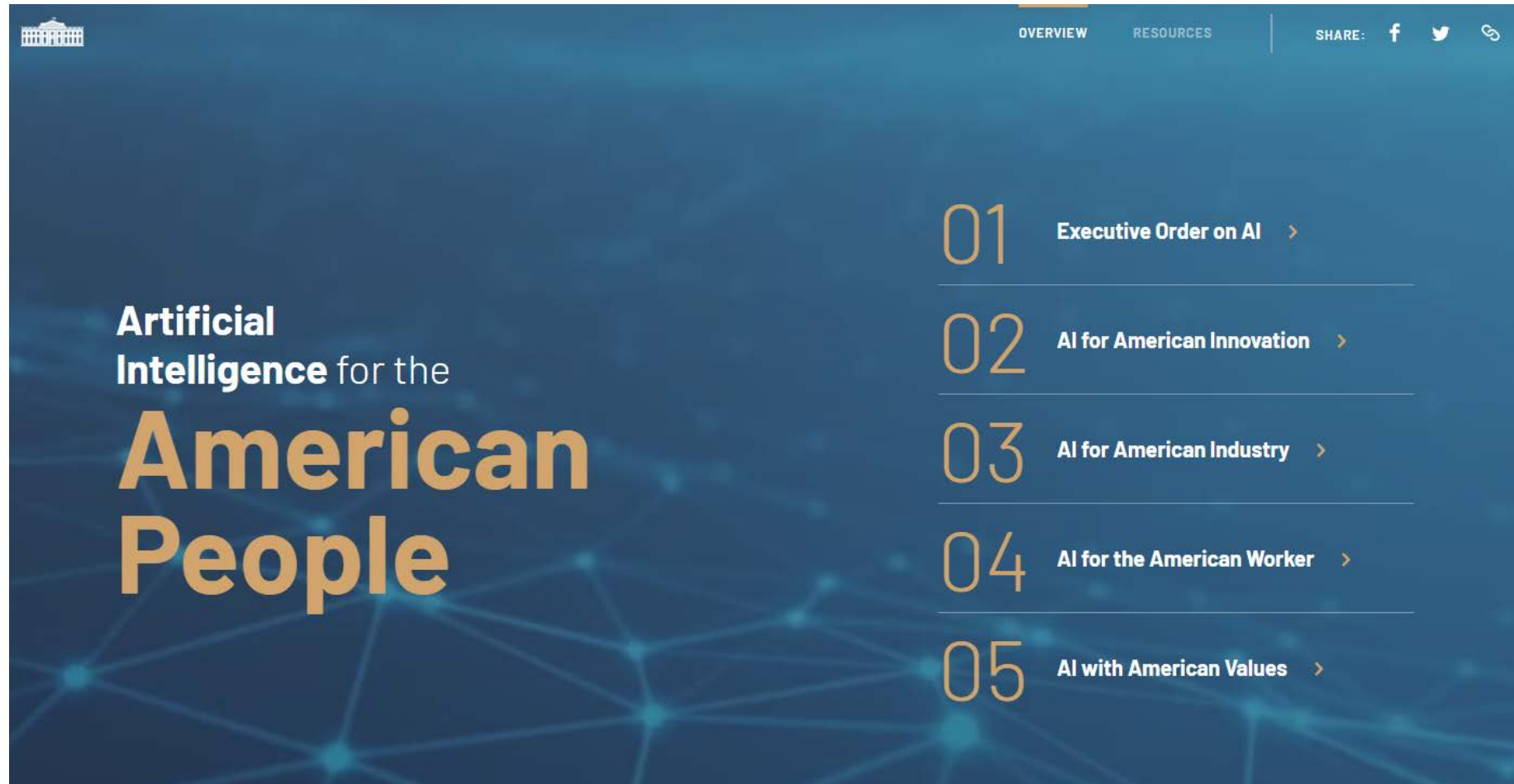
- Establishes the *American AI Initiative* to promote and protect national AI technology and innovation
- Multipronged approach:
 - Prioritizing sustained AI R&D
 - Enhancing access to high-quality data and cyberinfrastructure
 - Removing regulatory barriers
 - Ensuring leadership in technical standards
 - Providing education & training
 - Developing action plan to protect technological advantage in AI



Feb. 11, 2019



AI.gov – “All of government” portal for Federal AI activities



The screenshot shows the homepage of the AI.gov portal. The background is a dark blue with a network of glowing nodes and lines. In the top left corner, there is a small white icon of the White House. In the top right corner, there are navigation links for "OVERVIEW" and "RESOURCES", and a "SHARE:" section with icons for Facebook, Twitter, and LinkedIn. The main content area features the text "Artificial Intelligence for the American People" in white and orange. To the right of this text is a vertical list of five numbered items, each with a right-pointing chevron:

- 01 Executive Order on AI >
- 02 AI for American Innovation >
- 03 AI for American Industry >
- 04 AI for the American Worker >
- 05 AI with American Values >



AI for the American People

Prioritize AI R&D

Grow and sustain American research leadership and capacity

Prioritize AI R&D

Lead International AI Deliberations

Lead international AI deliberations

Work with like-minded partners to recognize potential benefits of AI and promote AI R&D

Remove barriers to innovation

Modernize governance for AI-powered technologies

Remove Barriers to Innovation

Maintain U.S. Leadership in AI

Leverage AI for Government Services

Leverage AI for government

Apply AI to improve provision of government services

Ensure AI-Ready Workforce

Provide AI-ready education at all levels: K-12, college, re-training, re-skilling, R&D workforce

Ensure AI-Ready Workforce

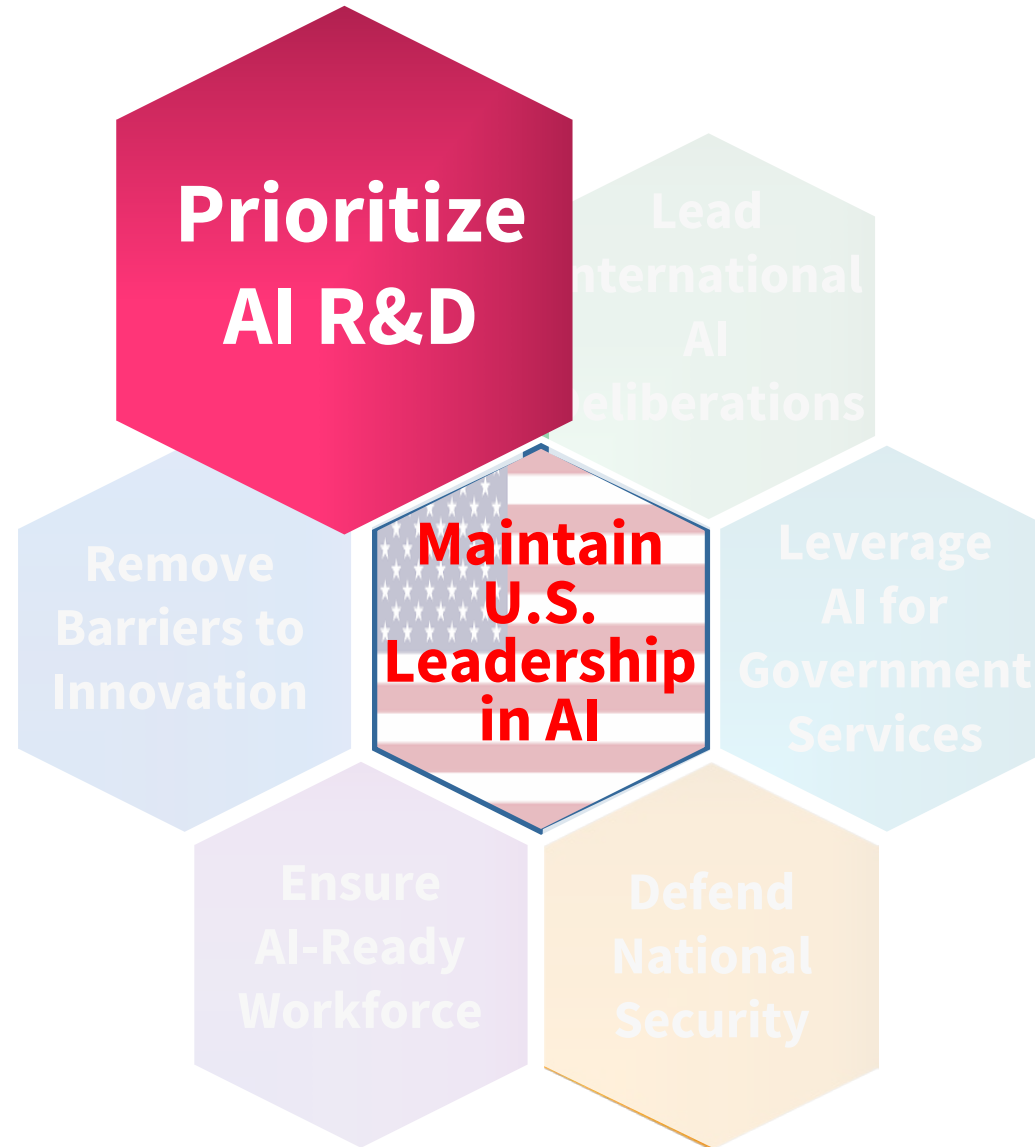
Defend National Security

Defend national security

Lead in responsible use of AI to ensure continued national security



AI for the American People




Prioritizing Funding for AI R&D

The Federal Government serves a critical role in supporting long-term fundamental R&D that drives future technological breakthroughs.



MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: MICK MULVANEY 
DIRECTOR, OFFICE OF MANAGEMENT AND BUDGET

MICHAEL KRATSIOS 
DEPUTY ASSISTANT TO THE PRESIDENT
OFFICE OF SCIENCE AND TECHNOLOGY POLICY

SUBJECT: FY 2019 Administration Research and Development Budget Priorities

FY 2019 R&D Budget Priorities memo

“autonomous systems, ... machine learning, and quantum computing coordinated interagency initiatives, ... STEM education, including computer science education ”

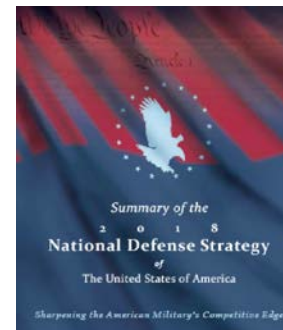
NATIONAL SECURITY
STRATEGY
of the United States of America

DECEMBER 2017



National Security Strategy

“prioritize emerging technologies critical to economic growth and security, such as data science, encryption, autonomous technologies,... advanced computing technologies, and artificial intelligence. “



National Defense Strategy

“.. invest broadly in military application of autonomy, artificial intelligence, and machine learning, including rapid application of commercial breakthroughs.”



Coordinating Federal AI R&D

Select Committee on AI:

- Most senior Federal R&D leadership
- Advises White House on interagency AI R&D priorities
- Identifies opportunities to improve coordination of AI R&D, including ways to leverage Federal resources

Machine Learning and AI Subcommittee:

- Senior Federal leaders with AI R&D budget authority
- Operational and implementation arm of Select Committee

AI Interagency Working Group:

- AI experts across Federal agencies
- Community of practice

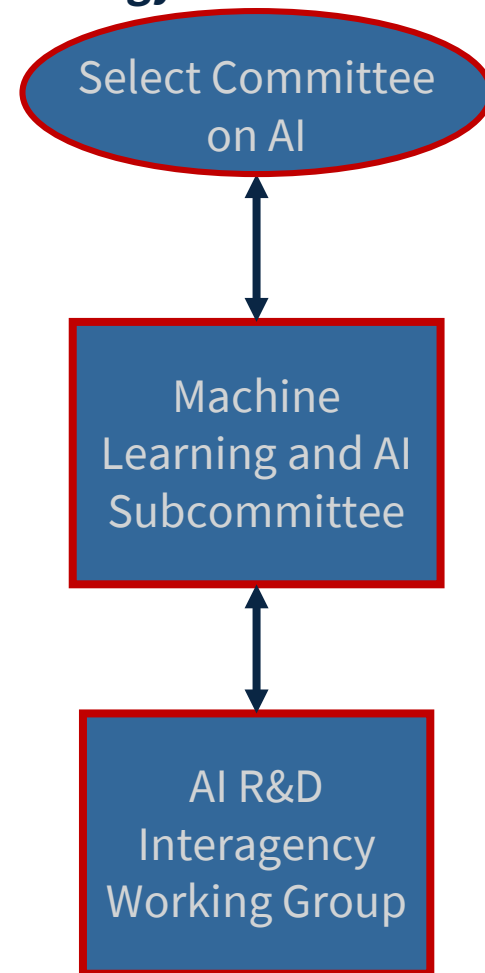


White House Office of Science and Technology Policy

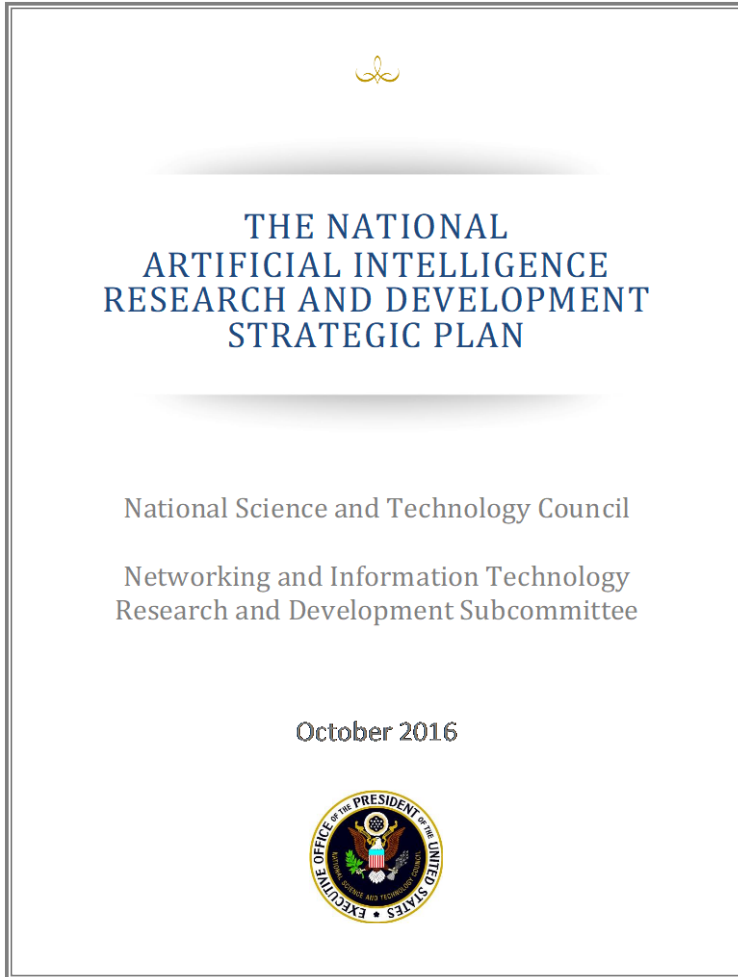
National Science and Technology Council



Select Committee on AI
November, 2018



Guiding R&D Investments: *National AI R&D Strategic Plan*



In process: 2019 update to the National AI R&D Strategic Plan (2016), to ensure that the U.S. continues to lead in cutting edge AI innovations.



Accelerating Access to AI Infrastructure

Data: NSF's "Big Idea":
Harnessing the Data Revolution

Engage research community in:

- Advancing fundamental data-centric research and data-driven domain discoveries
- Building data infrastructure for research
- Developing 21st-century data-capable workforce



Cyberinfrastructure for AI:



ORNL's Summit supercomputer – June 2018

- Designed to advance science and AI research in AI
- Over 27,000 NVIDIA GPUs, plus IBM's Power9 chips designed for AI

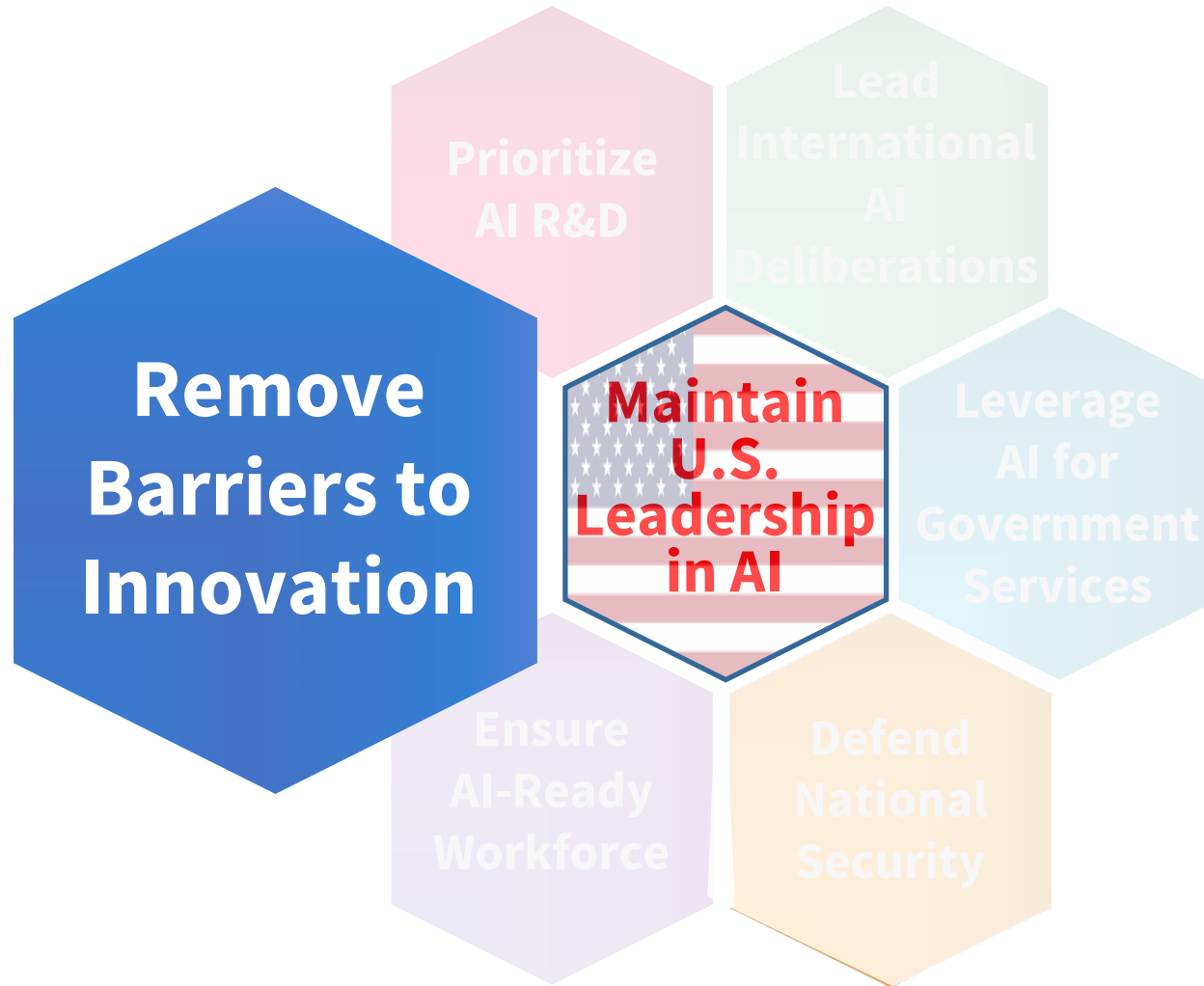
Other AI hardware of interest: neuromorphic computing, hardware accelerators for ML, embedded systems, parallel architectures, ¹⁰¹⁰

Key Messages:

- 1) AI R&D funding must be (and is) prioritized by the Administration.
- 2) We must accelerate development of enabling infrastructure for complete AI systems.

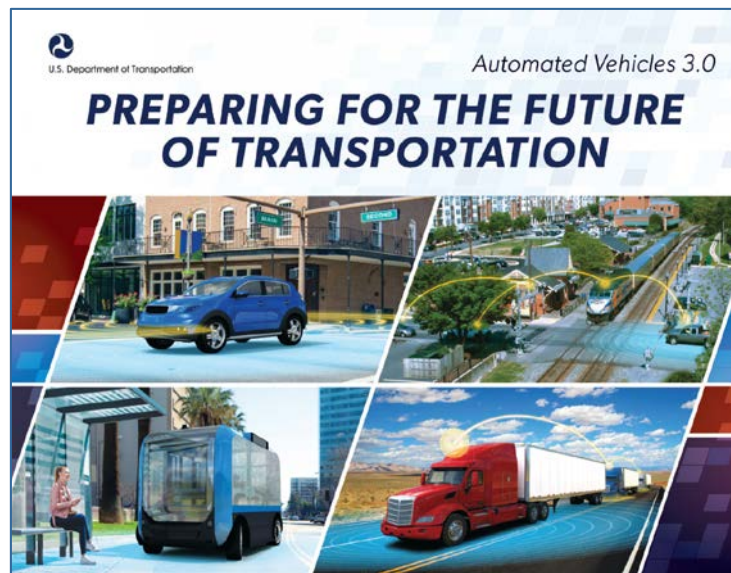


AI for the American People



Removing Barriers to AI Innovation

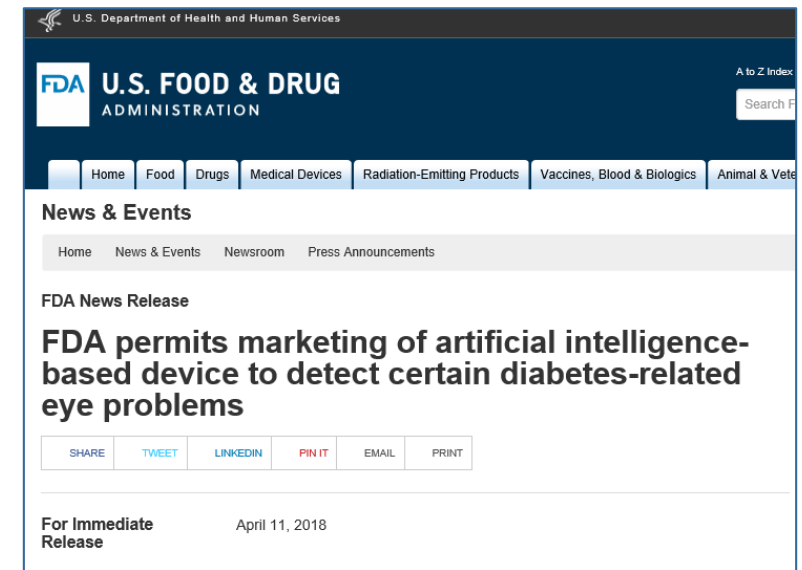
Government regulations must be modernized for AI – supportive of innovation while maintaining civil liberties, privacy, and American values.



DOT policy for Automated Vehicles
Oct. 2018



FAA Pilot program for drones
Oct. 2017



FDA permitting AI-based medical tool
April 2018



Creating AI Guidance for Federal Agencies

- American AI Initiative directs OMB/OIRA (with OSTP and others) to issue memo to heads of all agencies that:
 - Informs development of regulatory and non-regulatory approaches to AI
 - Considers ways to reduce barriers to the use of AI to promote their innovative uses while protecting civil liberties, privacy, American values, and U.S. economic and national security
- Draft version of memo will be published for public comment



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AI for the American People



Educating and Training AI-Ready Workforce

AI promises great benefits for workers, with the potential to improve safety, increase productivity, and create new industries of the future.

However, our Nation urgently needs workers who are skilled in STEM.

Increasing Access to STEM+C

- Sept '17 PM calls Dept. of Educ. to devote \$200M to STEM+C education
- Industry also committed \$300M



Creation of National Council for American Worker

- July '18 EO establishes Council to address workforce changes caused by AI and automation



R&D to Address Workforce Impacts of AI

- AI technologies offer many potential benefits:
 - creation of new industries and occupations
 - increased opportunities for innovation
 - increased productivity
- However, AI technologies are changing the nature of work, and have caused some concerns:
 - Possibility of lost jobs
 - Mismatch between available occupations and skills of the workforce
- NSF R&D: *The Future of Work at the Human-Technology Frontier*:
 - Increase understanding of human-technology partnership and emerging socio-technological landscape
 - Create new technologies to augment human performance
 - Foster lifelong and pervasive learning with technology.



NSF's Big Idea on Future of Work at the Human-Technology Frontier



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AI for the American People



AI for National Security and Defense

DoD Established Joint AI Center (JAIC)

- Focal point in use of AI for defense missions
- Accelerating delivery of AI-enabled capabilities from lab to application
- Synchronizing DoD's AI activities



DEPUTY SECRETARY OF DEFENSE
1010 DEFENSE PENTAGON
WASHINGTON, DC 20301-1010

JUN 27 2018

SUBJECT: Establishment of the Joint Artificial Intelligence Center

The 2018 National Defense Strategy (NDS) foresees that ongoing advances in artificial intelligence (AI) “will change society and, ultimately, the character of war.” To preserve and expand our military advantage and enable business reform, we must pursue AI applications with boldness and alacrity while ensuring strong commitment to military ethics and AI safety. A new approach is required to increase the speed and agility with which we deliver AI-enabled capabilities and adapt our way of fighting.

Establishing DoD's AI principles

- Defense Innovation Board is engaging with stakeholders to inform development of principles for ethical use of AI
- DoD's AI principles will demonstrate DoD's commitment to use AI responsibly and ensure the protection of civil liberties and the rule of law

DARPA investing in “3rd wave” AI

- \$2B AI Next Campaign
- Focus is on robust, secure, safe, explainable AI

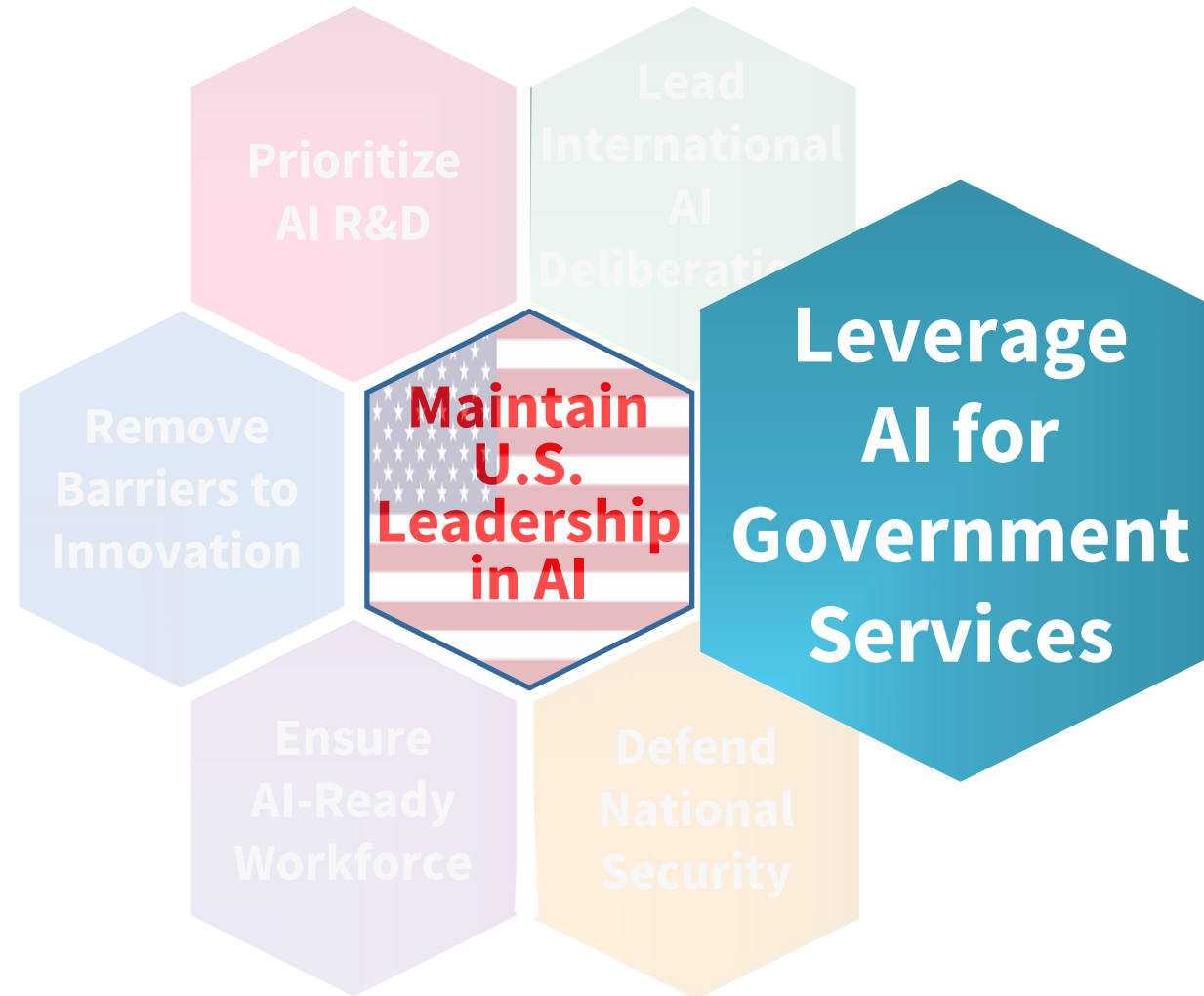


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- 5) We must accelerate the adoption of AI for national defense and security, while also ensuring responsible use of AI.



AI for the American People

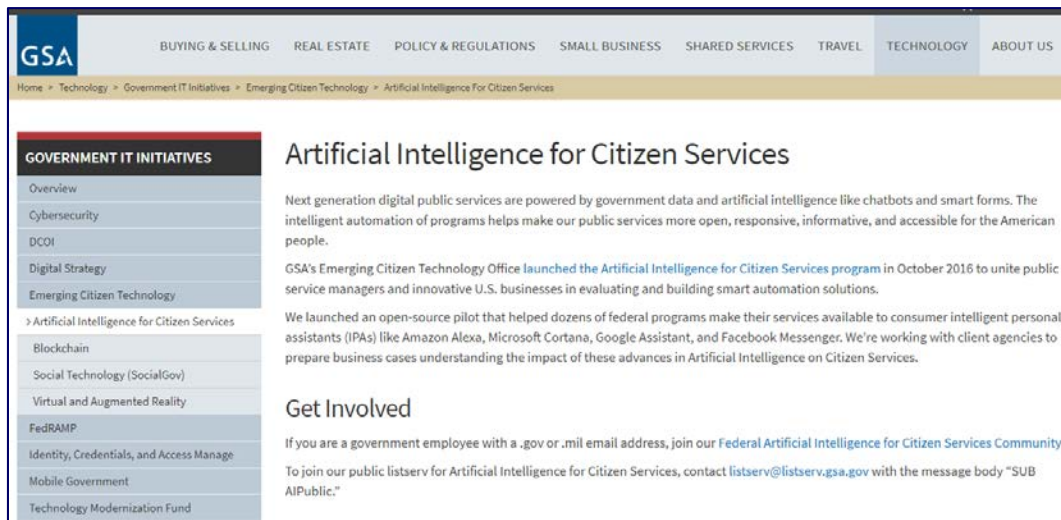


Leverage AI for Government Services

Accelerate effective use of AI for improved government services.

GSA helping government use AI

- Emerging Citizen Technology Office is exploring several pilots to help use AI tools for providing Federal services



The screenshot shows the GSA website's navigation menu with categories like BUYING & SELLING, REAL ESTATE, POLICY & REGULATIONS, SMALL BUSINESS, SHARED SERVICES, TRAVEL, TECHNOLOGY, and ABOUT US. The breadcrumb trail reads: Home > Technology > Government IT Initiatives > Emerging Citizen Technology > Artificial Intelligence for Citizen Services. The main content area is titled 'Artificial Intelligence for Citizen Services' and includes an overview, a description of the program, and a 'Get Involved' section with contact information for the public listserv.

Federal Data Strategy: Using Data as a Strategic Asset

- Developing a coordinated and integrated approach to the use of data
- Federal Data Strategy will define principles, practices, and action plan for Federal data stewardship, use, and access

<https://strategy.data.gov/>



Federal Data Strategy
Leveraging Data as a Strategic Asset

Key Messages:

- 1) The United States must strengthen and leverage our unique and vibrant American R&D and innovation ecosystem.
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- 7) Federal government should use AI to improve the provision of government services.



AI for the American People



Lead International AI Deliberations

The U.S. promotes an international environment supportive of American AI innovation, with a focus on fostering trust and adoption.

USG engages internationally on AI

- Many venues are discussing issues of AI
- USG actively engages to develop approaches for AI innovation that lead to economic growth, while also protecting American values



G7 Innovation Ministers' Statement on AI (2018)



- **Supporting economic growth from AI innovation**
 - Using AI applications to help improve economic performance.
- **Increasing trust in and adoption of AI**
 - Necessary ingredients for economic growth and the fuel for future innovations
- **Promoting inclusivity in AI development and deployment**
 - Critical to ensuring broad public support for AI adoption and ensuring all members of society can benefit from this technology.

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- 6) Federal government should use AI to improve the provision of government services.
- 7) **The United States must engage with like-minded international partners to realize the full potential of AI and address key challenges.**



Summary of Key Messages:

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