U.S. ADMINISTRATION ACTIVITIES IN ARTIFICIAL INTELLIGENCE
+*QUANTUM*
+*STRATEGIC COMPUTING*

Lynne Parker, Ph.D.

Deputy United States Chief Technology Officer
The White House

We're in an era of AI, which presents tremendous opportunities

AI-enabled breakthroughs in:

- Improved healthcare
- Safer and more efficient transportation
- Personalized education
- Scientific discoveries
- Advanced manufacturing
- Increased agricultural crop yields
- Better weather forecasting
- and much more

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

Establishes the *American AI Initiative* – our Nation's AI strategy to promote and protect AI technology and innovation, for:
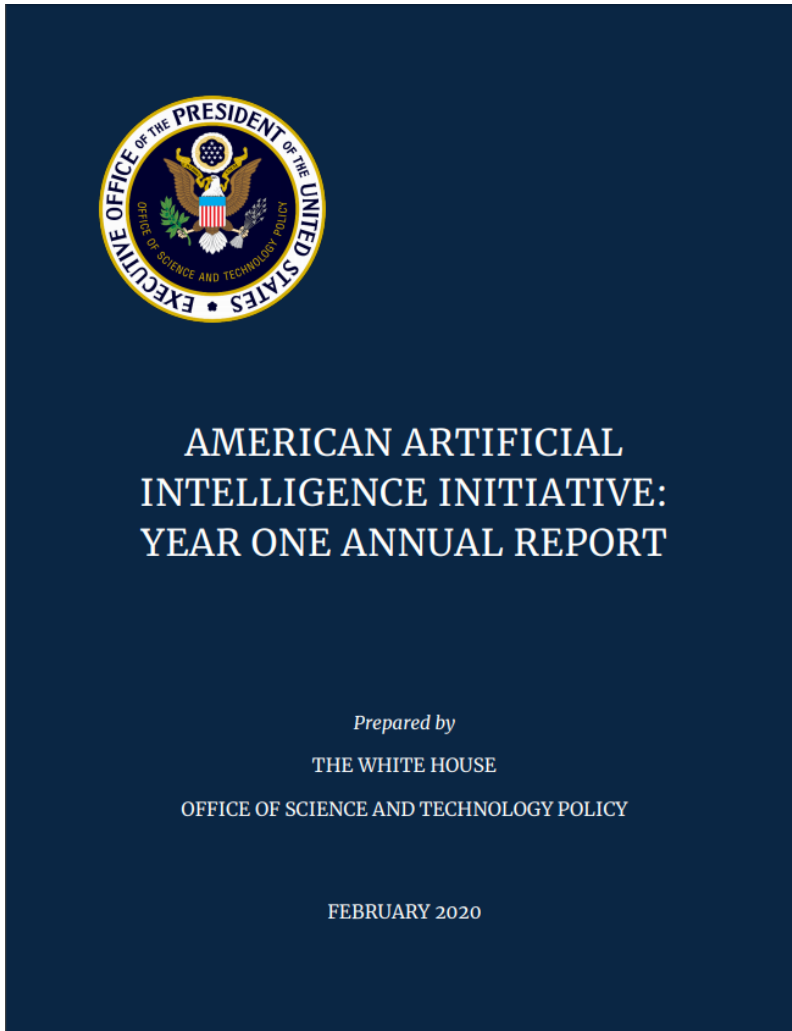
- growing our economy;

- enhancing national security; and

- improving quality of life.

Feb. 11, 2019

Just released (Feb 2020):
American AI Initiative: Year One Annual Report

AMERICAN ARTIFICIAL
INTELLIGENCE INITIATIVE:
YEAR ONE ANNUAL REPORT

Prepared by

THE WHITE HOUSE

OFFICE OF SCIENCE AND TECHNOLOGY POLICY

FEBRUARY 2020

This document:

- Reviews the strategic objectives of the American AI Initiative

- Describes the United States' substantial progress on implementing the strategy over the first year.

- Outlines the six main thrusts of the strategy, as well as Federal progress to date in these areas.

Available on AI.gov

American AI Initiative: Year One Annual Report

Timeline of U.S. government actions to advance the American AI Initiative

Timeline of U.S. Government Actions to Advance the American AI Initiative
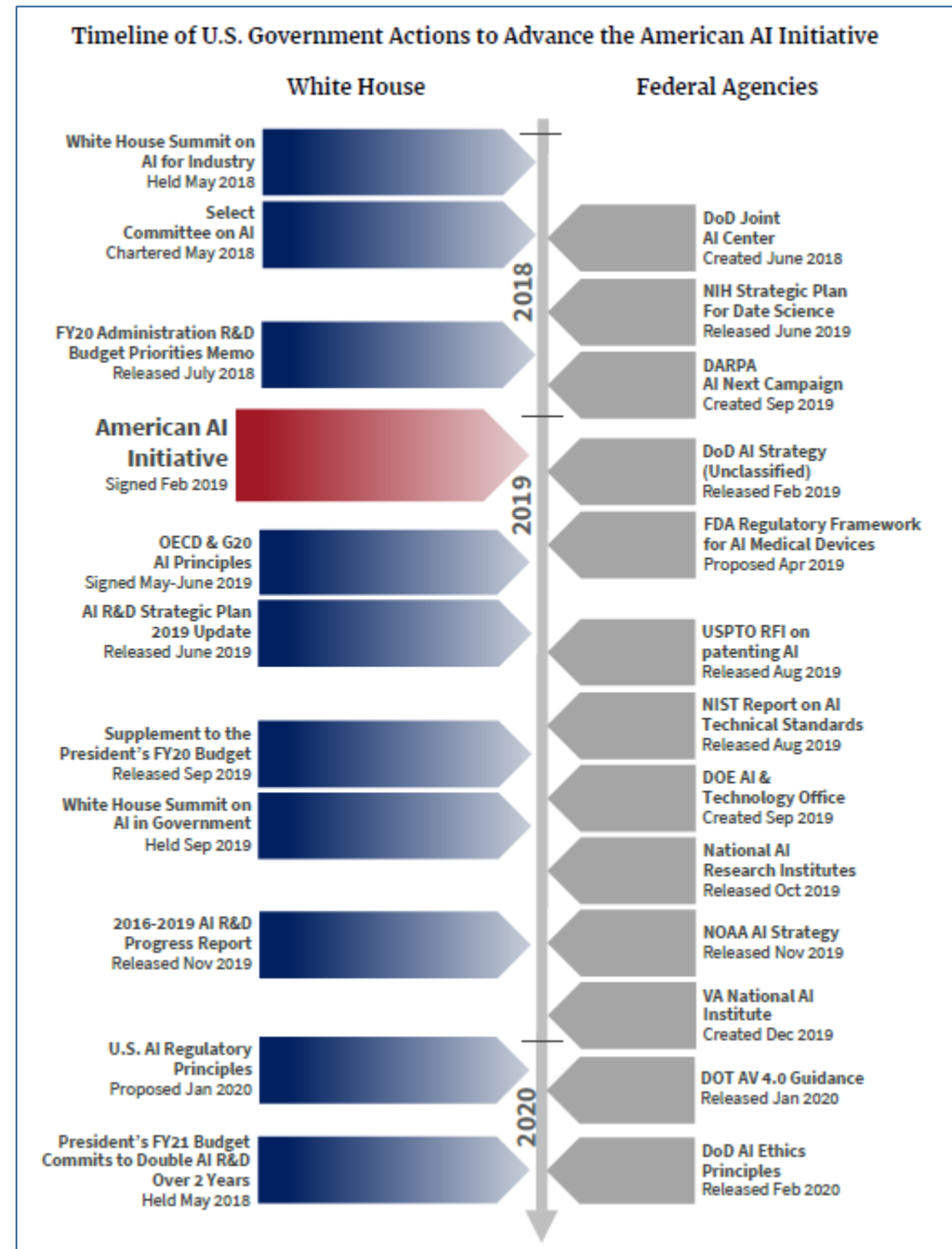
Key principles of the AI Executive Order

(paraphrased for brevity)

1) **Drive technological breakthroughs** in AI to promote scientific discovery, economic competitiveness, and national security.

2) **Drive development of appropriate technical standards** and **reduce barriers** to the safe testing and deployment of AI technologies to enable creation of new AI-related industries and adoption of AI by today's industries.

3) **Train current and future generations of workers** with skills to develop and apply AI technologies to prepare them for today's economy and jobs of the future.

4) **Foster public trust and confidence** in AI technologies and protect civil liberties, privacy, and values in their application, to fully realize the potential of AI technologies for the American people.

5) **Promote international environment supportive** of American AI research and innovation and opens markets for American AI industries

AI for the American People

Prioritize AI R&D
Grow and sustain American research leadership and capacity

Unleash AI resources
Enhance access to high quality data, models, and computing resources

Remove barriers to AI innovation
Modernize governance and technical standards for AI-powered technologies

Leverage AI for government
Apply AI to improve provision of government services

Promote international environment for American AI
Promote global environment supportive of American AI innovation, while protecting strategic advantage
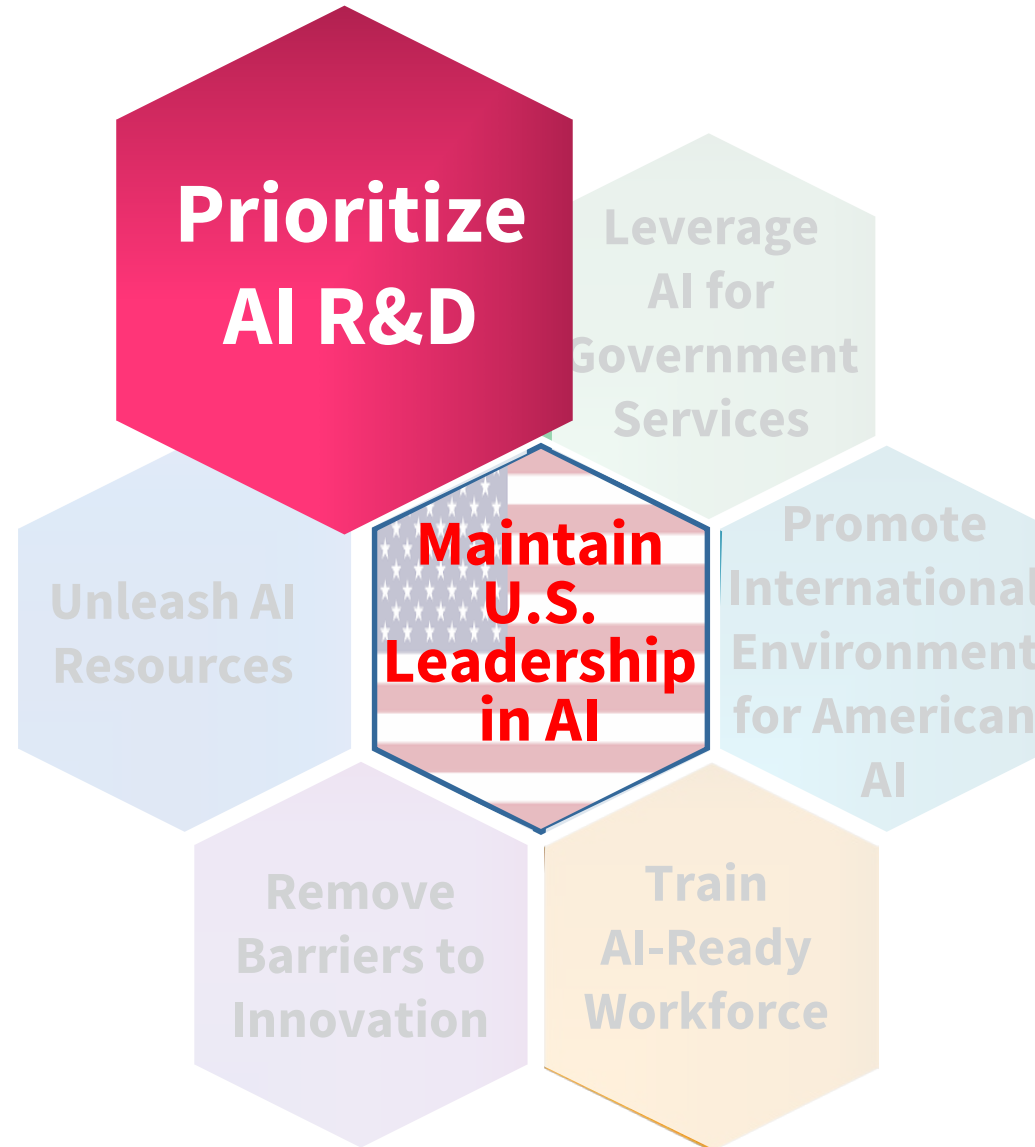
Train AI-Ready Workforce
Provide AI-ready education at all levels: K-12, college, re-training, re-skilling, R&D workforce

Prioritize AI R&D

Leverage AI for Government Services

Unleash AI Resources

Maintain U.S. Leadership in AI

Promote International Environment for American AI

Remove Barriers to Innovation

Train AI-Ready Workforce

AI for the American People

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AI EO: 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:

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MEMORANDUM FOR THE HEADS OF EXECUTIVE DEPARTMENTS AND AGENCIES

FROM: RUSSELL T. VOUGHT
         ACTING DIRECTOR, OFFICE OF MANAGEMENT AND BUDGET

         DR. KELVIN K. DROEGEMEIER
         DIRECTOR, OFFICE OF SCIENCE AND TECHNOLOGY POLICY

SUBJECT: Fiscal Year 2021 Administration Research and Development Budget Priorities

FY 2019, FY 2020, FY 2021
R&D Budget Priorities memos all emphasize AI
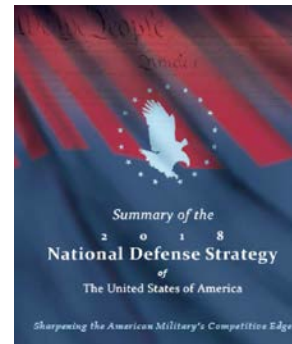"artificial intelligence, … machine learning, autonomous systems, applications at human-technology frontier…"

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. "

Summary of the
2018
National Defense Strategy
of
The United States of America

Sharpening the American Military's Competitive Edge

National Defense Strategy
".. invest broadly in military application of autonomy, artificial intelligence, and machine learning, including rapid application of commercial breakthroughs."

AI EO: 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.

From AI EO: "Heads of implementing agencies that also perform or fund R&D (AI R&D agencies), shall consider AI as an agency R&D priority, as appropriate to their respective agencies' missions, consistent with applicable law and in accordance with the Office of Management and Budget (OMB) and the Office of Science and Technology Policy (OSTP) R&D priorities memoranda. Heads of such agencies shall take this priority into account when developing budget proposals and planning for the use of funds in Fiscal Year 2020 and in future years. Heads of these agencies shall also consider appropriate administrative actions to increase focus on AI for 2019."

FY2020 Federal nondefense AI R&D Funding
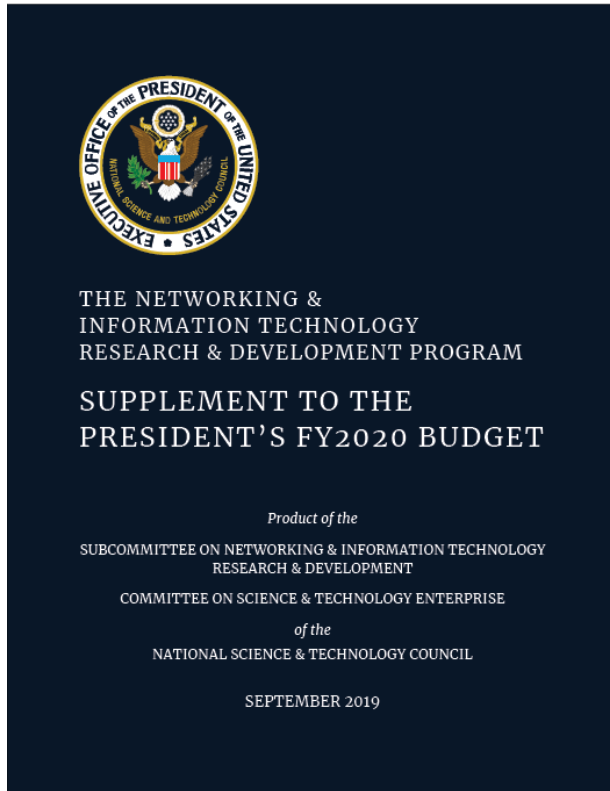
Released 9-Sept-2019:
NITRD Supplement to President's FY2020 Budget reports nearly $1B in nondefense AI R&D

FY2020 Budget:

- Leading nondefense AI R&D investments:
  - NSF ($488M)
  - NIH ($203M)
  - DOE ($162M)
- Additionally, DoD invests in:
  - DARPA ($409M)
  - JAIC ($268M)
  - Project Maven ($250M)
  - Many other DoD agencies and labs across Air Force, Army, Navy

President's FY2021 Federal Budget

- Commits to doubling R&D spending in nondefense AI in two years (by 2022).

- Includes a significant increase in nondefense AI R&D compared to the FY 2020 Budget:

  ➢ NSF's investments in AI R&D and interdisciplinary research institutes increased to more than $850M, representing a more than 70% increase over FY 2020 budget.

  ➢ DOE's Office of Science will invest $125M in AI research, a $54M increase over FY 2020.

  ➢ USDA will provide $100M for the Agriculture and Food Research Initiative competitive grants program to enhance application of advanced technology, including AI, in agricultural systems.

  ➢ NIH will invest $50M for new research on chronic diseases using AI and related approaches.

  ➢ DARPA is investing $459M in AI R&D, an increase of $50M from FY 2020, and DoD's Joint AI Center is increasing its budget from $242M in FY 2020 to $290M in FY 2021.

- Includes investments in education and job training that will help create a diverse and highly skilled American workforce:

  ➢ At NSF, an additional $50M will go towards AI and QIS workforce development, with a focus on community colleges, Historically Black Colleges and Universities, and Minority Serving Institutions.

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
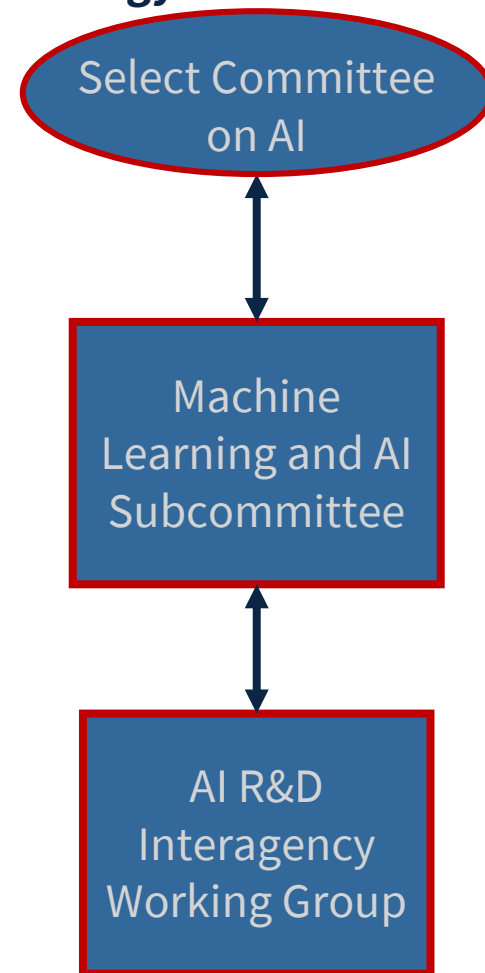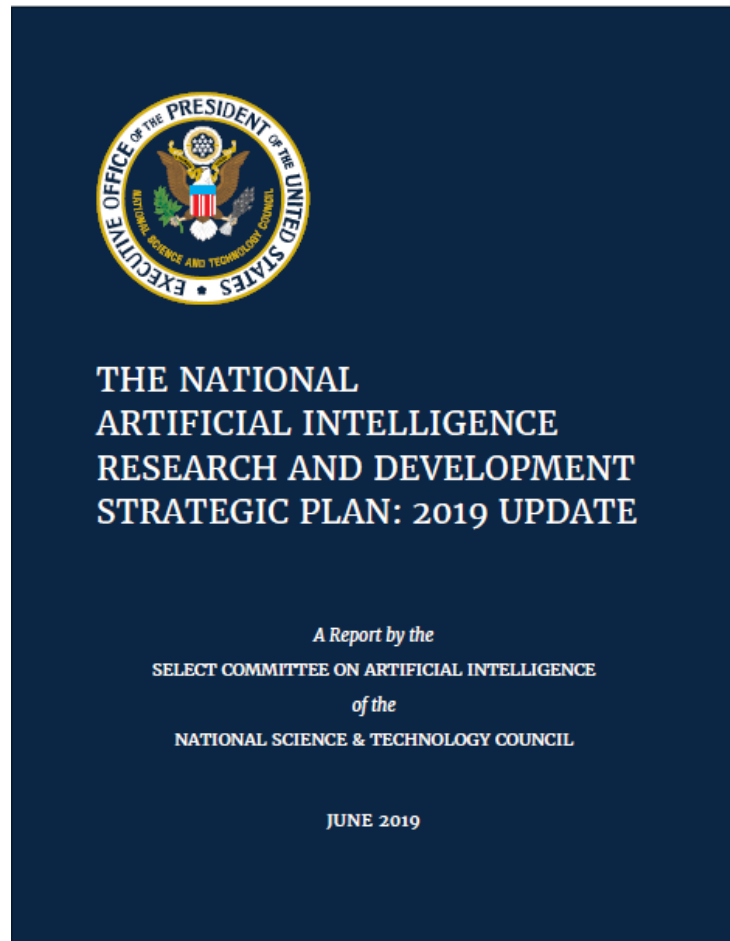
White House Office of Science and Technology Policy
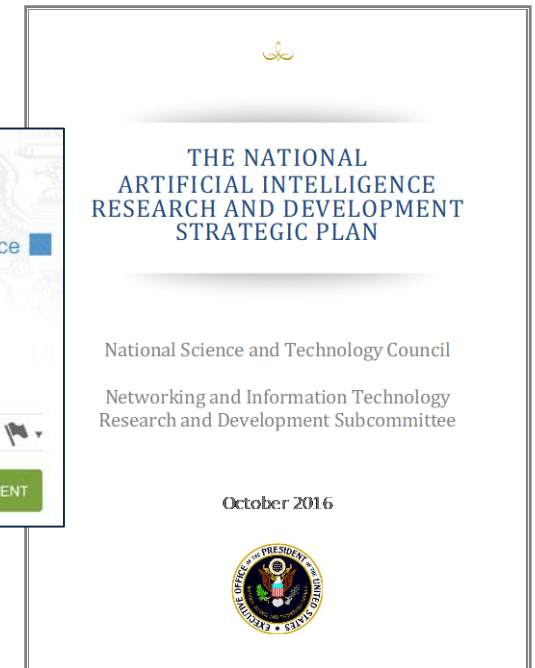
National Science and Technology Council

Select Committee on AI
November, 2018

Select Committee on AI

Machine Learning and AI Subcommittee

AI R&D Interagency Working Group

Guiding R&D Investments:
National AI R&D Strategic Plan: 2019 Update

- Incorporates feedback from Sept 2018 RFI
- Builds upon first version of the R&D SP (2016)

THE NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH AND DEVELOPMENT STRATEGIC PLAN: 2019 UPDATE

A Report by the
SELECT COMMITTEE ON ARTIFICIAL INTELLIGENCE
of the
NATIONAL SCIENCE & TECHNOLOGY COUNCIL

JUNE 2019

FEDERAL REGISTER
The Daily Journal of the United States Government

(N) Notice

Request for Information on Update to the 2016 National Artificial Intelligence Research and Development Strategic Plan

A Notice by the National Science Foundation on 09/26/2018

This document has a comment period that ends in 29 days. (10/26/2018)   SUBMIT A FORMAL COMMENT

THE NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH AND DEVELOPMENT STRATEGIC PLAN

National Science and Technology Council

Networking and Information Technology Research and Development Subcommittee

October 2016

Guiding Federal AI R&D Investments:
National AI R&D Strategic Plan: 2019 Update

- ***Strategy 1: Make long-term investments in AI research.*** Prioritize investments in the next generation of AI that will drive discovery and insight and enable the United States to remain a world leader in AI.

- ***Strategy 2: Develop effective methods for human-AI collaboration.*** Rather than replace humans, most AI systems will collaborate with humans to achieve optimal performance. Research is needed to create effective interactions between humans and AI systems.

- ***Strategy 3: Understand and address the ethical, legal, and societal implications of AI***. We expect AI technologies to behave according to the formal and informal norms to which we hold our fellow humans. Research is needed to understand the ethical, legal, and social implications of AI, and to develop methods for designing AI systems that align with ethical, legal, and societal goals.

- ***Strategy 4: Ensure the safety and security of AI systems.*** Before AI systems are in widespread use, assurance is needed that the systems will operate safely and securely, in a controlled, well-defined, and well-understood manner. Further progress in research is needed to address this challenge of creating AI systems that are reliable, dependable, and trustworthy.

THE NATIONAL
ARTIFICIAL INTELLIGENCE
RESEARCH AND DEVELOPMENT
STRATEGIC PLAN: 2019 UPDATE

A Report by the
SELECT COMMITTEE ON ARTIFICIAL INTELLIGENCE
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NATIONAL SCIENCE & TECHNOLOGY COUNCIL

JUNE 2019
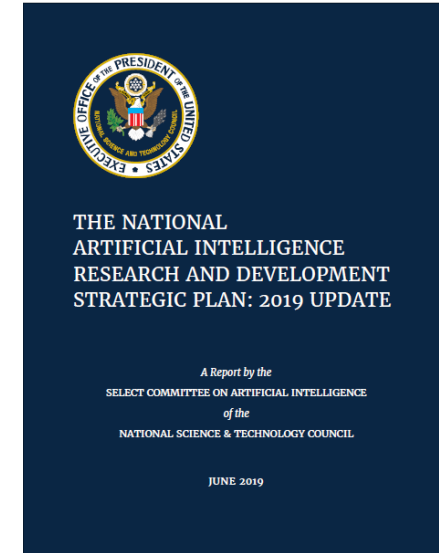
Guiding Federal AI R&D Investments:
National AI R&D Strategic Plan: 2019 Update

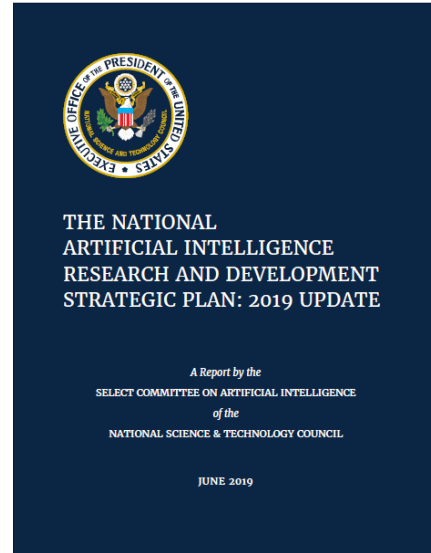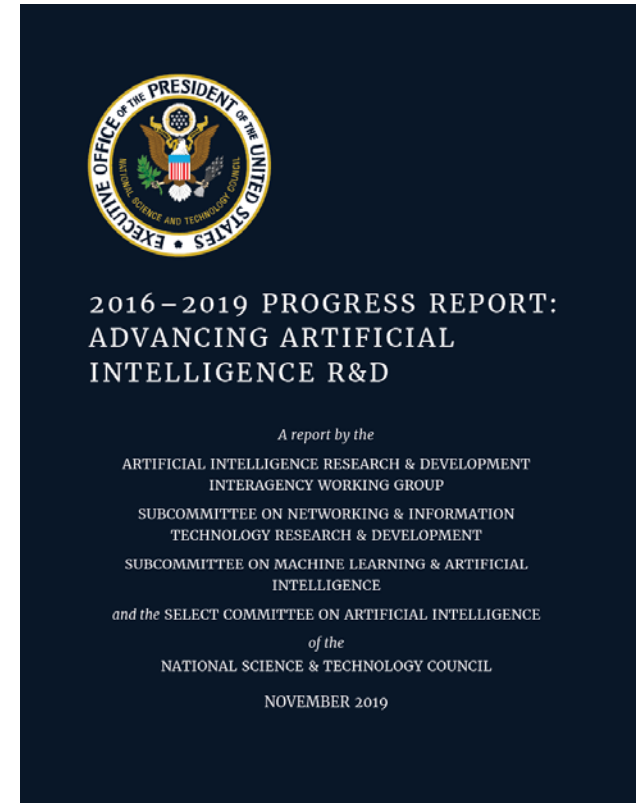- ***Strategy 5: Develop shared public datasets and environments for AI training and testing.*** The depth, quality, and accuracy of training datasets and resources significantly affect AI performance.

- ***Strategy 6: Measure and evaluate AI technologies through standards and benchmarks.*** Research and community engagement is needed to develop a broad spectrum of evaluative techniques, including AI standards, benchmarks, and testbeds.

- ***Strategy 7: Better understand the national AI R&D workforce needs.*** Advances in AI will require a strong community of AI researchers. An improved understanding of current and future R&D workforce demands in AI is needed to help ensure that sufficient AI experts are available to address the strategic R&D areas outlined in this plan.

- ***Strategy 8: Expand Public-Private Partnerships to Accelerate Advances in AI.*** Increased emphasis on benefits of partnerships, including strategically leveraging resources (e.g., facilities, datasets, and expertise), accelerating transition of innovations to practice, and enhancing education and training.

THE NATIONAL ARTIFICIAL INTELLIGENCE RESEARCH AND DEVELOPMENT STRATEGIC PLAN: 2019 UPDATE

A Report by the
SELECT COMMITTEE ON ARTIFICIAL INTELLIGENCE
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NATIONAL SCIENCE & TECHNOLOGY COUNCIL

JUNE 2019

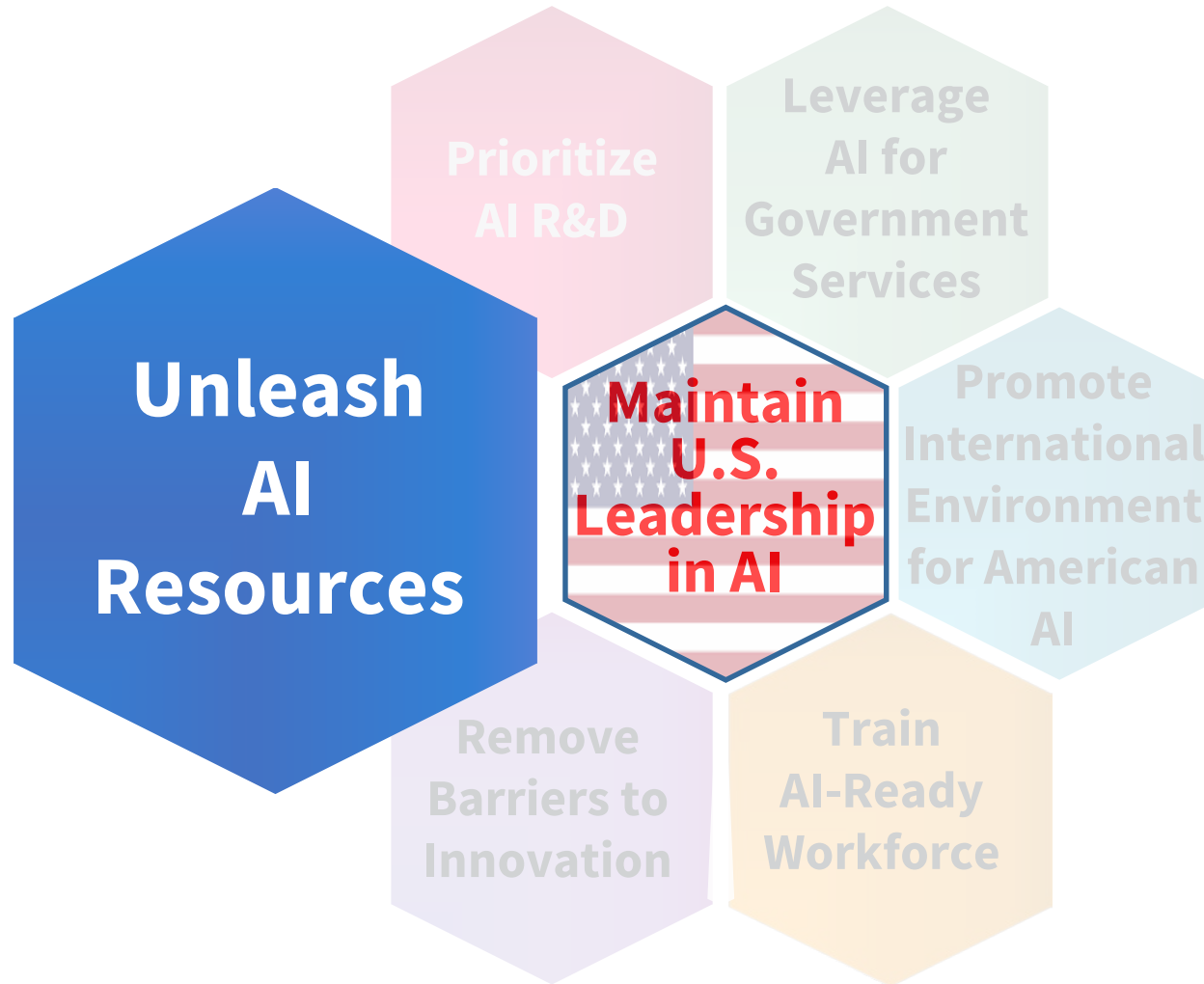# Federal R&D investments advance AI capabilities: Key messages

- Federal government invests in considerable breadth and depth of innovative AI concepts that are transforming state of the field.

- The U.S. benefits significantly from broad spectrum of Federal agencies that invest in AI from their unique mission perspectives, consistent with the national AI R&D strategy.

- Federal investments have generated impactful breakthroughs that are revolutionizing our society for the better.

Collectively, these AI investments are increasing prosperity, safety, security, and quality of life for decades to come.

2016–2019 PROGRESS REPORT: ADVANCING ARTIFICIAL INTELLIGENCE R&D

A report by the
ARTIFICIAL INTELLIGENCE RESEARCH & DEVELOPMENT INTERAGENCY WORKING GROUP

SUBCOMMITTEE ON NETWORKING & INFORMATION TECHNOLOGY RESEARCH & DEVELOPMENT

SUBCOMMITTEE ON MACHINE LEARNING & ARTIFICIAL INTELLIGENCE

and the SELECT COMMITTEE ON ARTIFICIAL INTELLIGENCE
of the
NATIONAL SCIENCE & TECHNOLOGY COUNCIL

NOVEMBER 2019

November 2019

AI for the American People

Unleash AI Resources

Prioritize AI R&D

Leverage AI for Government Services

Maintain U.S. Leadership in AI

Promote International Environment for American AI

Remove Barriers to Innovation

Train AI-Ready Workforce

AI EO: Unleashing AI Resources

Data/Models:

- Directs agencies to make Federal data and models more available to America's AI R&D experts, researchers, and industries.
- RFI to gain info on which Federal data would be most useful for AI R&D (forthcoming).
- Agencies identify barriers to increased access, such as privacy, security, data documentation, formatting.
- Agencies prioritize data in light of AI R&D impact and barriers.

Cyberinfrastructure for AI:

- Directs DoD, DOC, HHS, DOE, NASA, NSF to prioritize allocation of HPC resources for AI-related applications.
- Directs agencies to recommend ways to better use cloud computing for Federally-funding AI R&D.

Increasing Access to Data & Models for AI R&D and Testing

Data RFI (open July 10 – Aug 22, 2019):

- RFI: Which Federal datasets and models (or characteristics) would be most useful for AI R&D and testing?

- 28 responses received:
  - Industry & Trade Associations: 10
  - Academia: 9
  - Think Tank / Non-Profit: 5
  - Government: 3
  - Anonymous: 1
  - (2 respondents were from abroad — United Kingdom)

32962　　　　　　　**Federal Register /**

OFFICE OF MANAGEMENT AND BUDGET

Identifying Priority Access or Quality Improvements for Federal Data and Models for Artificial Intelligence Research and Development (R&D), and Testing; Request for Information

AGENCY: Office of Management and Budget (OMB), Executive Office of the President.

ACTION: Notice of request for information: Identifying Priority Access or Quality Improvements for Federal data and models for Artificial Intelligence Research and Development (R&D), and Testing.

SUMMARY: Under the *Executive Order on Maintaining American Leadership in Artificial Intelligence* (Section 5.a.i), *https://www.whitehouse.gov/presidential-actions/executive-order-maintaining-american-leadership-artificial-intelligence/,* the Office of Management and Budget is inviting the public to identify needs for additional access to, or improvements in the quality of, Federal data and models that would improve the Nation's artificial intelligence (AI) research and development (R&D) and testing efforts.

DATES: July 10, 2019.

Increasing access to high performance computing resources

- U.S. is world leader in development of HPC infrastructure that supports AI research.
- U.S. is committed to maintaining this leadership through recently updated *National Strategic Computing Initiative.*
- As part of American AI Initiative, agencies are prioritizing the allocation of HPC resources for AI-related applications.
  - ➤ For example, DOE made their supercomputers available for NIH cancer research.

Better enabling use of cloud computing for Federally-funded AI R&D

- Agencies are exploring technical and administrative challenges limiting cloud adoption, along with actions needed to remove unnecessary barriers.

Enabling Access to Cloud Computing Resources for CISE Research and Education (Cloud Access)

PROGRAM SOLICITATION
NSF 19-510

National Science Foundation

Directorate for Computer & Information Science & Engineering
Division of Computing and Communication Foundations
Division of Information & Intelligent Systems
Division of Computer and Network Systems
Office of Advanced Cyberinfrastructure

- Examples:
  - ➤ NSF is enhancing access for academic CS research and education community to cloud computing providers.
  - ➤ NIH is experimenting with using cloud environments to streamline NIH data use by partnering with commercial providers through STRIDES initiative.

National Institutes of Health
Office of Data Science Strategy

| Home | Strategic Plan |

STRIDES Initiative

Office of Data Science Strategy » Resources » STRIDES Initiative

Unleashing AI Resources: Key message

We must accelerate development of enabling infrastructure for complete AI systems:

- Making data/models more available for AI R&D and testing
- Prioritizing HPC for AI R&D
- Better use of cloud for AI R&D
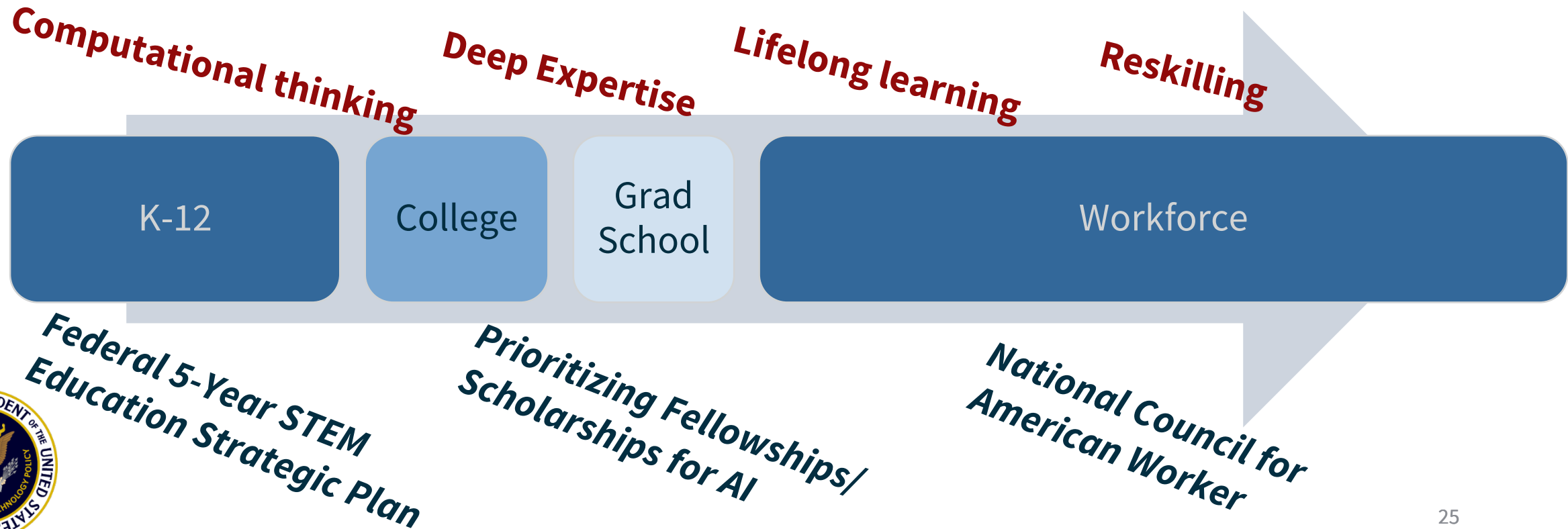
Unleash AI Resources

AI for the American People

Prioritize AI R&D

Leverage AI for Government Services

Maintain U.S. Leadership in AI

Unleash AI Resources

Promote International Environment for American AI

Remove Barriers to Innovation

Train AI-Ready Workforce

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.*

Computational thinking

Deep Expertise

Lifelong learning

Reskilling

| K-12 | College | Grad School | Workforce |

Federal 5-Year STEM Education Strategic Plan

Prioritizing Fellowships/ Scholarships for AI

National Council for American Worker

Agency fellowship and service training programs funding AI training

(See *American AI Initiative: Year One Annual Report* for this list)

Agency fellowship and service training programs funding AI training

Many existing fellowship and scholarship programs at the Federal agencies are supporting students and early career researchers in AI, including:

DARPA: Young Faculty Award

DoD: Science, Mathematics, and Research for Transformation Scholarship for Service Program; National Defense Science and Engineering Graduate Fellowship Program; DoD Historically Black Colleges/Universities and Minority-serving Institutions (HBCU/MI) Research and Education Program; United States Air Force Rome Laboratory Summer Faculty Fellowship Program; Autonomy Technology Research Center and Center for Surveillance Research Internship Program

DOE: Artificial Intelligence Summer Institute (AISI); Next Generation STEM Internship Program (NEXTGENS); Community College Internships (CCI); Science Undergraduate Laboratory Internship (SULI); Office of Science Graduate Student Research Program (SCGSR); Visiting Faculty Program (VFP); Albert Einstein Distinguished Educator Fellowship Program (AEF); Early Career Research Program; Computational Science Graduate Fellowship

NASA (National Aeronautics and Space Administration)**:** NASA Fellowship Activity

NIH: Individual (F32) and institutional (T32) training programs; internship opportunities to bring AI experts into NIH to work alongside Federal staff; other internship programs for industry experts, researchers, and students.

NOAA: Dr. Nancy Foster Scholarship Program; Educational Partnership Program with Minority Serving Institutions; Margaret A. Davidson Graduate Fellowship; John A. Knauss Marine Policy Fellowship Program; National Marine Fisheries Service – Sea Grant Joint Fellowship Program in Population and Ecosystem Dynamics and Marine Resource Economics

NSF: Faculty Early Career Program (CAREER); Research Experiences for Undergraduates (REU) Sites; Training-based Workforce Development for Advanced Cyberinfrastructure (CI-Training); SBE Postdoctoral Research Fellowships (SPRF); Post-Doctoral Research Fellowship (MPS); Postdoctoral Research Fellowships in Biology (PRFB); Graduate Research Fellowships Program; Advanced Technological Education Program (ATE); Advancing Informal STEM Learning (AISL); CyberCorps: Scholarship for Service; Discovery Research PreK-12 (DRK-12); EHR Core Research (ECR); Historically Black Colleges and Universities Undergraduate Program (HBCU-UP); Improving Undergraduate STEM Education (IUSE); NSF Research Traineeship (NRT); Computer Science for All (CSforAll)

USDA/NIFA (National Institute of Food and Agriculture)**:** Agriculture and Food Research Initiative (AFRI) Predoctoral Fellowships; AFRI Postdoctoral Fellowships; Food and Agricultural Sciences National Needs Graduate Fellowships; Research and Extension Experiences for Undergraduates.

Providing Workers with Skills for 21st Century Economy

- **Prioritizing STEM Education:** Presidential Memorandum prioritized high-quality STEM education, with particular focus on CS education. Committed $200M in grant funds from Dept. of Education, matched by private industry commitments of $300M (Sept 2017).
- **STEM Strategic Plan:** The White House released 5-year strategic plan to strengthen and better coordinate STEM education programs across the Federal Government (Dec 2018).
- **Apprenticeships:** EO established industry-recognized apprenticeships and created a Cabinet-level Task Force on Apprenticeship Expansion (June 2017).
- **National Council for the American Worker:** Established by EO to ensure that students and workers have access to innovative education and job training opportunities. The President charged companies and trade groups across the country to sign the Pledge to America's Workers, committing to expand education, training, and reskilling opportunities (July 2018).

Train AI-Ready Workforce: Key message

The United States must train current and future generations of American workers:

- with the skills to develop and apply AI technologies;
- to prepare them for today's economy and jobs of the future.

Train AI-Ready Workforce

AI for the American People

Prioritize AI R&D
Grow and sustain American research leadership and capacity

Unleash AI resources
Enhance access to high quality data, models, and computing resources

Remove barriers to AI innovation
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Leverage AI for government
Apply AI to improve provision of government services

Promote international environment for American AI
Promote global environment supportive of American AI innovation, while protecting strategic advantage

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

AI for the American People: *Recent Progress*

- ✓ Prioritizing AI in FY2019, '20, '21 OMB/OSTP R&D budget memos
- ✓ *National AI R&D Strategic Plan: 2019 Update*
- ✓ NITRD AI R&D Budget Summary

- ✓ RFI: Datasets and models for AI R&D and testing
- ✓ Identifying barriers to data access
- ✓ Updating implementation guidance re: data and source code inventories
- • Prioritizing datasets for increased access

Prioritize AI R&D

Leverage AI for Government Services

- ✓ White House Summit on AI in Government
- ✓ AI center of excellence in USG

Unleash AI Resources

Maintain U.S. Leadership in AI

Promote International Environment for American AI

- ✓ OECD AI Principles
- ✓ G20 AI Principles
- • NSPM Action Plan

Remove Barriers to Innovation

Train AI-Ready Workforce

- • Prioritize existing AI fellowships/scholarships
- • Recommendations on AI-based training to National Council for American Worker

- ✓ *Plan for Federal Engagement in AI Technical Standards*
- ✓ Governance memo on regulatory/ non-regulatory approach to use of AI

Summary of Key Messages on AI (1/2):

1) Continued American leadership in AI is of paramount importance:

- to maintaining the economic and national security of the United States; and
- to shaping the global evolution of AI in a manner consistent with our Nation's values, policies, and priorities.

2) The United States must promote sustained investment in AI R&D:

- in collaboration with industry, academia, international partners and allies;
- to generate technological breakthroughs in AI and related technologies; and
- to rapidly transition those breakthroughs into capabilities that contribute to our economic and national security.

Summary of Key Messages on AI (2/2):

3) We must accelerate development of enabling infrastructure for complete AI systems:
   - Making data/models more available for AI R&D and testing
   - Better use of cloud for AI R&D
   - Prioritizing HPC for AI R&D

4) The United States must train current and future generations of American workers:
   - with the skills to develop and apply AI technologies;
   - to prepare them for today's economy and jobs of the future.

AI.gov – "All of government" portal for Federal AI activities
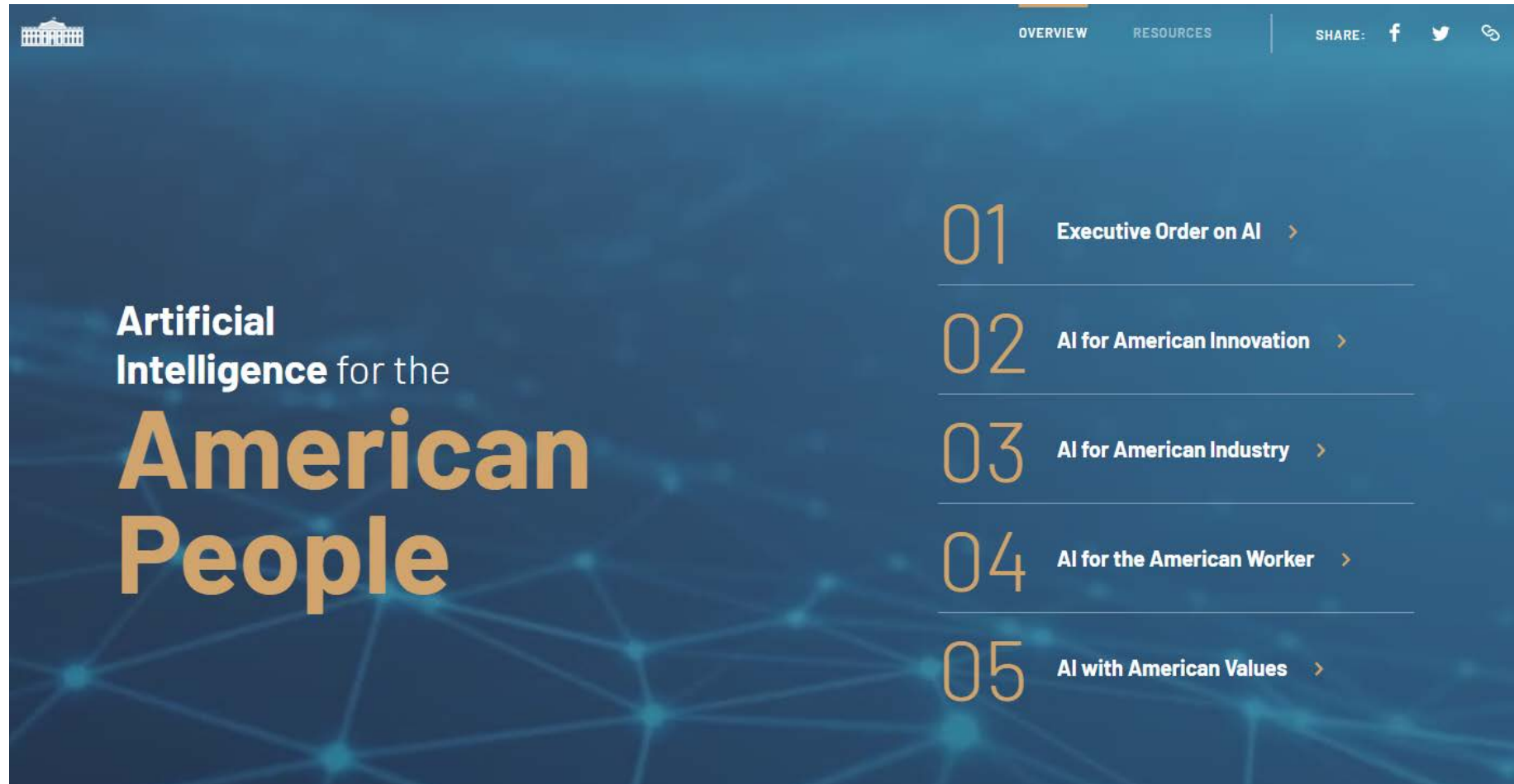
Quantum Information Science

Coordination: NSTC subcommittee on Quantum Information Science

Create and maintain
a national strategy for
Quantum information science

Coordinate current and future
efforts across the agencies

Co-chairs: DoE, NSF, NIST

National Quantum Initiative ACT

- Signed Dec 21, 2018
- 11 years of sustained effort
- DOE: new centers working with the labs, new programs
- NSF: new academic centers
- NIST: industrial consortium, expand core programs
- Coordination: SCQIS combined with a National Coordination Office and an external Advisory committee

National Quantum Initiative

- Three pillars of QIS R&D: civilian, defense, intelligence communities
- As of today:
  - NSTC subcommittee on Quantum Information Science (SCQIS)
  - National Quantum Coordination Office
    - Hosted at OSTP
    - Interim director: Jake Taylor
    - Handles day-to-day coordination
  - NSTC subcommittee on Economic and Security Implications of Quantum Science (ESIX)
    - Co-chaired by DOD, DOE, NSA
    - Works to ensure economic and security aspects of QIS R&D are incorporated in policy decisions; coordinates with the SCQIS
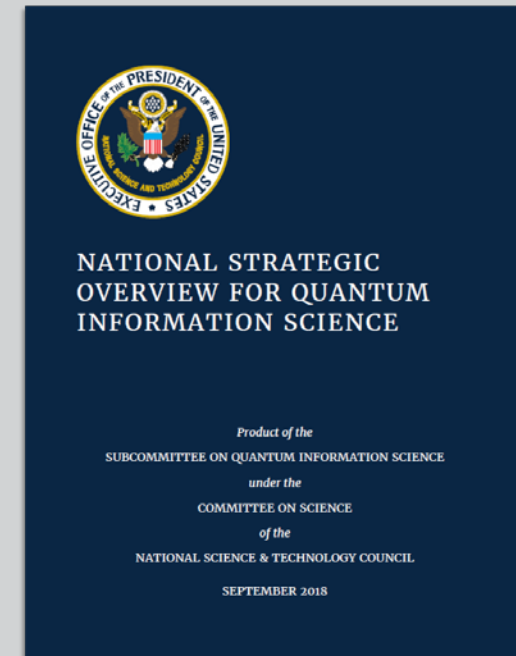
Agency actions for the NQI

- NSF
    - Quantum leap working group (2017-present)
    - Quantum leap challenge institute discussion (early 2019)
    - QLCI solicitation ~ $5M per center per year
        - Preliminary proposals
        - Conceptualization grants
    - Current: requests for full proposals going out
- DOE
    - Community engagement (Jan 2019)
    - Notice of Intent (early summer)
    - Many responses from the community!
    - Current: preparation of initial solicitation
    - Also: supporting the National Quantum Initiative Advisory committee (nominations closed Oct 4)
- NIST
    - Formed the "Quantum Economic Development Consortium" with 109 members

Industrial engagement

NQI calls for an organization to allow broad interaction between academia, industry, national laboratories and government agencies. NIST is implementing this through the Quantum Economic Development Consortium (started Sept 2019).

QIS consortium purpose and objectives:

- To support enabling technology R&D and enhance the quantum ecosystem: (e.g., quantum device components, instrumentation, and performance standards)

- To facilitate industry coordination & interaction with Government agencies

- Determine workforce needs essential to the development of quantum technologies

- Provide efficient public-private sector coordination

- Identify technology solutions for filling gaps in research or infrastructure

- Highlight use cases & grand challenges to accelerate development efforts

- Foster sharing of intellectual property, efficient supply chains, technology forecasting and quantum literacy
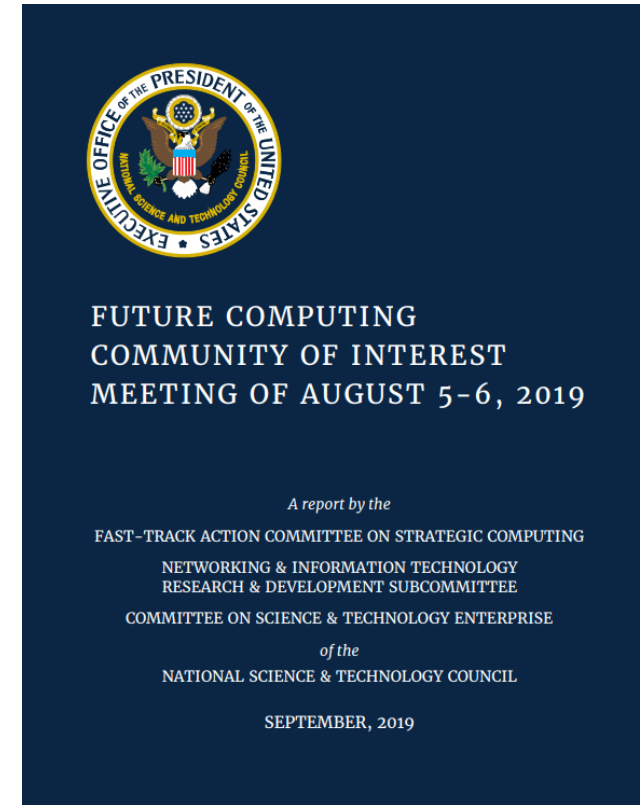
Strategic Computing
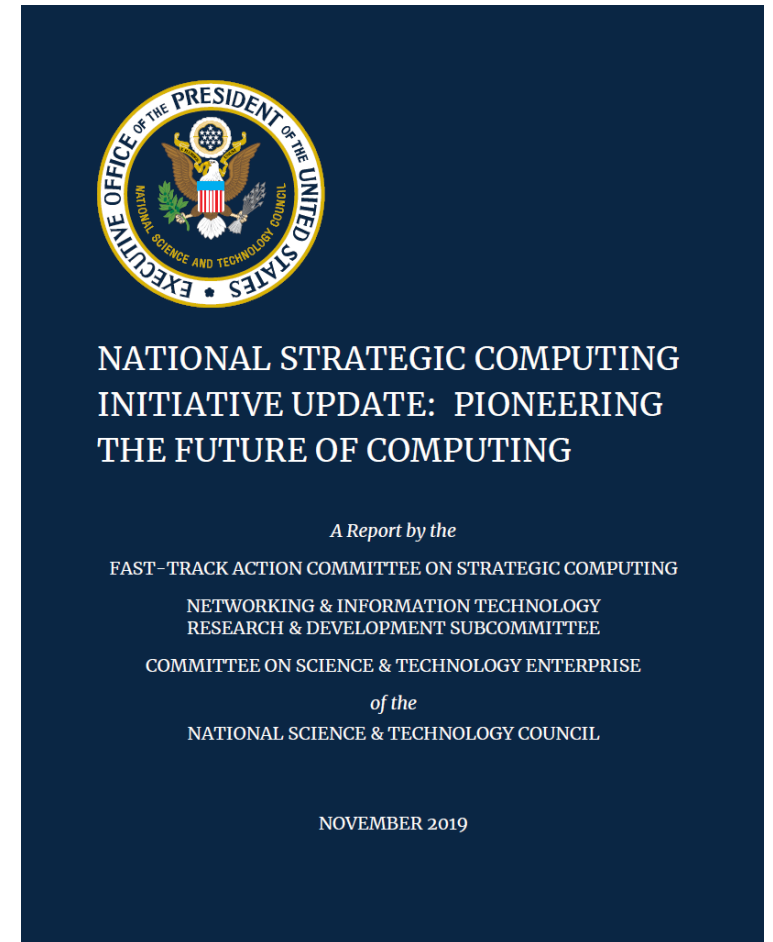
Strategic Computing: Background

- In July 2015, the National Strategic Computing Initiative (NSCI) launched.

- To date, a focus on deployment has led to exascale efforts that are well underway; however, other goals remain elusive.

- Industry and academic leaders see the future of computing evolving in:
    - network-centric and edge computing
    - improved software interoperability and sustainability
    - deeper exploration of hardware-driven compute
    - concerns regarding the future of high-performance computing architectures and approaches.

- OSTP created a National Science and Technology Council "Fast Track Action Committee" to respond

- A request for information and a community meeting provided critical input

FUTURE COMPUTING
COMMUNITY OF INTEREST
MEETING OF AUGUST 5–6, 2019

A report by the

FAST–TRACK ACTION COMMITTEE ON STRATEGIC COMPUTING

NETWORKING & INFORMATION TECHNOLOGY
RESEARCH & DEVELOPMENT SUBCOMMITTEE

COMMITTEE ON SCIENCE & TECHNOLOGY ENTERPRISE

of the

NATIONAL SCIENCE & TECHNOLOGY COUNCIL

SEPTEMBER, 2019

(available at NITRD.gov)

NSCI Update

- Report released November 14, 2019
- Key elements:
  - Reinvest in future computing hardware, with a focus on the 10 year horizon and beyond.
  - Substantially improve software enabling effective and sustainable use of new computing systems.
  - Prioritize overall infrastructure—data usage and management, cybersecurity, and infrastructure such as foundries and prototypes.
  - Realize new applications and opportunities for using new systems as they develop and come online.

NATIONAL STRATEGIC COMPUTING INITIATIVE UPDATE: PIONEERING THE FUTURE OF COMPUTING

A Report by the
FAST-TRACK ACTION COMMITTEE ON STRATEGIC COMPUTING
NETWORKING & INFORMATION TECHNOLOGY
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NOVEMBER 2019

(available at NITRD.gov)

NSCI Next Steps

- Interagency coordination around the future of computing is a key part of the plan – immediate actions coming soon.

- Industrial and academic teams will have clear opportunities for partnering with the strategic computing agencies.

Thank you!