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From: Matt Hourihan, Associate Vice President for Government Relations and Public Policy, Association of American Universities

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RE: Comments in response to 90 FR 9088, Request for Information on the Development of an Artificial Intelligence (AI) Action Plan

AAU appreciates the opportunity to respond to the **Request for Information on the Development of an Artificial Intelligence (AI) Action Plan.** Our response is informed by discussions with AAU Senior Research Officers (SRO) and other stakeholders. AAU also supports the comments submitted by the Energy Sciences Coalition, which focus on the Department of Energy (DOE).

We stand at an inflection point for science and society, with new and emerging AI tools promising to fundamentally transform scientific research.[1] If successful, these tools will accelerate the pace of experimentation and discovery, catalyze the search for cures, and open new pathways for scientific inquiry – and could dramatically increase U.S. economic growth.[2] The Trump Administration is in a unique position to strike a path forward and ensure U.S. dominance in AI-enabled science.

Our overarching recommendation for the new AI Action Plan is to pursue a focused initiative to accelerate AI for discovery. This initiative should seek to align government investments with industry, universities, and other stakeholders to develop the tools, practices, partnerships, and infrastructure to catalyze scientific progress using AI. Particular near-term actions should focus on:

- Ensuring **computational access** for U.S. scientists and engineers
- Accelerating **basic and applied research and development** to enhance AI methods and tools for science
- Advancing platforms and tools to leverage universities' **unique scientific data resources**
- Strengthening **education, training, and immigration policy** to secure an AI-competent scientific workforce

Such a strategy would build on the progress in AI policy achieved by the first Trump Administration and plant the seeds for U.S. dominance in the scientific space for years to come.

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Seizing Opportunities

AI-powered science is happening on AAU campuses across the country in genomics,[3] novel material design,[4] digital twins[5], robotics[6], and other fields. There are several ways AI tools can be brought to bear in the conduct of research: organizing and analyzing data and images, creating predictive models and simulations, automating experimentation or data collection, reading large volumes of scientific literature, and other tasks.

Federal research yields substantial return on investment[7] thanks to the American system of innovation – which historically features the combined strength of government, industry, and academia. In the AI context, research universities offer particular strengths:

- Disciplinary expertise, which is important for tackling the biggest challenges in each scientific field and ensuring AI tools are effectively deployed discipline-by-discipline. The talented faculty, students, and staff on university campuses are "idea generators," and discovery workflows requiring multidisciplinary expertise are where they can particularly shine.
- With a mission focused on discovery and the lack of a market-driven profit motive, university researchers are particularly well-suited for basic science and research into novel AI approaches, alone or in partnership with industry. It also means universities can pursue ethical, transparent science aligned with public missions.
- Training and education are also a core university mission. Industry scalers have a massive appetite for personnel, and universities provide a pipeline.
- Universities are also under-appreciated storehouses of unique scientific data resources that provide the raw material to drive AI-enabled discovery.
- Universities and university-trained scientists and engineers are effective sources of spinoff and entrepreneurship.[8]

Recommended Elements of an AI for Science Initiative:

Computational Infrastructure. The massive compute gap between universities and industry is well documented.[9] However, unlike vaunted frontier models, many discipline-specific science models may not need the same level of computational horsepower. With this in mind, and building on current investments, the Trump Administration can encourage a robust network for AI-powered science.[10] In the 1960s, the federal government worked with universities to establish the ARPANET, the precursor to the modern internet. In the 21st century, the vision should be a similar nationwide network – though this time, a hybrid network, with vast industry data centers and the mighty supercomputers of the Department of Energy alongside universities as partners in discovery. To advance this network vision for AI-enabled science, the Trump Administration should:

- **Build support for public compute in the FY 2026 Budget Request.** The National Science Foundation (NSF) is currently piloting the National AI Research Resource (NAIRR), an effort to give researchers and students access to computational resources, data, models, and testbeds. This initiative should play a core role in the broader AI-enabled science strategy and should receive expanded support in the FY 2026 request.

Authorizing legislation for this activity should be an element of the Administration's legislative agenda.

- **Continue or expand support for other federal infrastructure investments** through critical programs like the NSF Office of Advanced Cyberinfrastructure and the NIH Office of Research Infrastructure Programs, which support smaller localized assets, and the Department of Energy's large-scale effort to leverage the computing resources and technical expertise of the DOE lab complex to tackle science challenges, in partnership with industry and universities.
- **Initiate an assessment** to take stock of current investments and identify needs, gaps, and opportunities for additional investments or policies. This assessment should adopt a disciplinary framework, and should also consider the further development of useable and effective secure computing environments and investments for experimental hardware research. PCAST may be an appropriate body to pursue such an assessment, working with the National AI Initiative coordinating office.

R&D for Models, Tools, Data, and Applications. Research to improve and refine data assets and AI methods, including new discipline-specific foundation models and robotics for automation, is at the core of the AI-enabled science endeavor. To advance this area, the Trump Administration should:

- **Build support for basic and applied AI research in the FY 2026 Budget Request.** Several agencies have critical initiatives underway – including the NSF AI institutes established by the first Trump Administration, as well as DOE, NIH, and the Department of Defense. The Trump Administration should explore ways to sustain and build support for these where appropriate. The Administration should also seek to support data initiatives like the NSF National Secure Data Service or NIH's Bridge2AI. In general, establishing standards and practices to expand secure and responsible access to anonymized federal data is a critical step to advance AI-enabled discovery.
- A smart approach to research investment would support **projects at multiple scales**, ranging from single PIs to large centers, hubs, and consortia for chemical, cellular, molecular, and other discovery platforms. The Administration should also incentivize partnering among universities, industry, national labs, and nonprofit institutes and seek opportunities for agile research approaches. Research should also prioritize testing, benchmarking, validation, sharing, and reliability of scientific models, as well as privacy-preserving AI techniques.
- Research universities are a unique part of the AI ecosystem because of their **high-quality biomedical data assets**. AI is nothing without data, and large volumes of university data could be unlocked for greater impact. The Administration should build support for **biomedical data platforms** to leverage health data efficiently and at scale. Doing so will accelerate discoveries, facilitate more personalized, effective, and efficient treatments, and ultimately improve care and quality of life for Americans.
- To unlock U.S. data resources broadly, the Trump Administration should consider **establishing "data observatory" teams** to work with university experts to map inventories and resources by discipline, develop "wish lists," identify bottlenecks, and suggest solutions to data access and sharing.[11]

- The assessment described in the prior section may also evaluate **under-studied areas and scientific grand challenges** that could be particularly suitable for AI approaches while being mindful of ongoing work.

Human Capital. Harnessing AI-enabled science will require computer scientists, programmers, data scientists, software engineers, and technicians to create and manage new systems. We'll also need to ensure interdisciplinary expertise so that roboticists, neuroscientists, chemists, and other experts on university campuses have sufficient knowledge and specialized assistance to deploy AI tools. To that end, the Trump Administration should:

- **Build support for AI training and education in the FY 2026 Budget Request.** These include programs like NSF's EducateAI and NIH's Bridge2AI. An effective federal strategy will take discipline-specific approaches to curriculum development, boot camps, and other application-oriented AI training, as well as fellowships and scholarships. Investments should be inclusive of DOE, DOD, and other agencies.
- **Support mobility between academia and industry.** Pathways should be supported to maximize opportunities for students and to ensure that university researchers and industry stay mutually aware of needs and technology trajectories. These can be achieved through industry embed programs, apprenticeships, and externships. The Trump Administration should work with industry and other stakeholders – including community colleges – to understand skill needs and identify gaps, and direct federal statistical agencies to collect data on the AI workforce to understand the landscape.
- **Attract the very best AI talent from across the globe.** The worldwide competition for scientific talent is fierce. The Trump Administration should marshal all resources within the Department of State and the Department of Homeland Security to attract and retain foreign nationals seeking to study, work, or conduct research in artificial intelligence as well as other critical and emerging technologies. This includes efficient and expedited processing of all petitions and applications and maximized uptake of all nonimmigrant and immigrant visa categories.

Energy. As with other sectors, research universities are affected by high energy costs, and energy-intense computation may prove inhibitive for AI-driven discovery. While specific recommendations are beyond the scope of this comment, we would generally encourage efforts to reduce energy costs and improve grid reliability, which may improve the baseline conditions for AI-enabled discovery.

The energy challenge also creates the rationale for investing in **novel energy-efficient techniques for AI and computation** – another endeavor in which university researchers can play a vital role in partnership with industry and government agencies.[12]

Conclusion

This moment offers tremendous opportunity to gear federal policy toward AI-enabled science for U.S. leadership. Such an opportunity, if missed, won't return. We encourage the Trump Administration's efforts to develop an action plan for AI and appreciate the chance to comment.

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[1] https://www.nationalacademies.org/our-work/ai-for-scientific-discovery-a-workshop
[2] https://www.sciencedirect.com/science/article/pii/S0048733324000866
[3] For example: https://today.ucsd.edu/story/how-artificial-intelligence-could-automate-genomics-research
[4] For example: https://www.pittwire.pitt.edu/pittwire/features-articles/evolution-ai-platform-building-metamaterials
[5] For example: https://www.cs.purdue.edu/news/articles/2024/ai-driven-digital-twins-in-agricultural-research-hold-the-promise-for-better-crops.html
[6] For example: https://chem.unc.edu/news/study-robotic-automation-ai-will-speed-up-scientific-progress-in-science-laboratories/
[7] https://www.aei.org/economics/federal-rd-funding-is-even-more-valuable-than-washington-thinks/
[8] https://www.nber.org/be-20212/universities-catalyze-entrepreneurial-culture
[9] https://www.nature.com/articles/d41586-024-03792-6
[10] https://www.elsevier.com/connect/ai-for-science-a-paradigm-shift-for-scientific-discovery-and-translation
[11] https://www.aipolicyperspectives.com/p/a-new-golden-age-of-discovery
[12] For example: https://asap.hmntl.illinois.edu/research/theme3