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SCALE AI RESPONSE TO
THE OFFICE OF SCIENCE AND TECHNOLOGY POLICY
REQUEST FOR INFORMATION:
ACCELERATING THE AMERICAN SCIENTIFIC ENTERPRISE
Docket ID: OSTP–TECH–2025–0100

Scale AI (Scale) is pleased to respond to the Office of Science and Technology Policy's (OSTP) Request for Information (RFI) on *Accelerating the American Scientific Enterprise*, which will help inform the Administration's Genesis mission. Scale strongly supports the intent of the RFI and appreciates the Trump Administration's commitment to ensuring the United States' leadership in artificial intelligence (AI).

Introduction

Founded in 2016, Scale has built a significant body of work supporting the development, evaluation, and deployment of advanced AI systems across the private sector and the U.S. government. Scale works with leading technology companies, enterprises, research institutions, and federal agencies to advance AI-enabled scientific and technical workflows, with a particular focus on data quality, model evaluation, the development of AI-enabled applications, and adoption at scale. Through this work, Scale has developed practical insight into how institutional structures and partnership models shape whether emerging technologies translate into real scientific and societal impact, experience that directly informs our perspective on the policy questions raised in this RFI.

Across the federal research enterprise, AI is increasingly functioning as foundational research infrastructure. When paired with high-quality data, robust evaluation, and appropriate institutional support, AI systems can shorten discovery cycles, expand the scope of feasible research, and accelerate the translation of scientific advances into practical impact. At the same time, these capabilities place new demands on federal funding models, procurement approaches, institutional design, and workforce development. The Genesis mission presents an important opportunity to align national capabilities with national priorities, strengthen U.S. global competitiveness, and modernize how the federal scientific enterprise supports AI-enabled discovery.

Scale's work at the intersection of AI, research workflows, and public-sector adoption informs our perspective on how policy choices shape the practical adoption of AI in research environments. Based on our role in the ecosystem, we firmly believe that Scale is in a unique position to lend our voice to this discussion. To that end, we have focused our responses to the RFI on the elements most relevant to our business model. The recommendations below focus on structural and policy-level changes that can help ensure the U.S. scientific enterprise fully realizes the benefits of AI-enabled discovery.

The section numbering below corresponds to the structure of the OSTP RFI; Scale responds only to those prompts most relevant to our experience and expertise.

(i) What policy changes to Federal funding mechanisms, procurement processes, or partnership authorities would enable stronger public-private collaboration and allow America to tap into its vast private sector to better drive use-inspired basic and early-stage applied research?

Federal funding, procurement, and partnership mechanisms have not kept pace with the changing nature of scientific research, particularly in data and compute intensive fields, such as artificial intelligence. Many existing mechanisms were designed for institution-centered, grant-based research conducted over long time horizons, with limited reliance on shared infrastructure or external partners. As a result, they often struggle to support research that depends on rapidly evolving tools, interdisciplinary teams, and close collaboration between government, academia, and industry.

These limitations are well documented in prior assessments by the Government Accountability Office, the National Academies of Sciences, Engineering, and Medicine, and other metascience and policy studies, which have highlighted issues such as lengthy procurement timelines, rigid cost-reimbursement requirements, fragmented data and intellectual property rules, and limited pathways to transition successful pilots into sustained programs.[1,2,3,4] In practice, these constraints can slow the adoption of new capabilities, discourage participation by innovative private-sector and nonprofit actors, and make it difficult for agencies to scale promising approaches once they have been demonstrated.

To enable stronger public–private collaboration, particularly in AI-enabled and use-inspired basic research, we recommend:

1. Expand and normalize flexible contracting vehicles such as Other Transaction Authorities (OTAs), Commercial Solutions Openings (CSOs), and milestone-based agreements. These tools allow agencies to engage innovative firms that cannot sustain multi-year uncertainty or cost-reimbursement compliance burdens.
2. Support compute and data intensive research as first-class budget items, rather than treating them as indirect or ad hoc costs. This should include dedicated funding to develop, fine-tune, curate, and maintain AI-ready datasets and associated infrastructure.

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[1] Government Accountability Office. (2025). *Defense acquisition reform: Actions needed to improve outcomes for major defense acquisition programs*. https://www.gao.gov (accessed December 20, 2025)

[2] Office of Management and Budget. (2011). *Cost-reimbursement contracting by executive agencies* (Report to Congress). https://www.whitehouse.gov/omb (accessed December 20, 2025)

[3] National Academies of Sciences, Engineering, and Medicine. (n.d.). *Barriers to data sharing and the implications for scientific collaboration*. National Academies Press. https://nap.nationalacademies.org (accessed December 20, 2025)

[4] Government Accountability Office. (2015). *DARPA: Key factors drive transition of technologies, but better training and guidance needed* (GAO-16-5). https://www.gao.gov (accessed December 20, 2025)

Without sustained investment in high-quality, well-governed data, researchers are unable to develop, evaluate, and deploy the models and tools needed to support AI-enabled discovery across scientific domains.

3. Clarify IP and data rights frameworks for AI-related research collaborations so that private firms can contribute proprietary tools, know-how, and datasets and retain the ability to commercialize their technological developments while the government retains sufficient rights for evaluation, auditability, and public benefit.
4. Modernize collaborative partnership mechanisms to better support AI-enabled research. While external partnership agreements remain an important tool for lab–industry collaboration, they can be challenging to use for data- and software-intensive projects due to lengthy negotiation timelines, lack of alignment on intellectual property terms, and limited flexibility around data sharing and commercialization. Streamlining and standardizing these mechanisms would make them more effective for contemporary AI-enabled scientific collaboration.

(ii) How can the Federal government better support the translation of scientific discoveries from academia, national laboratories, and other research institutions into practical applications? Specifically, what changes to technology transfer policies, translational programs, or commercial incentives would accelerate the path from laboratory to market?

The United States remains a global leader in basic research, but faces growing challenges in translating research outputs into operationally usable and widely adopted capabilities. International competitors have developed structural advantages in this area by pairing research investments with sustained support for data, infrastructure, evaluation, and deployment pathways. In contrast, U.S. research translation efforts are often fragmented, episodic, and under-resourced, with limited mechanisms to carry promising results beyond pilots and demonstrations into sustained implementation and use.

Scale's experience supporting government AI adoption similarly underscores that successful translation depends less on the availability of novel algorithms than on the presence of operational data, evaluation frameworks, and integration pathways that reduce risk and enable sustained use. To accelerate lab-to-market pathways:

1. Modernize technology transfer offices (TTOs) by incentivizing speed, experimentation, and industry secondments, rather than primarily revenue maximization through licensing.

2. Prioritize shared data standards and evaluation frameworks that allow research outputs generated in one context or region to be meaningfully compared, combined, and built upon elsewhere, reducing fragmentation and lowering barriers to adoption.

3. Fund shared infrastructure, not just projects, such as shared datasets, evaluation benchmarks, testbeds, and reference implementations that enable sustained use and scaling, rather than one-off demonstrations.

4. Create demand-side pull mechanisms, including advance market commitments and government-as-early-customer models, especially for AI-enabled scientific tools.

(vi) What reforms will enable the American scientific enterprise to pursue more high-risk, high-reward research that could transform our scientific understanding and unlock new technologies, while sustaining the incremental science essential for cumulative production of knowledge?

High-risk, high-reward research is essential for scientific breakthroughs, but it is often difficult to sustain within traditional Federal funding and oversight structures. Our experience working with government partners in emerging technology domains has shown that promising approaches frequently emerge through iterative experimentation, rapid prototyping, and large-scale testing, where outcomes are uncertain and success depends on learning from early failure as much as from early wins. These dynamics are particularly pronounced in AI-enabled science, where progress often requires scaling data, models, and evaluation efforts before their ultimate utility is clear.

To better enable high-risk, high-reward research, Federal policies should support:

1. Institutional tolerance for failure, including program officer incentives and evaluation criteria aligned with long-term impact rather than short-term success rates.
2. Dedicated funding streams for exploratory and pre-deployment work, insulated from incremental-review norms and compliance structures designed for mature programs.
3. Flexible experimentation and evaluation frameworks, allowing researchers to test, iterate, and abandon approaches quickly based on empirical evidence.
4. Clear separation between exploratory research and deployment accountability, ensuring that early-stage experimentation is not constrained by requirements more appropriate for operational systems.

(viii) How can the Federal government leverage and prepare for advances in AI systems that may transform scientific research, including automated hypothesis generation, experimental design, literature synthesis, and autonomous experimentation? What infrastructure investments, organizational models, and workforce development strategies are needed to realize these capabilities while maintaining scientific rigor and research integrity?

Advances in artificial intelligence are increasingly reshaping how scientific research is conducted, including automated hypothesis generation, literature synthesis, experimental design, simulation, and autonomous experimentation. Realizing the full potential of AI for science, however, depends not only on algorithmic progress, but on the availability of robust data ecosystems, shared infrastructure, and institutional practices that support trustworthy and reproducible use at scale.

The Department of Energy's 2023 report *Advanced Research Directions on AI for Science, Energy, and Security* underscores that data is a foundational constraint on AI-enabled scientific progress, emphasizing that fragmented data stewardship, inconsistent metadata and standards, limited interoperability, and insufficient support for data curation and lifecycle management remain major barriers to effective use of AI across DOE mission areas.[5] Without coordinated investment in data ecosystems, AI models risk being brittle, difficult to evaluate, and hard to reuse across scientific domains.

Maintaining scientific rigor as AI capabilities scale will require clear expectations around evaluation, transparency, and reproducibility, as well as continued public-private collaboration to align technical best practices with federal research norms. Scale has previously articulated the importance of clear governance, acquisition, and operational frameworks to enable effective government AI adoption, including for scientific and research applications, in its white paper *A Framework for Successful Government AI Adoption*.[6]

To fully leverage advances in AI for science, Federal policy should prioritize:

1. Sustained investment in AI-ready scientific data ecosystems, including data curation, documentation, governance, and lifecycle management, so that datasets can be reliably reused for model development, evaluation, and downstream discovery.
2. Shared evaluation infrastructure, such as benchmarks, validation suites, and reference tasks, to ensure that AI-enabled scientific tools are comparable, trustworthy, and reproducible across institutions and disciplines.
3. Organizational practices that integrate AI expertise with domain science, including embedding data engineers, ML practitioners, and evaluation specialists within research teams.

(ix) What specific Federal statutes, regulations, or policies create unnecessary barriers to scientific research or the deployment of research outcomes? Please describe the barrier, its impact on scientific progress, and potential remedies that would preserve legitimate policy objectives while enabling innovation.

In AI-enabled research, unnecessary regulatory complexity can slow collaboration, increase compliance costs, and discourage participation by innovative private-sector and nonprofit actors, without materially improving security or integrity outcomes. In many cases, these challenges stem less from the absence of regulation than from uncertainty about how existing rules apply to emerging AI-enabled research use cases, particularly where foundational research, applied development, and deployment activities intersect.

Common challenges include:

1. Ambiguity around data-sharing rules for mixed public–private datasets, which can create uncertainty about permissible collaboration, data reuse, and downstream evaluation.

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[5] U.S. Department of Energy. (2023). *Advanced research directions on AI for science, energy, and security*. https://www.anl.gov/sites/www/files/2023-06/AI4SESReport-2023-v7.pdf (accessed December 20, 2025)
[6] Scale AI. (2025). *A framework for successful government AI adoption*. https://pub-9ba39fa3c4764cd0bb3a9579562941d6.r2.dev/gov-ai.pdf (accessed December 20, 2025)

2. Lack of use-case–based regulatory clarity, where broadly scoped or technology-agnostic requirements are applied to low-risk research or enterprise AI applications, despite materially different risk profiles across scientific, commercial, and public-facing deployments.
3. Redundant or inconsistent compliance requirements across agencies, increasing administrative burden for researchers and partners operating across multiple programs.

Targeted clarifications, coordinated cross-agency guidance, and risk-based oversight approaches, including regulatory gap analyses where appropriate, would preserve legitimate security and integrity goals while providing the certainty needed to support responsible AI-enabled research and collaboration.

(x) How can Federal programs better identify and develop scientific talent across the country, particularly leveraging digital tools and distributed research models to engage researchers outside traditional academic centers?

An AI-enabled scientific enterprise depends on a broader and more diverse set of technical roles than those traditionally recognized within academic research pathways. In addition to domain scientists, effective AI-enabled research increasingly relies on data engineers, annotators, evaluation specialists, software engineers, and other technical workers whose contributions are essential to building, validating, and sustaining AI systems used in scientific workflows.

Independent economic analysis highlights the scale and significance of these data-centric roles. A recent study conducted by Oxford Economics and commissioned by Scale AI finds that the data annotation industry alone contributes billions of dollars annually to U.S. economic output, while also providing flexible and accessible pathways for workers to develop technical skills relevant to the broader AI ecosystem.[7] These findings underscore that data-focused work is not peripheral to scientific progress, but a foundational component of the talent base required for AI-enabled discovery.

Scale's own work demonstrates the potential of these approaches. In St. Louis, Scale has invested in building and supporting a distributed workforce engaged in data-centric AI work, creating accessible pathways for individuals outside traditional academic and technology hubs to contribute to and benefit from advanced AI systems.

To better identify and develop this talent, Federal policy should:

1. Broaden definitions of scientific and technical contribution to explicitly recognize data, evaluation, and software roles as core components of modern research teams.

[7] Oxford Economics. (2025). *The economic impact of the data annotation industry* (commissioned by Scale AI). https://www.oxfordeconomics.com/wp-content/uploads/2025/12/OxfordEconomics_DataAnnotationImpacts.pdf (accessed December 20, 2025)

2. Support non-traditional and evaluation-based pathways into scientific work, including open challenges, benchmarks, and project-based assessments that allow individuals to demonstrate capability outside conventional credentialing systems.
3. Enable remote and distributed participation, leveraging digital tools and secure infrastructure to engage talent regardless of geographic proximity to major research institutions.
4. Invest in workforce development and upskilling programs focused on data and AI infrastructure, including training, credentialing, and transition pathways that connect data-centric roles to long-term scientific and technical careers.

(xi) How can the Federal government foster closer collaboration among scientists, engineers, and skilled technical workers, and better integrate training pathways, recognizing that breakthrough research often requires deep collaboration between theoretical and applied expertise?

As scientific research becomes more data-intensive, computationally complex, and interdisciplinary, effective integration across roles is increasingly critical to research success. The Department of Energy's 2023 report *Advanced Research Directions on AI for Science, Energy, and Security* emphasizes that AI-enabled discovery depends on close, continuous collaboration among domain scientists, engineers, data specialists, and computational experts, rather than linear or sequential handoffs between roles. The report further highlights the importance of co-design approaches, in which scientific questions, data pipelines, algorithms, and computational infrastructure are developed together. In this context, traditional role separations and institution-centric research models can make it more challenging to coordinate the full range of expertise needed for complex, interdisciplinary work, particularly when research spans multiple organizations, sectors, and technical domains.

Federal programs can play an important role in strengthening integration across roles and sectors by modernizing how research teams are formed, evaluated, and supported. In particular, policies should:

1. Encourage team-based funding models that explicitly support interdisciplinary research teams spanning scientists, engineers, and technical specialists, including participants from academia, national laboratories, industry, and nonprofit organizations.
2. Recognize engineering, data, and software contributions as core research outputs, rather than ancillary support functions, through updated evaluation and reporting criteria, and ensure that project budgets and funding estimates appropriately reflect the scale and complexity of associated data, software, and infrastructure needs.
3. Align incentives for sustained collaboration, including longer-term funding structures and shared infrastructure investments that allow integrated teams to persist beyond individual project cycles.

(xii) What policy mechanisms would ensure that the benefits of federally-funded research, including access to resulting technologies, economic opportunities, and improved quality of life, reach all Americans?

Ensuring that the benefits of federally funded research reach all Americans requires attention not only to discovery, but to dissemination, adoption, and long-term accessibility. Whether scientific advances translate into tangible benefits for the public depends heavily on how research outputs are disseminated, adopted, and sustained beyond the initial discovery phase.

Key policy mechanisms include:

1. Prioritizing open standards and interoperability where appropriate, enabling downstream innovators, researchers, and public-sector users to build on federally funded work without unnecessary technical or contractual barriers.
2. Supporting deployment and adoption alongside discovery, including funding for implementation, evaluation, and scaling activities that help translate research outputs into real-world use.
3. Measuring success using downstream impact metrics, such as improvements in economic opportunity, health outcomes, resilience, and security, rather than relying solely on publications or early-stage technical milestones.

(xiii) How can the Federal government strengthen research security to protect sensitive technologies and dual-use research while minimizing compliance burdens on researchers?

Research security efforts should be risk-based, targeted, and proportionate to the sensitivity of the research involved. In practice, this includes ensuring that trusted partners are able to support sensitive and classified research activities in secure environments when required, while allowing lower-risk research to proceed with appropriate but streamlined safeguards. Overly broad or duplicative compliance requirements can divert time and resources away from legitimate research activities without materially improving security outcomes, particularly in open scientific fields and early-stage research.

Effective policy mechanisms include:

1. Focusing controls on clearly defined sensitive technologies and activities, rather than applying uniform requirements across all federally funded research regardless of risk profile.
2. Providing centralized guidance and shared compliance resources, reducing the need for institution-by-institution interpretation and implementation of complex security requirements.
3. Leveraging technical safeguards, such as secure computing environments, access controls, and monitoring tools, to protect sensitive data and systems in ways that reduce reliance on manual reporting and administrative oversight.

Conclusion

The United States has a historic opportunity to reinvent the machinery of science for an AI-enabled era. With thoughtful updates to funding, procurement, institutional design, and workforce policy, the Federal government can unlock faster discovery, stronger translation, and broader participation, while maintaining security and integrity. Scale AI appreciates OSTP's leadership and stands ready to support these efforts through continued public-private collaboration.

Thank you again for the opportunity to provide input on *Accelerating the American Scientific Enterprise*. Please direct any questions to the undersigned.

Max Fenkell
Global Head of Policy and Government Relations
Scale AI