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Comment On: NSF-2025-OGC-0001-0001
Request for Information: Development of a 2025 National Artificial Intelligence Research and Development Strategic Plan

Document: NSF-2025-OGC-0001-DRAFT-0158
Comment on FR Doc # 2025-07332

Submitter Information

Organization: Sarder Inc., doing business as (DBA) NetCom Learning

General Comment

We are pleased to participate in this RFI to help inform the National AI R&D Strategic Plan and support the United States' continued leadership in AI research and technology. Please see the attached submission.

Attachments

NetCom_Learning_NSF_RFI_Response_2025



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Cover Letter

28 May 2025

National Science Foundation
Attn: Docket ID No. NSF-2025-OGC-0001
4201 Wilson Boulevard
Arlington, VA 22230

Subject: Response to RFI on the Development of the 2025 National Artificial Intelligence Research and Development Strategic Plan

Dear Sir or Madam,

On behalf of **NetCom Learning**, I am pleased to submit our response to the Request for Information (RFI) titled *“Development of a 2025 National Artificial Intelligence Research and Development Strategic Plan”* (Docket ID No. NSF-2025-OGC-0001).

As a global leader in IT and business training, NetCom Learning is committed to advancing innovation, workforce readiness, and lifelong learning through emerging technologies—including Artificial Intelligence (AI). Our submission reflects our practical insights into AI-related skills development and the evolving training needs of professionals across industries.

We affirm that this document is approved for public dissemination. It contains no business-proprietary or confidential information. Document contents may be reused by the government in developing the 2025 National AI R&D Strategic Plan and associated documents without attribution.

Sincerely,
Name: Georgia Liberatos
Title: Chief Operating Officer

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Executive Summary

NetCom Learning submits this response to support the development of the 2025 National Artificial Intelligence (AI) Research and Development Strategic Plan. As a global learning solutions provider focused on workforce transformation, NetCom Learning brings extensive experience in delivering AI education, developing talent pipelines, and facilitating equitable access to technology-driven careers.

In support of the Plan's development, we respectfully urge NSF to:

- Prioritize investment in modular, scalable AI skilling platforms that serve both traditional learners and mid-career professionals.
- Adopt experiential learning ecosystems like **AgentX** as a national model for AI engagement and public sector collaboration.
- Partner with organizations delivering role-based, vendor-neutral certifications to accelerate workforce readiness in ethical AI deployment.
- Fund research initiatives to study the longitudinal impact of micro credentialing, mentorship-driven skilling, and challenge-based learning.

This response outlines priority areas in foundational and applied AI education research, public-private training models, and inclusive workforce development—anchored by our flagship initiative, **AgentX**, which is accelerating awareness of Generative AI and Prompt Engineering at scale while providing a replicable framework for AI learning innovation across domains.

We respectfully propose that the Strategic Plan include a distinct pillar on “**AI Education and Workforce Development R&D**,” with emphases on:

- Research in pedagogical frameworks for AI and LLM literacy
- New skilling models that integrate microlearning, mentorship, and certification
- Strategic use of hackathons and capstone projects to build public engagement
- Public-private partnerships to co-create applied learning tracks and platforms

We understand that this RFI seeks stakeholder input to inform the update of the National AI R&D Strategic Plan. This response is offered in that spirit and focuses on educational innovation, workforce development, and applied learning ecosystems.

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About NetCom Learning

NetCom Learning is a mission-driven skilling and workforce transformation company established in 1998 and headquartered in New York City. With a U.S.-first mission to build a future-ready workforce, we have trained over 100,000 professionals annually across five continents.

Our partnerships with global technology leaders—including Microsoft, AWS, Google Cloud, CompTIA, Cisco, and NVIDIA—ensure our learning programs are aligned with the latest tools and platforms. We also collaborate with certification providers such as AI CERTs™ to deliver role-based, vendor-neutral credentials for emerging AI occupations.

NetCom Learning works closely with public and private sector stakeholders to:

- **Design and deliver AI, ML, and cybersecurity skilling programs** aligned to national innovation priorities
- **Certify learners** in workforce-ready roles across cloud, data, and AI technologies
- **Deploy scalable labs and learning platforms** to underserved regions and priority sectors
- **Support public-sector skilling programs** through instructional design, needs assessments, and strategic capacity building

Our efforts are grounded in equity, access, and scale—supporting the responsible adoption of AI through verifiable skills and inclusive learning ecosystems.

Foundational Research Needs in AI Education and Workforce R&D

NetCom Learning urges NSF to include foundational research in AI education and skilling methodologies as a strategic priority in the National AI R&D Plan. While much of the current focus is rightly placed on advancing technical capabilities of AI systems, the **social and human infrastructure** required to foster broad AI readiness and responsible use remains significantly underdeveloped.

1. Research on Human-AI Learning Interfaces

- Investigate how AI tutors, LLMs, and virtual agents can enhance learning outcomes through adaptive instruction and dialog-based engagement.
- Evaluate the effectiveness of generative models in supporting assessments, personalized feedback, and soft-skill development.
- Explore explainability, trust calibration, and hallucination risks in AI-augmented learning environments.

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2. Prompt Engineering Literacy Frameworks

- Define and benchmark prompt engineering competencies for academic, civic, and enterprise contexts.
- Study how non-programmers and general users can build fluency with LLMs through structured training pathways.
- Examine strategies for ethical prompt design, prompt provenance tracking, and bias mitigation in educational content.

3. Skilling for Responsible and Equitable AI Use

- Develop training interventions that embed FATS principles (Fairness, Accountability, Transparency, Safety) into AI system design and usage.
- Research approaches for culturally inclusive curricula and language-localized AI training tools.
- Assess the long-term impact of AI skilling programs on workforce inclusion and participation among underrepresented populations.

Public-Private Partnerships for Applied AI Learning

To translate AI research into broad workforce impact, NetCom Learning recommends that NSF expand its support for public-private training collaborations, particularly through scalable delivery models and instructor capacity building.

1. Modular Training-as-a-Service (TaaS) Delivery

NetCom Learning proposes a **Training-as-a-Service (TaaS)** model, where certified education providers partner with federal agencies, local governments, and nonprofits to deliver modular, job-aligned AI education. These collaborations would include:

- **Vendor-authorized certifications** such as Microsoft AI Fundamentals, AWS Machine Learning Specialty, and NVIDIA Deep Learning Institute programs.
- **Custom learning paths** aligned to regional and national economic needs (e.g., AI for healthcare, manufacturing, education, financial services).
- **Blended learning delivery** integrating instructor-led training, self-paced modules, hands-on labs, and challenge-based capstone projects.

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2. Train-the-Trainer & Faculty Development

To build capacity within the existing education system, NSF should invest in train-the-trainer programs that enable instructors at high schools, community colleges, and minority-serving institutions to deliver foundational AI courses. Support mechanisms could include:

- Cohorts for foundational AI instruction, supported by AI-certified facilitators.
- Access to open-source or NSF-endorsed **curricula**, lecture slides, lab exercises, and sandbox environments using LLMs.
- **Instructional design bootcamps** hosted in partnership with NSF grantees or regional innovation hubs, tailored to the K–12 and community college ecosystem.

AgentX: A Framework for Scalable, Experiential AI Learning

AgentX, developed and delivered by NetCom Learning, is a scalable learning and innovation framework that fuses short-form AI skilling with real-world challenge-based learning. It is designed to help learners build fluency in AI fundamentals and apply their knowledge to civic, social, and economic challenges through structured hackathons, mentorship, and capstone experiences.

Overview of the AgentX Framework

AgentX functions as an **AI Learning + Challenge Platform**, structured to:

- Deliver short-format AI education that leads to **career-aligned, role-specific outcomes**.
- Equip learners with **applied fluency** in AI topics such as prompt engineering, generative AI, responsible AI, and data ethics.
- Provide **low-barrier entry points** using no-code/low-code tools to democratize innovation.
- Create **inclusive, team-based learning environments** that foster collaboration and cross-disciplinary problem-solving.

Current Implementation Focus: Generative AI and Prompt Engineering

AgentX currently delivers national and international programs centred on Generative AI and Prompt Engineering. These engagements help learners:

- Design **human-aligned, bias-aware prompts** for sectors like education, health, and civic engagement.

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- Prototype tools with LLMs (e.g., GPT-4) for real-world use cases such as **resume optimization, lesson planning, mental health awareness, and digital service navigation**.
- Understand **LLM constraints, hallucination risks, and ethical use** through hands-on experimentation supported by mentoring.

AgentX as a National Skilling and Engagement Framework

AgentX's modular and adaptable design makes it an ideal framework for NSF to adopt as a **national AI learning and engagement platform** across diverse domains.

AI/Tech Topic	Short-Form Skilling Modules	Hackathon/Capstone Use Cases
Computer Vision	Image classification, edge AI	Climate monitoring, recycling sorters
NLP & Ethics	Language modeling, bias detection	AI news credibility tools, inclusive translation
Responsible AI	Fairness, explainability, auditing	HR screening audits, equitable loan modeling
MLOps	CI/CD for ML, model deployment	Predictive maintenance bots, ML pipelines
AI for Cybersecurity	Threat detection, anomaly detection	Phishing simulators, deepfake identification
Data for Good	Storytelling, visualization	Digital inclusion dashboards, poverty heatmaps

This modular format allows AgentX to serve as a **testbed for educational interventions**, enabling:

- Piloting of new curricula in partnership with NSF-funded institutions.
- Evaluation of real-world **learning outcomes and innovation behaviors**.
- Community-based engagement with learners across all demographics, including reskilling populations and K–12 audiences.

Its framework can integrate with NSF-funded institutions and innovation hubs, enabling cross-pollination between AI research, instruction, and civic impact.

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Societal Value and Strategic Alignment

AgentX reinforces NSF's commitment to inclusivity, innovation, and ethical AI by offering:

- **Socially cohesive learning models**, where learners mentor, collaborate, and innovate in teams.
- **Cross-sector engagement**, bridging academia, industry, and civil society.
- **Inclusion by design**, with multilingual, accessible materials and challenges tailored to marginalized and underrepresented groups.

We believe AgentX can act as a **force multiplier** for NSF's strategic goals—by transforming each priority area in the National AI R&D Plan into a measurable, participatory challenge. It bridges the gap between federal research investments and real-world workforce outcomes by embedding innovation in learning and activating communities as co-creators of AI solutions.

Ensuring Equity and Accessibility in AI Skilling

To ensure the benefits of AI are inclusive and universally accessible, the 2025 National AI R&D Strategic Plan must embed equity as a foundational principle in all skilling initiatives. NetCom Learning recommends a set of scalable, high-impact strategies to reach underserved and marginalized communities:

1. Mobile AI Learning Labs

Deploy portable, low-cost training infrastructure to deliver AI education in rural, tribal, and economically disadvantaged communities. These labs can include:

- **Chromebook or Raspberry Pi-based hardware** capable of running lightweight AI simulations.
- **Offline-first AI curricula** with downloadable LLM sandboxes, annotated datasets, and step-by-step tutorials.
- **On-site coaching hubs** for skills such as resume building, prompt design, and GenAI productivity tools (e.g., translation, document drafting).

Such mobile units can be coordinated with libraries, schools, community centres, and workforce development boards.

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2. Subsidized Certification Pathways

Establish funding programs and federal support mechanisms (e.g., vouchers, microgrants, or GI Bill-style coverage) for:

- **High-potential, low-income learners** in both urban and rural regions.
- **Displaced or transitioning workers** from sectors impacted by automation, such as logistics, retail, and clerical work.
- **First-generation tech learners**, including those from historically excluded racial, linguistic, and gender groups.

These programs can be paired with vendor-neutral certifications—such as those offered by AI CERTs™—to ensure standardized, role-based competencies for emerging AI job roles.

3. AI Literacy for Civic Engagement and Public Service

Support national programs aimed at democratizing AI understanding and use for civic and community advancement:

- **Public sector upskilling** for government employees, educators, and social workers on AI integration in workflows and service delivery.
- **Community AI leaders** trained to apply GenAI tools for elder care, multilingual service access, and digital inclusion for people with disabilities.
- **Grassroots content literacy programs** focused on identifying misinformation, leveraging GenAI for civic messaging, and co-designing AI tools for participatory governance.

These strategies align with NSF's goal of ensuring broad participation in the AI revolution and equipping all Americans with the tools to thrive in a digitally transformed economy. NetCom Learning stands ready to help operationalize these efforts through field-tested delivery models, scalable platforms, and community-based partnerships.

Scaling the Impact of AI R&D Through Applied Learning Ecosystems

NetCom Learning plays a pivotal role in translating AI research into real-world outcomes by building the applied learning ecosystems and human capital necessary to sustain innovation.

While we do not engage in algorithmic or hardware research, our core strength lies in bridging the gap between research and implementation by ensuring AI innovations can be adopted, understood, and maintained by a certified and diverse workforce.

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How NetCom Learning Enables National AI R&D Goals:

- **Rapid Deployment:** We convert AI research insights and emerging tools into practical training programs with real-world applicability.
- **Talent Activation:** We create and certify professionals for emerging roles—such as ML pipeline engineers, prompt engineers, AI governance officers, and TinyML developers.
- **Research-to-Training Pipeline:** We co-develop modular curricula based on active R&D focus areas and emerging national standards.
- **Evidence-Based Innovation:** Our AgentX platform provides anonymized learner and challenge data to support policy research, program evaluation, and continuous innovation.

By reinforcing applied AI literacy and workforce readiness, NetCom Learning ensures that the investments made in AI research translate into inclusive economic participation, national security, and societal advancement.

Future Research and Collaborative Opportunities

NetCom Learning welcomes opportunities to collaborate with federally funded institutions, research bodies, and public sector agencies on advancing applied AI education. We propose the following priority areas for joint research and program development:

1. Microcredential Effectiveness and Workforce Impact

- Investigate the long-term career outcomes of learners who complete short-form, role-based AI certifications (e.g., job placement, promotions, salary uplift).
- Conduct comparative studies between traditional degrees and modular microcredentials in fast-evolving fields like AI, ML, and data science.
- Partner with employers to co-track skills-to-employment pipelines and ROI of credential investments.

2. AI-Powered Learning Analytics

- Utilize machine learning and natural language processing (NLP) to assess learner sentiment, comprehension, and drop-off points in real time.
- Explore the use of predictive analytics to personalize learning paths, optimize content delivery, and improve certification completion rates.
- Validate ethical AI use in education through models that promote transparency, non-bias, and inclusive engagement.

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3. Skilling for MLOps and AI Productization

- Develop standardized curriculum and hands-on labs for MLOps, covering topics such as model deployment pipelines, observability, CI/CD, and monitoring.
- Address the critical talent gap between AI model development and real-world deployment within enterprise and public-sector systems.
- Support NSF efforts to integrate industry-informed MLOps pathways into academic institutions and workforce boards.

4. Democratizing Edge AI and TinyML

- Create accessible learning tracks for citizen developers and non-traditional learners to build applications at the intersection of AI and IoT.
- Develop training content focused on TinyML deployment for edge devices, including energy-efficient inference, federated learning, and rural-use cases.
- Collaborate on pilots for Edge AI use in agriculture, environmental monitoring, disaster response, and public health.

These themes directly support the strategic goals of NSF's 2025 National AI R&D Plan by building the evidence base for effective skilling and widening public access to AI innovation. NetCom Learning brings the platform, reach, and learner data to advance this research at scale.

Conclusion

NetCom Learning commends the National Science Foundation and the Office of Science and Technology Policy for their visionary leadership in shaping the future of artificial intelligence through ethical, inclusive, and innovation-driven strategies. We strongly believe that by investing in applied learning ecosystems, community-based skilling, and role-based credentialing, the United States can sustain global leadership while ensuring AI serves the public good.

We respectfully recommend that AgentX be recognized not only as a model for Generative AI and Prompt Engineering skilling, but as a scalable national framework capable of translating any AI R&D breakthrough into hands-on, career-relevant learning. Its modular design, civic engagement focus, and research-aligned structure make it an ideal bridge between innovation and implementation.

NetCom Learning is fully committed to supporting the objectives of the 2025 National AI R&D Strategic Plan. We stand ready to collaborate across sectors to help transform R&D investment into equitable talent pipelines, public awareness, and national competitiveness in the age of AI.

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