

Written Statement

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AI Insight Forum: Workforce

Introduction

Majority Leader Schumer, Senators Rounds, Heinrich, and Young, thank you for the opportunity to share a written statement about the impact of artificial intelligence (AI) on our workforce.

I am Dr. José-Marie Griffiths, President of [Dakota State University \(DSU\)](#) in Madison, South Dakota. At DSU, we are training the next generation of professionals in emerging technology fields such as AI, cyber, and quantum computing. I have spent my career in research, teaching, public service, corporate leadership, economic development, and higher education. Having immigrated to the United States from the United Kingdom as a research scientist to work on some large-scale computer science projects for the federal government, I am deeply aware of the role legal immigration plays in bolstering our country's innovation and leadership.

Through my appointments to the National Security Commission on Artificial Intelligence (NSCAI), National Science Board, President's Information Technology Advisory Committee, and several other federal commissions and committees, one thing has remained constant: Industry collaboration with academia and the federal government is essential to addressing the most pressing technological challenges. AI is no exception.

The Challenge

Over the past year, AI has permeated our everyday conversations and popular culture, due in part to breakthroughs in large language models like ChatGPT. This technology is not new. The earliest discussions about the possibility that computers could mimic human thought and action started in the early 1950s, with the terms "artificial intelligence" and "machine learning" coined at the Dartmouth Conference in 1956.

The current and potential demand for a tech-savvy and capable workforce transcends AI alone. We already have a huge unmet demand for cyber talent. The recent and expansive developments in large language models have catalyzed most, if not all, sectors of society to investigate, adopt, and adapt AI applications both at a reasonable cost and on an unprecedented scale. Furthermore, AI and cyber are symbiotically related and quantum computing will power each to levels previously unimagined. The three technologies are all interrelated, coming together to form what I've been calling 'power cyber.'

The next technological evolution is already here. A whole-of-cyber workforce approach is necessary to harness AI's limitless capabilities. If the U.S. does not create a plan for AI education, the nation will face the potential of a very real national crisis that will impact the future of our economy and national security. If we miss the mark, we risk falling into the category of industries that refused to modernize and became nearly extinct.

All entities – industry, government, military, and education – need to collaborate on this strategy because emerging technologies like AI represent something bigger than each of these groups, something more impactful than any individual or organization could contribute on their own. We need a collective call to action for a national talent development program involving unprecedented engagement and collaboration across all levels of government, industry, and academia. This is where we need the government to step in, declare the crisis, set forth the goals, and facilitate the resourcing of this effort.

About Dakota State University

As a leading research institution known as the powerhouse on the plains for innovative technology education and workforce development, DSU's mission is to prepare the next generation of technology professionals and advance U.S. competitiveness in emerging industries. We are one of only ten universities nationwide to hold all three Centers of Academic Excellence in Cybersecurity designations from the National Security Agency (NSA), and our innovative R&D campus facilities and public-private partnership model is empowering students to immediately enter the workforce in technology and cyber roles upon graduation.

Our focus is on growing future technology talent and helping them find rewarding employment inside South Dakota and in other key cyber markets, even beyond the mainstay tech hubs of Silicon Valley and Washington, D.C. DSU currently has a 99.7 percent overall job placement rate that is supporting a skilled talent pipeline of recent undergraduate and graduate students who are ready to address some of the toughest challenges and exciting opportunities posed by AI and emerging technologies in our workforce.

Some of our hallmark programs include:

- Through [The Beacom College of Computer & Cyber Sciences](#), undergraduate and graduate students are provided access to innovative academic programs in addition to hands-on research opportunities and professional experiences in the field. DSU's Master of Science in AI was just submitted to the South Dakota Board of Regents for approval. We also have a B.S. in AI and a B.B.A. in AI for Organizations, along with AI as a minor and as a specialization with and within computer science and other degree programs, such as digital forensics and cyber leadership and intelligence.
- Additionally, the [Madison Cyber Labs](#) (MadLabs®) building is a space for faculty, students, and researchers to support exploration in cyber-related research and technology applications across government and many partnering industries, including financial services, agriculture, and healthcare. It provides an atmosphere for technology application, workforce development, business expansion, economic growth, and policy improvement.
- [DSU's Applied Research Lab](#) (DSU-ARL) employs full-time research engineers to conduct cutting-edge research for external sponsors in support of national security and defense. A planned expansion of the Lab's facilities to Sioux Falls will significantly add to the already growing cyber workforce in South Dakota.
- One of the DSU's main teaching and learning environments, the Information Assurance Lab (IALab), is a unique, virtualized infrastructure that allows students to mimic corporate networks, launch attacks, develop and test mitigation solutions, and rapidly deploy multiple working environments. The successful design of IALab has been adopted

by the NSA's National Cryptological University, Naval Post Graduate School, and Northeastern University.

- Initiatives like the [Governors Cyber Academy](#), [CybHER Security Institute](#), and DSU-SOAR contribute to the ecosystem of our 360-degree approach, empowering students to enter the workforce with a set of pipeline programs for K-12, upskilling and reskilling workers, and helping businesses establish cyber and AI best practices. We are now looking heavily at quantum computing to stay ahead of the curve. That's the next frontier in technology.

Solutions

To be impactful, a spectrum of AI workforce development efforts will be required to address the current workforce, future talent, educators, policymakers, and private industry.

At DSU, we have been focusing on solutions to embrace the positive opportunities and mitigate the negative impacts of AI in our future workforce as it pertains to upskilling and reskilling of diverse groups, including women, veterans, former retirees, and others.

Invest in a Spectrum of AI Talent

Efforts to advance the future workforce are needed at multiple levels, but there are three core groups: the experts, the users, and the general population. The experts include our technology designers, developers, testers, and curators. These are the AI evangelists paving the way for new innovations. We need these skilled experts to help educate and upskill current and future workers.

The users are the people who will manage and interact with AI the most. They are providers and end-users. These workers don't necessarily need to have a degree in AI or computer science to fill or transition to a user role, as we can provide them with the skills development and training needed for the job. Many of them are already in our workforce, we just need to broaden our view of what a career path in AI means, as not all roles require a four-year degree.

As our world becomes increasingly digital, it's more important than ever for the general population to have a certain awareness level of what AI is, what it can and cannot do, and how to identify its use in our everyday lives. This baseline education must begin in kindergarten and continue all the way through undergraduate programs to ensure the next generation of Americans have some form of literacy or fluency in AI.

Cultivate Talent Beyond Existing Technology Hubs

We must remember that talent exists everywhere, not just on the coasts or within elite institutions. At DSU, we have seen that the current and next generation of AI talent can be found in all pockets of the country. We need to continue to provide opportunities for all who want to enter these fields.

Many individuals, as I mentioned, are already in or can re-enter our current workforce. Our retirees and veterans have a wealth of knowledge and talent to contribute to this next technological evolution. We need to bring these minds and skills back into the workplace.

The federal government should also focus on revising legal immigration procedures. We cannot fill the jobs needed to support this evolution with U.S.-born talent alone. The hundreds of thousands of international students who come to our country for higher education should be able to stay and work here after graduating (with appropriate security checks). As a legal immigrant myself, I can serve as an example of the benefits of retaining the top talent coming to the U.S. to ensure we are fostering the strongest workforce.

Reframe What AI's Applications Mean in Private Industry

AI will have tremendous impacts on how we do business – it will hit early and hard, and we are already seeing the initial effects in some sectors. Private industry needs to prepare now for the disruptions AI will create in our workforce.

Organizations that use technology in their business or service must start to think about the potential displacement of staff and have transition plans in place internally and externally. What we can't have is people losing their jobs when all that is needed is a commitment to reskill or upskill current workers.

Different preparation and upskilling strategies are needed for each group of 'users' in private industry. For example, women make up the majority of data entry or management professionals in the U.S. workforce and are most at risk of losing their jobs to AI. They will be affected differently than veterans or former retirees, and it's important to address this by having plans in place for each role and transition that could be on the horizon.

Advance Public-Private Partnerships and Adjust Accreditation

Public-private partnerships are a powerful tool for collaboration that can lay the blueprint for how to marry industry expertise with education and training.

We must also consider alternative solutions for all types of educational providers with clear pathways and multiple credentialing opportunities for individuals. With the shortage of qualified teachers in large portions of the educational sector, educational accrediting agencies should be encouraged to allow our skilled experts to educate others. While these individuals don't have the traditional educational qualifications typically required to teach, they are still talented workers who have experience and expertise that can be leveraged and called upon during this looming national talent crisis.

The federal government should recognize this need for educators as part of the national priority on AI and empower these kinds of educators and learning. We must invest in additional skilled educators fluent in technology at all levels to achieve our technological leadership ambitions. We need to be creative and innovative, and we need to do it quickly.

Grow the Federal AI Workforce

One of the recommendations made by the NSCAI to grow the federal AI workforce was to establish as U.S. Digital Services Academy (USDSA) modeled on the current military academies but without the military education. This was a popular recommendation but has not been implemented. For the federal workforce, an academy that will graduate 200-400 future leaders annually would have a measurably positive affect on new and emerging technology advocacy,

acquisition, deployment, and utilization across the government. The cost to operate this academy is comparable to the Scholarship for Service models. The benefit of the USDSA is the cohort approach, which graduates a community of potential leaders who have worked together and share a commitment to the mission and values of the federal government in both uplifting and protecting the nation.

Another more immediate need for government (federal, state, and local) is to work with educational providers to offer short-term, focused programs for selected government employees. These programs could offer a variety of general skills and knowledge training in AI, cyber, and digital services. Short courses and workshops could promote the acquisition and accumulation of various stackable digital credentials.

Conclusion

The role of technology in our lives is constant and yet ever changing. AI's benefits are crucial to solving the world's most pressing challenges, which transcend geographic borders and industry. At the same time, its potential risks also stand to impact everyone.

The federal government, the Biden administration, and world leaders are taking critical steps to increase knowledge of AI and inform the creation of policies that help curb AI's risks while maximizing its potential. Workforce development is a key piece of this puzzle, and leading academic institutions have a critical role to play in the implementation of programs that supercharge a skilled workforce.

Educating policymakers on the intricacies of AI and its impact on our workforce and 'power cyber' technologies is a critical component to ensuring the development of informed public policy. Continuing learning sessions like the AI Insights Forum will support policymaker engagement in this timely issue.

Thank you again, Majority Leader Schumer, Senators Rounds, Heinrich, and Young, for your attention to AI and these important bipartisan matters.

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[Dr. José-Marie Griffiths](#) is the President of Dakota State University in Madison, South Dakota. Dr. Griffiths has spent her career in research, teaching, public service, corporate leadership, workforce and economic development, and higher education administration with a special focus on work in STEM fields. She has served in presidential appointments to the National Science Board, the President's Information Technology Advisory Committee, and the U.S. National Commission on Libraries and Information Science. She was also a member of the National Security Commission on Artificial Intelligence.