

Government Is Adapting to an AI-Driven World

Federal agencies are working with the public sector to make proper changes in workforce, training and investments as AI continues to advance.

Keeping pace with the capabilities of artificial intelligence applications and changes in research and development funding requires new initiatives and workforce training in higher education at all levels. To help, the federal government's spending on IT R&D and AI in fiscal year 2023 will top \$9.6 billion, while the University of Florida is constructing "an AI university" for students.

AI is evolving fast, bringing noticeable impacts on the workforce, productivity and innovations in all sectors – but it can also be used to automate existing jobs and exacerbate inequality. Thought leaders from government and industry spoke at a recent [FedInsider webinar](#) to discuss these implications, and how they're implementing AI-driven changes.

Advancements in AI

"Directly or indirectly, we are all impacted by AI whether we are in the commercial sector or the federal government," said Taka Ariga, chief data scientist and director of the Innovation Lab in the Government Accountability Office. Generative AI is a good example as it is becoming a generalized application for improving productivity. Ariga also sees a lot of AI in the cybersecurity and identity-proofing realm.

Jaime Fitzgibbon, AI/ML portfolio manager for the Defense Innovation Unit, said the agency is prototyping AI-powered wearables

(like watches and rings) to improve military and operational readiness by detecting pre-symptomatic infections.

Fitzgibbon said they're also looking at AI for predictive maintenance on helicopters and tanks, and also for intelligence. "AI can find those signals and illuminate the things humans need to pay attention to, as opposed to just consuming and processing all of it," Fitzgibbon said.

Still, "where we are now is that the technology itself is advancing faster than our ability to chase after it with policy and guardrails," Ariga said. That's why the Office of Personnel Management released a [memo](#) identifying key skills and competencies needed for positions related to AI, as the technology is sure to have an impact on workforce readiness and hiring practices.

The Potential of AI

The health sector is heavily relying on IT, data and a public health data workforce to improve outcomes for citizens. "The future of AI in public health is very much tied to the success of this current data modernization initiative," said Cason Schmit, an assistant professor in the Department of Health Policy and Management at Texas A&M University.

Those opportunities include using AI to forecast future public health threats before they occur, and quickly respond to those

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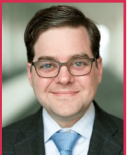
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■ **Steve Devoir**
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detected and identified. "However, AI in public health is very much limited by practical realities," Schmit said. "Public health data systems are highly decentralized, so accessing the data needed for traditional data analysis, much less advanced AI applications, is a major challenge." Once data-sharing barriers are addressed and biases are accounted for in training AI models, public health will start to realize the awesome potential and benefits of AI.

The State Department – an early adopter of AI – leveraged natural language processing and machine learning capabilities to automate the review and analysis of unstructured data. Historically, humans had to sift through a ton of reports and cables to find information they needed to complete their work and make decisions.

"What we are doing is automating these processes to ensure a more complete, accurate and faster processing so that they can provide more insight in the time that is needed," said Dr. Giorleny Altamirano Rayo, chief data scientist and responsible AI official for the Department of State. The department is using natural language processing to review documents ready for declassification, and it has achieved about 97% agreement with human reviewers, while also reducing the process of review by 65%. Considering the amount of data in government, those capabilities provide far-reaching benefits.

Looking for the Right AI Skills

Having the proper mathematic knowledge and skillset, or the "hard skills" – as

Gretchen Stewart, chief data scientist for Intel Public Sector, put it – is necessary when hiring for AI-related positions. However, soft skills – like working well in a group and collaborating – are just as important.

"You really need expertise when you are trying to solve these problems, in addition to having people who really understand the math behind artificial intelligence and machine learning," Stewart said. "I don't think we will ever have enough PhDs in data science and computer engineering." To help, Intel is sharing its AI-related content and findings as a curriculum to community colleges around the nation.

Building diverse data teams, including positions like social scientists, medical doctors or anthropologists along with electrical engineers and computer scientists, will also help develop the proper data models, policies and processes for scalable and ethical AI.

When it comes to AI augmentation, Steve Devoir, managing director of industry solutions for public sector at Cloudera, said several attributes and jobs skills work well for most decision-making roles and data analysis jobs requiring automation of repetitive tasks or the ability to identify patterns and anomalies in large data sets.

"Across-the-board, agencies must develop a culture of data literacy and data democratization across the workforce," Devoir said. "The ability for employees to analyze vast amounts of data and uncover those patterns in real time, ideally, is very valuable."

Bolstering the Federal AI Workforce

To fulfill its mission and improve operations, the U.S. Patent and Trademark Office's Information Technology Transformation Office works to leverage promising technology internally, while also leaning on industry collaboration. The internal factor relies on proper employee training, management and innovative exposure.

"Our examiners work by a process, and we are involving them from every step of the way to really get them involved and working hand-in-hand on a focus with this idea of human-machine collaboration opportunities," said Scott Beliveau, the agency's chief of enterprise advanced analytics.

"We want them to use this technology to be able to do what they are already doing, better, faster, cheaper and more effectively to generate that higher quality product."

Ultimately, the future of AI is promising – with agencies already focusing on AI ethics, policies, training, innovations and possibilities. And while upskilling talent is critical, so is preparing the next generation of AI experts.

"The U.S. has done this forever – walking a fine line of driving innovation and doing it from an ethical perspective," said Randy Hayes, vice president of public sector at Vast Data Federal. "It is an awesome field to be in, and if there are any college folks or folks right out of college looking for opportunities, they should learn statistics, and also math. And study extra hard at math," he said. "I think the future is vast, and we are really excited about it."



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