

The Advantages & Challenges of Deploying Artificial Intelligence in the Military

The military is currently researching a wide range of potential uses for AI that includes having AIs operate both independently and in conjunction with humans

Artificial Intelligence (AI) is becoming the driving force behind a good portion of modern military research. From developing ways for AI to help to analyze intelligence reports to improving weapon systems and detecting fraud, the potential for AI to become a force multiplier is nearly limitless. However, there are also some big challenges that must be overcome before the military can begin to reap the full benefits of this emerging and evolving technology.

Government and industry leaders recently gathered at a [FedInsider roundtable discussion](#) to discuss the challenges and opportunities The Department of Defense faces with its AI military integration.

Training AI Can Be Difficult and Time Consuming

When AI is mentioned in the media or popular culture, it's often billed as a self-sufficient solution that can solve any problem. Most real AIs, however, come into existence with almost no knowledge whatsoever. It must be trained either by humans or by feeding it large sets of data. And people need to be careful that they don't introduce bias or errors into the AI during that training process.

"The challenge of having AI that I think everyone needs to understand is that having an AI is almost like having a small child," said Director of the Contracting and National

Security Acquisitions Team at the U.S. GAO Jon Ludwigson. "You need to train the child, and the data is how that AI system is going to be trained."

Ludwigson went on to describe how once trained, AI can use that data to figure out how to perform tasks, such as automating repetitive, boring or even dangerous assignments in place of human operators. That can add efficiency into the military and free up humans to perform higher-level tasks that are more suited to their natural abilities.

Governmental Purchasing Cycles Could Be Detrimental for AI Acquisitions

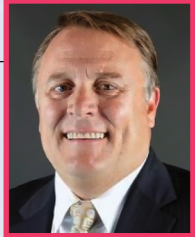
One universal truth about government purchasing and procurement processing is that it sometimes moves slowly. Stories abound of requisitions placed for items needed in a few months not arriving until the following fiscal year after they are no longer required. While this practice is inconvenient for some agencies, it can be crippling for those trying to procure rapidly advancing technology like AI. "We need to shift into an agile world in order to keep up with technologies," said Chief Information Officer at the U.S. Air Force Air University Jeffrey Lush.

Lush said that the slow and steady bureaucratic processes for purchasing still works for some things, and helps to ensure that the government gets both the best deals and

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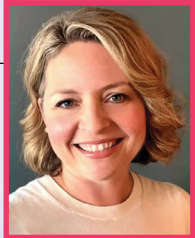
■ Jeffrey Lush

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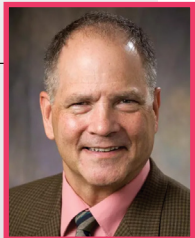
■ Jon Ludwigson

Director, Contracting
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Acquisitions Team,
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■ COL (r) Doug Drakeley

Advisory Board,
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■ Sean Plankey

Federal CTO,
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equipment. But buying technology is different from obtaining other commodities, and the purchasing system needs to better reflect that.

Program Manager in the Defense Innovation Unit's AI/ML Portfolio Jaime Fitzgibbon agreed with Lush's assessment. "I think revising what was developed in the 1980s to reflect how technology moves today is necessary," Fitzgibbon said. "Our warfighter's needs have changed rapidly, and we need to be responsive to that in our acquisitions."

Government Workplace Culture Needs to Adapt to AI and Other Technologies

Generally, the federal government maintains a risk averse culture. Because of this, technology is normally handled by very specific people within an organization, when in fact its ubiquitous nature means that everyone should take at least some ownership of it.

"We have this mentality where if you have a cyber issue, you call the IT guy or call the NSA," said Federal CTO at DataRobot Sean Plankey. "And that has really stunted the applicability and growth of cybersecurity understanding, and acceptance that it's every person's issue."

For something on the cutting edge like AI, it's often not the technology or even the infrastructure that is the biggest hurdle keeping it out of government, Plankey said. It's the culture.

To change the culture, the military needs to change the mindset of people at all levels of

government. For example, Plankey said that instead of letting someone simply say, "I'm just a pilot" they should be shown all of the processes and tools that help them do their jobs or even plan their missions. If done at all levels across the government, eventually the workforce and leadership would be more accepting of AI and other evolving technologies, because they could see where employing those tools would assist them in completing their missions.

Artificial Intelligence Deployment Is Critical

As mentioned earlier, AI has a lot to offer in terms of automating systems and assisting humans with critical decision making, but it takes time to develop the technology and even more time for an AI to learn how to do its job well. As such, there is a danger that by the time the military begins to fully embrace AI, that it will face a long ramping up process that may cause it to fall behind some of our potential adversaries.

In describing AI operating in the military, "critical is a good word, but inevitable is a better way of looking at it," said Deputy Director of the Data and Digital Innovation Directorate for the National Geospatial-Intelligence Agency Mark Munsell. Given that inevitability, Munsell questioned whether we could speed up the process of adoption now, so that we are in a better position once AI will be required for the military to hold an edge over its enemies. "Can we speed up the inevitability of it by, sort of, raising the alarm right now?" he asked.

But not every AI project for the military and government is slated for a future deployment. Experts on the panel also talked about how some AIs were already working to perform critical tasks. Many of those began in the commercial sector and were later adapted for military use.

"I was part of a project where we had been working with commercial companies using AI for fraud detection," said Colonel (Ret.) Doug Drakeley, who today is on the advisory board for SambaNova Systems. "We were able to bring that commercial AI technology over very rapidly and deploy it quickly in government, and I think we need to see more of that happen."

Munsell agreed, saying that NGA was also working with commercial companies to deploy AIs that can assist humans with their intelligence gathering activities. The AI is able to shift through millions of data points or even video feeds very quickly and determine which ones a human should study in more detail. In that case, a human is doing the final analysis, but the AI eliminates potentially hundreds of hours of repetitive searching so that a human operator can focus on areas that are truly important for a mission.

According to Munsell, pairing humans with AIs lets both of them play to their strengths, and will be a key to helping the military quickly complete its missions and get an edge over potential adversaries in the future.

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