

The Role of AI in Federal Civilian Agencies

Artificial intelligence has a bright future in government, and some agencies are already embracing everything it has to offer

Artificial intelligence (AI) and related technologies like machine learning and robotic process automation offer a lot of promise because they allow computers to take over roles and jobs that were traditionally done by humans. Typically these are low-level tasks, potentially freeing up humans to work on bigger and better things.

The technology has already been embraced by many federal agencies, and an executive order entitled [Promoting the Use of Trustworthy Artificial Intelligence](#) in the Federal Government encourages more widespread use.

Some of the top AI experts in government and industry gathered at a recent [FedInsider roundtable discussion](#) to discuss the rapid rise of AI in government, and the challenges that may also be ahead for the technology. The following are some key points from their discussion.

AI Improves Productivity in Government by Streamlining Processes

Most federal civilian agencies need to absorb and process of large amounts of data and information. That data is often then shared or otherwise used in service to the public. At the IRS, AI is being tasked with helping both of those missions.

The IRS receives millions of tax returns every year. Processing all those forms by hand can be a tedious undertaking for humans, so AI is being used instead to take a first look at millions of those forms. That is a perfect use for AI says

Dr. Melanie Krause, Chief Data & Analytics Officer for the IRS, and the agency has seen a lot of success.

Additionally, the IRS is expanding its use of AI, giving those artificial intelligence workers a voice through chatbots, and tasking them with helping to talk with real people looking to catch up with their back taxes.

"One recent accomplishment was the January 2022 deployment of voice bots, which run on software powered by AI," says Dr. Krause. "Through early July, the voice bots have answered over three million calls." Flush with that success, the IRS plans to give the AI software running the voice bots increased responsibility in the future. For example, instead of just providing information to callers, the AI will be able to help work out a payment plan. And the IRS is by no means the only agency that has found success with initial AI programs, and now wants to expand them.

"Our efforts are really focused on using AI to augment the productivity of our workforce," says Keith Bocian, Senior Data Scientist for the Office of the Inspector General at Health and Human Services. Initially, HHS was focused on the massive number of documents the agency generates to help accomplish and track their missions. They created a "build-your-own" document portal powered by AI that freed up thousands of hours for their human workforce. "Using AI like that lets workers best leverage their skill sets," Bocian says. "It lets them use their knowledge and expertise, and focus their time and energy."

Featured Experts:

- **Dorothy Aronson**
Chief Information Officer,
National Science Foundation



- **Dr. Melanie Krause**
Chief Data & Analytics Officer,
Internal Revenue Service



- **Dr. Julia Lane**
Professor,
New York University



- **Scott Beliveau**
Chief of Enterprise Advanced
Analytics, Office of the CTO,
USPTO



- **Keith Bocian**
Senior Data Scientist,
OIG, HHS



- **Dr. Gil Alterovitz**
Director, National Artificial
Intelligence Institute,
U.S. Dept. of Veterans Affairs



- **Dr. Erica Reuter**
Manager Solutions Engineers,
US Public Sector,
Alteryx



- **Art Villanueva**
Chief AI/ML Technology
Architect for Dell Federal,
Dell Technologies



Understand That AI is Only As Good as its Data

Though using AI to automate every rote process would be ideal, it's not quite that simple. According to several experts on the panel, most current iterations of AI require what is essentially binary information to function properly. Binary means the data has to be either true or false; without nuance. Eventually, AI will become more dynamic and be able to handle so called "fuzzy matches"—a capability to process information more like humans do—but we are not quite there yet.

"The quality of the AI model is going to be dependent on whether that dataset is well defined," says Dr. Julia Lane, professor at NYU's Wagner Graduate School of Public Service. She is also a member of the advisory committee on Data for Evidence Building for the National AI Research Resources Task Force. "You want to build that capacity [to tightly define data] into your agency so it's not just a few people making decisions."

A key reason to watch over the data that is being fed into an AI, according to Dr. Lane, is to prevent bias from creeping into the process. For example, there have been many news reports about bias in AI programs like those that power facial recognition applications. Dr. Lane said the bias in most cases was introduced through limited or flawed data sets.

Keeping datasets clean is one way to watch for AI bias, which generally means having humans scrub data being fed into AIs for racist, sexist or factually incorrect information, but it's also good to keep humans in the loop even after an AI is trained. AI is not good at explaining why it's making decisions, so having a human workforce supervise the process is advisable. That is what the US Patent and Trademark Office did when it used AI to classify millions of patent applications.

"When these decisions are made by AI, we then allow people to challenge the machine's findings and act as a human referee," says Scott Beliveau, Chief of Enterprise Advanced Analytics, Office of the CTO at the USPTO.

"That challenge, and the outcome, then feeds back into our model and continually improves the quality of our recommendations."

AI is Being Adopted For More Roles

In addition to more traditional roles, AI is also being asked to take on more human responsibilities. This could be particularly helpful in understaffed fields like healthcare. For example, The Department of Veterans Affairs has been researching potential uses for AI in helping heal soldiers suffering from traumatic brain injuries, or to prevent suicide among the veteran community.

"I think we're going to start to see AI become a lot more ingrained in a number of places where you haven't seen it before, or in ways that are different than you might have anticipated," says Dr. Gil Alterovitz, director of the National Artificial Intelligence Institute at the VA. "We're looking forward to some of the new things that are going on at the national level."

Over at the National Science Foundation, the key to utilizing AI for non-traditional applications is getting user buy-in right from the start of the program. Users need to understand what to expect from AI, as well as its potential advantages and risks. Establishing program goals up front will help generate positive support from the entire organization.

"When we design AI solutions, we always think of the audience it will serve, right from the very beginning," says Dorothy Aronson, Chief Information Officer at the National Science Foundation. "In our early explorations with AI, we learned we had to meet the community where it is with respect to adoption." Early community acceptance can go a long way to ensuring the success of new AI programs.

AI Continues to Develop and Prove Itself, and That Trend Will Continue

As government and the private sector continue to develop new methods of deploying AI,

each success paves the way for further innovation. There are certain use cases that have become, and will continue to be, extremely good for AI deployment.

"Text analytics and time theory are both incredibly popular uses for AI," says Dr. Erica Reuter, an engineer with Alteryx's Public Sector group. "If you look at our society and how agency work mirrors that, you will find a lot of areas where AI is really making a difference."

Dr. Reuter said AI may even be driving new advancements itself, because it can make rapid decisions that otherwise may not be possible. In the private sector, that could mean that those who successfully tap into AI programs could gain a big advantage over those who don't.

"If you are a business, your competition is either already using artificial intelligence and machine learning or going to start using them soon to performing repetitive and tedious tasks, both simple and complex, to obtain a competitive edge" said Art Villanueva, Chief AI/ML Technology Architect at Dell Federal. "And if you're not doing any of that, you're going to fall behind." While federal agencies don't have business competitors, Villanueva said that AI can help to make them more efficient and more secure too, which is good for the people they serve as well as the nation.

And AI itself will continue to improve. It's not just advancements in AI applications that will speed that along, but also the development of new algorithms, employment of meta-algorithms, and improvements in hardware. Villanueva said that advances like faster communications, more performant GPUs, and cheaper storage will help AIs perform better and more efficiently. He added that the future is bright for AI in government and elsewhere, so long as people are accepting that AI is here to stay, willing to keep pushing the envelope, and supporting AI technology as it continues to evolve.

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