



Uncovering AI'S TRUE POTENTIAL

Agencies have barely scratched the surface of a technology that has profound implications for government missions

THE TERM “ARTIFICIAL intelligence” was coined in the 1950s, but the concepts behind it emerged centuries ago. In the modern era, though, it has long been the province of specially trained scientists and those with access to supercomputers.

AI is slowly becoming more mainstream thanks to advances in other technologies that provide the storage and computing capacity that AI requires. That progress is also due in no small part to the government’s growing ability to collect the vast amounts of data that AI systems need to function well.

For government, AI promises to streamline operations, facilitate decision-making and improve customer services in ways that weren’t possible before. Ultimately, it has the potential to transform the country’s security, prosperity and well-being.

Fine-tuning strategies and allocating money

Agencies have already begun using machine learning, robotic process automation, the internet of things and other AI tools to improve operations, but in many ways, AI’s potential is still untapped. In a recent survey of FCW readers, 72% said their agencies have not begun deploying AI-based tools, and 70% said their teams had no training in data science or AI.

Fortunately, numerous efforts to promote AI are underway across government. Perhaps most notably, the White House issued the Executive Order on Maintaining American Leadership in AI last year and announced the American AI Initiative, a national strategy “to sustain and enhance the scientific, technological and economic leadership position of the United States in AI R&D and deployment.”

That strategy is guided by five principles that address the need for technological breakthroughs on the part of government, industry and academia; technical standards and the removal of barriers to AI adoption; training for current and future American workers; protection of privacy and civil liberties to foster public trust in the technology; and an international environment that supports American AI research and innovation while protecting critical AI technologies from competitors and adversaries.

Several months later, the White House hosted the Summit on AI in Government to brainstorm ways that agencies can adopt the technology.

Other efforts include the establishment of an interagency Select Committee on AI under the National Science and Technology Council, an update to the National AI R&D

Strategic Plan that identifies critical areas in need of federal funding, the National Institute of Standards and Technology's (NIST) release of the U.S. Leadership in AI plan for developing technical standards, and the establishment of the National AI Institute at the Department of Veterans Affairs with the stated purpose of advancing the health and well-being of veterans.

In November, the National Security Commission on AI released its interim report to Congress, with its initial assessment of AI's connection to national security, areas for improvement and preliminary steps the government could take. The report also notes the broad, bipartisan support the commission has received across the public and private sectors.

As a result of all those efforts, the government is starting to allocate more money to AI initiatives. The fiscal 2020 budget provides about \$850 million to support the White House's American AI Initiative at four agencies – Energy Department, National Institutes of Health, NIST and National Science Foundation. The Networking and IT Research and Development Program issued a supplement to the budget that added AI as a program component area for the first time and made a non-defense budget request of \$973.5 million for AI.

Beyond automating rote tasks

Many early AI efforts have focused on implementing chatbots to save employees' time and increase citizen engagement. The Agriculture Department is developing a chatbot to help USDA customers more

easily find the information they need while freeing employees to concentrate on higher-level activities. State and local agencies are using chatbots to answer questions about government services such as license plate renewals and to report problems such as potholes.

AI's capabilities extend far beyond answering users' routine questions, of course. For instance, cities are adding sensors to traffic lights to better manage vehicles' flow through congested areas – and thereby reduce traffic accidents, dangers to pedestrians and pollution. In addition, NASA's Jet Propulsion Laboratory and the Department of Homeland Security collaborated on the Assistant for Understanding Data through Reasoning, Extraction and Synthesis (AUDREY) to provide situational awareness for first responders at the scene of an emergency.

In a press release, DHS officials said AUDREY is personalized to the individual responder and "leverages human intelligence and collects data to achieve better machine intelligence and provides insight that first responders may not have in the crucial moments of an emergency."

At the Defense Department, officials have also recognized the power of AI. They created the Joint AI Center in 2018 to accelerate the technology's adoption across DOD. Although AI is not yet ready to tackle complex activities such as nuclear command and control or missile defense, it eventually will be, said Lt. Gen. Jack Shanahan, the center's director, in an article published on Defense.gov last October. "There is no part of the Department of Defense that cannot

benefit from AI," he added.

The Army is already using AI for predictive maintenance on its aging Bradley Fighting Vehicle fleet and successfully predicted failure on a major subsystem two weeks after the capability launched, which avoided downtime and improved soldier safety. Last September, the Air Force released an AI strategy to "harness and wield the most representative forms of AI across all mission-sets, to better enable outcomes with greater speed and accuracy, while optimizing the abilities of each and every airman," officials wrote in a press release.

What's more, AI is finding an expanding role in cybersecurity, with many agencies looking for commercial tools that can detect and respond to incidents on its networks without human intervention. Along the way, agencies also recognize that their employees need better training to deploy and manage AI tools. The Defense Acquisition University is one of them. Officials issued a request for information on solutions for an adaptive learning environment that responds to students in real time. In other words, it wants to use AI to teach 174,000 DOD acquisition professionals about AI.

As AI adoption grows, challenges related to transparency, explainability and privacy are emerging. Many experts are urging the U.S. government to take a leadership role in addressing those challenges and ensuring the ethical use of AI worldwide. The technology has come a long way in recent years, and the stage is now set for AI to improve government – and people's lives – in previously unimaginable ways. ■

A.I. by the numbers



28%

FCW survey respondents who said their agencies have begun deploying AI tools



84%

U.S. public-sector leaders who cited data privacy and quality as the biggest AI adoption challenges



30%

FCW survey respondents who said their teams have received some training in data science and AI



44%

Estimated growth rate in AI spending by federal governments worldwide through 2022



55%

States that are actively pursuing AI

Sources: Deloitte, FCW, IDC, National Association of State CIOs