

Government's AI Odyssey

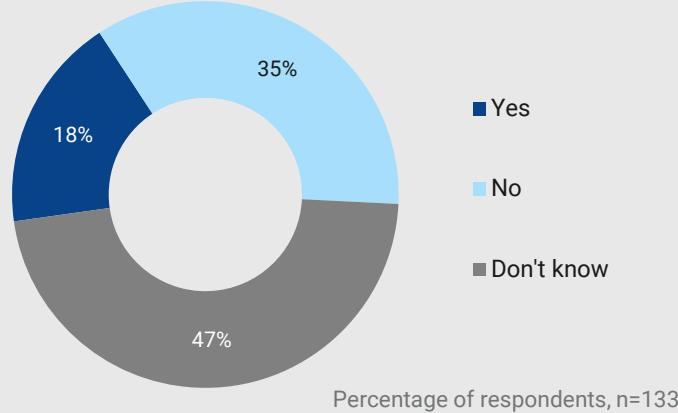
A Candid Poll on AI and Machine Learning in the Federal Government

Introduction

Though the practical capabilities of artificial intelligence (AI) and machine learning are rapidly evolving, there is disparity between the achievements of specific federal agencies. While some Department of Defense (DoD) and civilian organizations are introducing the technology into contract procurements, bug detection, and law enforcement, others have not adopted a single instance of AI/ML.¹ Still, research leaders like the Defense Advanced Research Projects Agency (DARPA) illustrate the ability of AI/ML to create opportunities through tools such as contextual reasoning in software accreditation.²

Majority of the federal government is still working towards AI/ML adoption

Does your organization utilize artificial intelligence (AI) or machine learning (ML) in any of its mission-critical functions?



Analysis:

Despite advancements in technical capacity, public sector agencies have been slow to adopt AI and ML technologies. Just one-third of those with insights into their organization's AI/ML journeys report use of this technology in mission-critical functions.

Citations:

¹ "Grading the 2018 Technology and Government Predictions," *Nextgov*. Published November 28, 2018.

² "DARPA to showcase the billions it's investing in 'third wave' AI research," *Washington Business Journal*. Published November 19, 2018.

Insights from AWS

Federal agencies have come a long way towards AI/ML proficiency and functionality – dozens of agencies now realize the importance of deep learning, neural networks, natural language processing, and other AI-native tools in automating costly processes. Similarly, agency leaders in the DoD have pushed AI and ML capabilities as a key battleground and competitive space in the future of security capabilities.

This research from Government Business Council (GBC) shows the obstacles that can complicate adoption of AI and ML. As with other organizational shifts and technological breakthroughs, adequately moving to AI and ML will require dexterity and agility. Agencies and their leaders will be tested.

The robust evolution in awareness and knowledge shows exciting possibilities – federal employees are as technically savvy as they have ever been. Many are demanding full access to the latest instruments. AWS has the expertise, credibility, and offerings most critical at this step of federal AI/ML implementation.

Initial adoption efforts suggest disconnect between values and use cases

Government Business Council (GBC) asked federal government respondents a series of questions about their current AI and ML capabilities as well as potential future plans for the technology. The figures below present these findings ranked from most common (1) to least common (5).

Cybersecurity threat detection is the most prevalent AI/ML tool.

Has your organization introduced AI or ML into any of the following use cases?

Existing Tools

- 1 Cybersecurity threat detection
- 2 Business intelligence / mission effectiveness
- 3 Process automation
- 4 Predictive maintenance
- 5 Fraud detection

n = 24

Cybersecurity threat detection is also seen as the **biggest AI/ML priority**.

Which of the following use cases should your organization introduce as part of its AI/ML implementation?

Future Use Cases

- 1 Cybersecurity threat detection
- 2 Process automation
- 3 Fraud detection
- 4 Predictive maintenance
- 5 Business intelligence / mission effectiveness

n = 47

Agencies are most likely to have reviewed programs to understand how AI/ML can further mission.

Lack of organizational understanding on role of AI/ML in mission is perceived as the largest obstacle.

Have any of the following impeded the implementation of AI/ML at your organization?

Impediments

- 1 No organizational understanding on how AI/ML could further the mission
- 2 Insufficient budget
- 3 Lack of trained agency personnel
- 4 Lack of relevant AI/ML solutions from vendor community
- 5 I don't have an authority to operate (ATO)

n = 131

Has your organization implemented any of the following as part of its overall AI/ML efforts?

Process

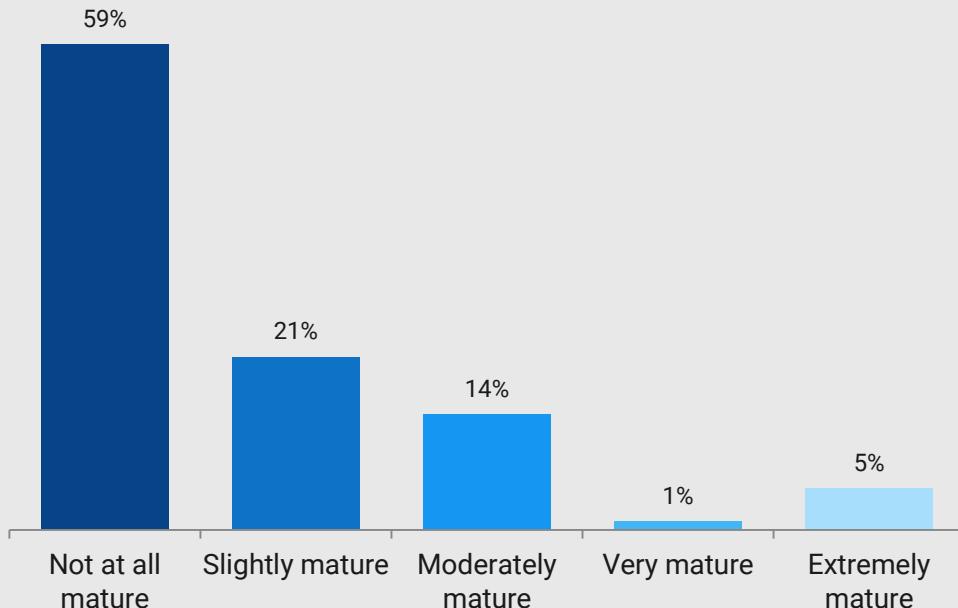
- 1 Reviewed programs to understand how AI/ML could further the mission
- 2 Hired personnel with AI/ML skills
- 3 Built a competency program
- 4 Core team of AI/ML experts within my agency
- 5 Changed to organization-level structures

n = 132

Note: Options in figure above ranked by respondent selection frequency. Excludes *Other*, *None of the above*, *Don't know*.

Government organizations report a lack of maturity in AI/ML tools

How would you rate the maturity of your organization's AI/ML technologies?



Percentage of respondents, n=112. Percentages may not round to 100% due to rounding.

Analysis:

Federal employees largely report their AI/ML technologies as immature – 80% of respondents indicate their organization's tools are *Not at all mature* or *Slightly mature*.

This is also borne out in the details: Those surveyed are most likely to cite **no organizational understanding of mission-focused benefits** as the top impediment to AI/ML adoption. Relatively few have a **"core team of AI/ML experts within my agency"** (see previous page).

As agencies in the federal government continue their collective push to greater AI and ML capabilities, the priorities and necessities of the tools' end-users (i.e., federal employees) should be translated into strategic priorities. This is especially true at these nascent stages of technological adoption.

About Government Business Council

As Government Executive Media Group's research division, Government Business Council (GBC) is dedicated to advancing the business of government through analysis, insight, and analytical independence. An extension of Government Executive's 40 years of exemplary editorial standards and commitment to the highest ethical values, GBC studies influential decision makers from across government to produce intelligence-based research and analysis.

About AWS

Amazon Web Services (AWS) Worldwide Public Sector helps government, education, and nonprofit customers deploy cloud services to reduce costs, drive efficiencies, and increase innovation. With AWS, you only pay for what you use, with no up-front physical infrastructure expenses or long-term commitments. Public Sector organizations of all sizes use AWS to build applications, host websites, harness big data, store information, conduct research, improve online access for citizens, and more. AWS has dedicated teams focused on helping our customers pave the way for innovation.

Methodology

GBC deployed a 6-question poll on artificial intelligence and machine learning to a random sample of 133 federal employees. The poll was fielded in November 2018.