Federal Software Reimagined:

Fueling Mission Success with Open Source, AI, and Cloud

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Introduction

With advancements in AI, cloud computing, and open source technologies, Federal IT leaders face a critical opportunity to rethink and reshape their approach to **software development**. Recent government initiatives have intensified the urgency. The newly established Department of Government Efficiency (DOGE) is leading a Software Modernization Initiative to **enhance government-wide software quality and operational efficiency.**[1] Executive Order 14144 further emphasizes the importance of software security, calling on agencies to improve their management of open source software in particular.[2]

How are Federal agencies incorporating **open source, AI-assisted development, and cloud technologies** into their software development practices? What advantages do these approaches offer, and what challenges are holding them back? How can these advancements help agencies optimize efficiency and deliver better services to the American public?

For the **Federal Software Reimagined** report, MeriTalk and ICF surveyed **100 IT decision-makers** from Federal civilian agencies to explore how these leaders are transforming software development strategies – and advancing their missions – with open source, AI, and cloud.

[1] https://www.whitehouse.gov/presidential-actions/2025/01/establishing-and-implementing-the-presidents-department-of-government-efficiency/

[2] https://www.federalregister.gov/documents/2025/01/17/2025-01470/strengthening-and-promoting-innovation-in-the-nations-cybersecurity

Executive Summary

Federal software development strategies need an overhaul:

- Just over a third of Federal civilian IT decision-makers currently give their agency's software development practices an "A" for security and efficiency (**38%** and **37%**, respectively)
- Even fewer – just **28%** – say the same for their ability to support innovation

Feds see the next four years as a turning point for software innovation:

- Nearly all expect increased use of AI-assisted development (**98%**), open source software (**97%**), and cloud-native development (**93%**)
- **71%** are optimistic that the incoming administration will usher in a new era of innovation for software development

Early adopters report mission success, with core users seeing significantly greater impacts:

- IT leaders indicate modern software development strategies – such as AI, cloud, and open source – are improving operational efficiency (**66%**), data access (**65%**), cybersecurity and data protection (**64%**), and speed of citizen services (**51%**)
- Core users* of AI-assisted development, cloud native development, and open source software express significantly greater confidence in their agency's software development practices. For example, core AI users are significantly more likely than lesser users to rate their software development practices an "A" in both efficiency (**48%** to **28%**) and innovation (**41%** to **17%**)

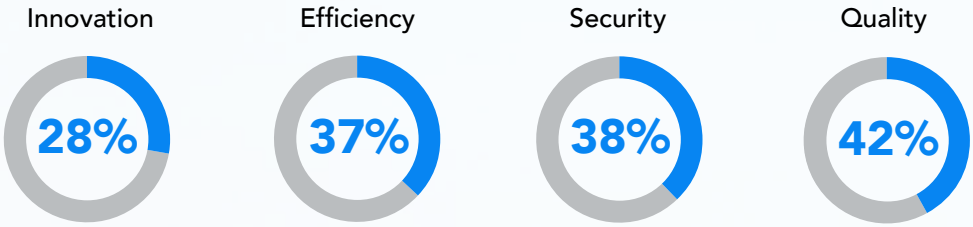
*Core users = IT decision-makers who report using the approach "almost always"

Federal Software Development at a Glance

Federal civilian IT decision-makers believe current software development practices are falling short, with just over a third citing top marks for security and efficiency, and even fewer for innovation.

How would you grade your agency's current software development practices?

Percentage who grade each an "A"



75% say adopting modern software practices is critical to mission success:

> "Our agency risks falling behind in mission delivery if we do not adopt advanced software development practices such as AI-assisted development, cloud-native development, and open source software"

30% Strongly agree

45% Somewhat agree

From Legacy to Leading Edge

Despite current challenges, Feds are optimistic that the incoming administration will drive rapid advancements – with the vast majority expecting increases in AI-assisted, cloud-native, and open source development practices.

71% of IT leaders are optimistic about the future:

> "The Trump administration will spark a new era of rapid innovation in Federal software engineering"

20% Strongly agree

51% Somewhat agree

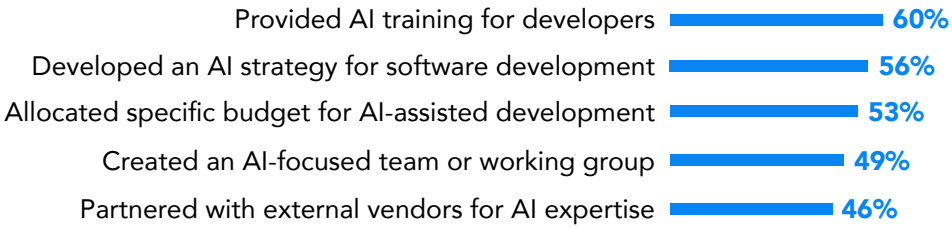
Over the next three years, Feds expect AI-assisted, cloud-native, and open source development to increase dramatically:

How do you anticipate your agency's use of the following will change over the next three years?

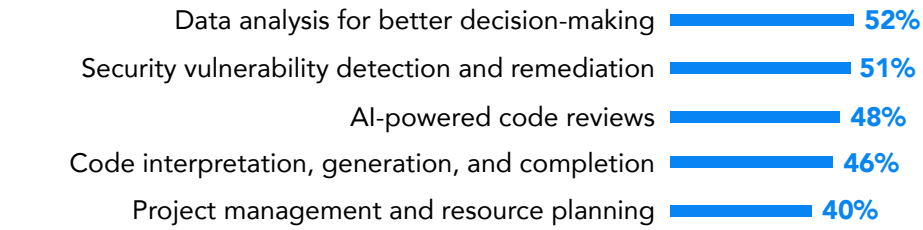
A Closer Look at AI-Assistance

AI is rapidly advancing Federal technology, and software development is no exception. While only **46%** consider themselves core users of AI-assisted software development today*, all agencies report taking steps to expand their AI usage.

What specific steps has your agency taken to adopt or expand your use of AI-assisted software development?



In which areas is your agency using AI for software development?



Core AI users* list data analysis as their top application while less frequent users focus on security vulnerability detection

*Core users = IT decision-makers who report using AI-assisted software development "almost always"

AI Impacts

Federal IT decision-makers say AI-assisted software development tools are likely to shorten project timelines by at least **30%**. Additional benefits include code and decision-making quality, increased productivity, and improved cybersecurity.

96% of IT leaders say AI significantly accelerates development timelines:

> "Implementing currently available AI tools across our software development team could reduce our typical project timeline by 30% or more"

39% Strongly agree

57% Somewhat agree

In what areas, has your agency seen measurable improvements using AI-assisted development?

58% Data and decision-making

57% Code quality

57% Cybersecurity

54% Productivity

Core AI users* are significantly more likely than lesser users to rate their software development practices an "A" in both efficiency (**48%** to **28%**) and innovation (**41%** to **17%**)

Core users* are also more likely to cite improved decision-making as their primary outcome

*Core users = IT decision-makers who report using AI-assisted software development "almost always"

How has the adoption of AI-assisted software helped advance your agency's mission?

"Improved our decision-making speed, optimized our workflows, and advanced our overall goals"

"Enhanced operational efficiency, improved decision-making, and enabled data-driven insights"

"Detected vulnerabilities and anomalies"

"Optimized project management [via improved] delivery timelines and outcomes"

A Closer Look at Cloud-Native Development

As agencies continue to modernize their software development practices, cloud solutions are increasingly taking precedence. Nearly two-fifths (**39%**) of Federal IT decision-makers say they always prioritize cloud solutions for new projects, and almost all (**99%**) are taking steps to expand their use of cloud-native software moving forward.

What specific steps, if any, has your agency taken to adopt or expand cloud-native software development?

While agencies with lower cloud-native adoption prioritize workforce training, **core users*** focus primarily on DevOps or DevSecOps and establishing comprehensive strategies

*Core users = IT decision-makers report they use cloud-native development "almost always"

The Cloud-Native Advantage

Nearly all Federal civilian agencies (**99%**) report measurable improvements using cloud-native development, including quality, scalability, and security. Core users* of cloud-native development are also significantly more likely to give their agency's software development practices an "A" in security, compared to less frequent users.

98% say cloud accelerates innovation:

> "The use of cloud-native development has enabled our agency to innovate faster"

46%	52%
Strongly agree	Somewhat agree

In what areas has your agency seen measurable improvements using cloud-native development?

- **56%** Improved quality
- **55%** Increased scalability
- **46%** Enhanced security
- **42%** Improved detection of bugs or vulnerabilities

Core cloud-native users* are significantly more likely than less frequent users to give their agency's software development practices top marks in security (**51%** to **30%**)

How has the adoption of cloud-native software development helped advance your agency's mission?

"Accelerated innovation while ensuring a secure and scalable infrastructure for long-term success"

"Increased system reliability, with built-in redundancy and automated failover mechanisms"

"Allowed us to adapt quickly, integrating new technologies or making changes without major disruptions to services"

"Enhanced agility, scalability and collaboration"

A Closer Look at Open Source Software

While less than four in ten (**38%**) Federal IT decision-makers describe their agencies as core users* of open source development, nearly all (**98%**) are taking steps to adopt or expand their use.

What steps has your agency taken to adopt or expand the use of open source in its software development strategies?

- **44%** Allocated specific budget for open source initiatives
- **42%** Partnered with external vendors for open source support
- **41%** Provided workforce training on open source tools
- **41%** Implemented compliance checks specific to open source licenses
- **39%** Collaborated with other agencies on open source initiatives

Core users* of open source development are more likely to report establishing formal policies than less frequent users

Spotlight on Low-code/No-code:

Federal civilian agencies are increasingly turning to low-code/no-code platforms to accelerate software development:

45% report using low-code/no-code platforms as a central component in most projects, while another **41%** use them as a supplemental tool in select projects

Looking ahead, **77%** anticipate their agency's use of low-code/no-code will increase over the next three years

Open source libraries can enhance low-code/no-code platforms by enabling customization and extending platform capabilities

*Core users = IT decision-makers report they use open source software development "almost always"

Open Source Advancements

Federal IT decision-makers say open source development sparks customization, transparency, and collaboration, with core users significantly more likely to rate their agency's software development practices an "A" in efficiency.

Core open source users* are nearly three times more likely than lesser users to rate their agency's software development efficiency as an "A" (**61%** to **23%**)

In what areas has your agency seen measurable improvements using open source software?

In what ways has the adoption of open source software helped advance your agency's mission and goals?

"Provided cost-effective, customized solutions"

"Fostered a culture of knowledge sharing within our team"

"Reduced dependency on specific vendors, providing greater flexibility and control over our systems"

"Provided us with the freedom to innovate, experiment, and refine our strategies"

Modernization Challenges

Despite proven benefits, IT leaders cite security concerns as the primary roadblock for implementing or expanding modern software development. Additional challenges vary by development approach, including a limited availability of high-quality data for AI-assisted development, data interoperability issues across platforms for cloud-native development, and maintenance and support challenges with open source software.

What are the main challenges your agency faces when considering or implementing ...

AI-assisted software development:

51% Concerns over data privacy and security

50% Limited availability of high-quality data

46% Integration with existing systems and workflows

Cloud-native software development:

54% Security concerns

45% Data interoperability across platforms

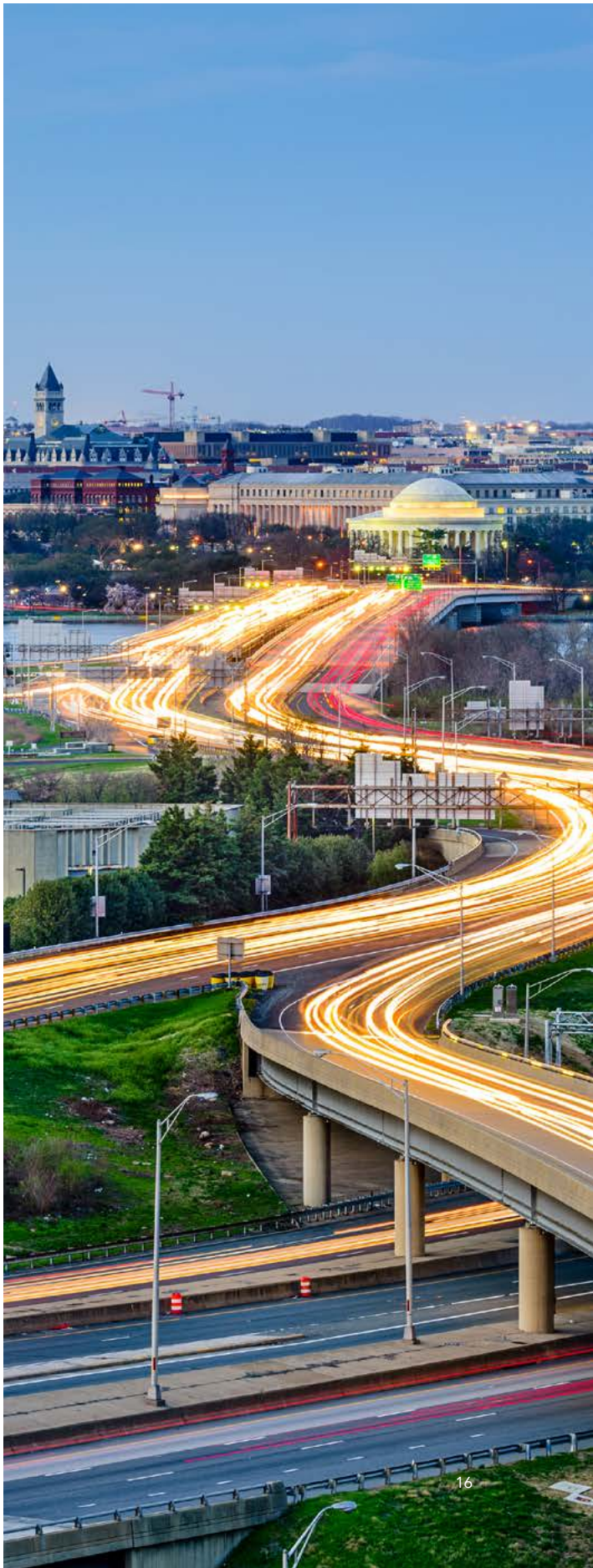
38% Cost management

Open source software:

63% Security vulnerabilities

54% Maintenance and support issues

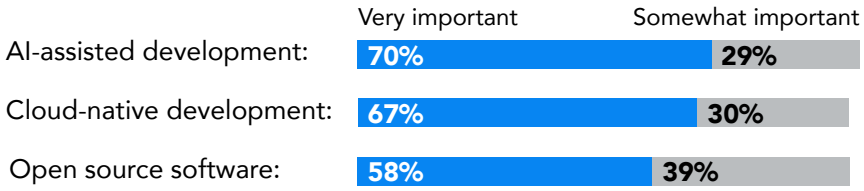
40% Compatibility with legacy systems



Software Development Reimagined

Going forward, the majority of Federal civilian IT decision-makers feel advanced software development practices are critical to their agency's mission success. IT leaders widely agree that AI-assisted development, cloud-native development, and open source software is improving cybersecurity, operational efficiency, and information access.

How important are each of the following to your agency's mission success?



Those who feel **most confident** in their software development are significantly more likely to be **core users*** of AI-assisted development, cloud native development, ***and*** open source software

When it comes to your mission, where has your agency seen the most significant impacts from modern software development strategies like open source, AI, and cloud?

66% Improved operational efficiency and cost savings

65% Increased data access and accuracy

64% Improved cybersecurity and data protection

51% Faster processing and/or delivery of citizen services

*Core users = IT decision-makers report they use each software development technology "almost always"

Recommendations

- **Harness AI-assisted development to spark innovation and turbocharge efficiency:** Federal agencies must continue adopting AI-powered development tools to automate repetitive tasks, streamline testing, and improve real-time decision-making. Integrating AI into key software development workflows, while also offering education and training, will help agencies accelerate project timelines, reduce manual errors, and free up resources for high-impact, mission-driven activities.

- **Prioritize cloud-native development to enhance security, scalability, and resilience:** When evaluating new projects, agencies should focus on cloud-native architectures that offer inherent scalability, flexibility, and resilience – while also continuing to educate their workforce on the security benefits of the cloud. By leveraging cloud-native technologies, agencies can modernize outdated infrastructure, enhance disaster recovery, accelerate innovation, and ensure service continuity, all of which directly support mission-critical operations and citizen services.

- **Embrace open source to foster great transparency and collaboration:** Open source solutions drive transparency, collaboration, and innovation by enabling agencies to leverage tools that are continuously improved and secured. This approach not only reduces licensing costs but also mitigates vendor lock-in, giving agencies greater flexibility to customize and adapt software to meet specific mission needs. By contributing to and leveraging open-source communities, agencies can enhance collaboration, attract top talent, reduce dependency on proprietary vendors, and optimize efficiency.

Methodology and Demographics

MeriTalk, in collaboration with ICF, surveyed **100** IT decision-makers from Federal civilian agencies in January 2025. The quantitative research has a margin of error of **±9.78%** at a **95%** confidence level.

Job titles:

- **31%** CIO, CTO, CDO or other executive-level IT decision-maker
- **4%** Deputy CIO, CTO, CDO or other deputy-level IT decision-maker
- **44%** IT Director or Supervisor
- **12%** Program Manager or IT Operations Manager
- **8%** Senior Software Engineer, Developer, or Systems Architect
- **1%** Other IT manager

100% of respondents are familiar with their agency's software development strategies.

About ICF

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