



The Chief Artificial Intelligence Officer Playbook:

A Practical Guide for Advancing AI Innovation in Government



Adelaide O'Brien
Research Vice President,
Government Digital Transformation Strategies, IDC



Ruthbea Yesner
Vice President,
Government Insights, Education and Smart Cities, IDC

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At a Glance

This playbook provides federal government chief artificial intelligence officers (CAIOs) with key actions to advance the use of responsible AI innovation to deliver mission impact in the context of Executive Order 14110 on the Safe, Secure, and Trustworthy Development and Use of Artificial Intelligence and OMB Memorandum 24-10.

The playbook focuses on four key actions for advancing responsible AI innovation in government:

1.
**Assessing
AI Maturity**

2.
**Addressing Risk,
Governance,
and Compliance**

3.
**Developing an
AI-Ready Workforce**

4.
**Investing in Innovation
to Scale AI Use Cases**

IDC's recommendations stem from ongoing research on AI best practices in the federal government and an IDC Government Insights survey of federal government AI leaders and decision-makers conducted in August 2024. IDC analyzed the responses from 161 CAIOs, decision-makers in the CAIO organization, and those who oversee the outcomes of AI in their agencies.

THIS PLAYBOOK ANSWERS THE OVERARCHING QUESTION CAIOS ARE ASKING:

- ? Where do newly appointed CAIOs begin to establish their roles, build momentum, and start to successfully deploy AI technologies?
- ? Where is an organization now in terms of its AI strategy, culture, processes, talent, and technologies? Where does the organization want to be in the next two years?
- ? Where do CAIOs need to focus to ensure their organization is best in class in advancing AI governance and innovation in compliance with the EO 14110 and OMB M-24-10?
- ? What is the best talent strategy in terms of leveraging existing staff, recruiting new employees, and developing partnerships?
- ? How do CAIOs create a pipeline of high-value, high-priority use cases? What is the right cloud and architecture strategy to support AI innovation?

Key Findings

AI Maturity

- ▶ Responsible AI innovation is a critical success factor for successful AI implementation — 39% of agencies selected responsible AI innovation as the most important success factor for AI implementation. Increased innovation is the key motivation for investment in AI as well as a desired outcome.
- ▶ Federal agencies have major plans in response to the EO/OMB mandates, and one-third of agencies expect to be “best in class” (at higher levels of AI maturity) within two years in areas such as strategy, talent, governance, and innovation.
- ▶ Seventy-three percent of federal departments and agencies are on track to hire a CAIO.
- ▶ Fifty percent of agencies reported lower levels of AI maturity, and 50% reported high levels of AI maturity. There are significant differences in outcomes by agencies that were higher in AI maturity. Federal agencies that have high levels of AI maturity are four times more likely to explore multiple generative AI (GenAI) use case pilots than those that are at the beginning of their AI journeys.

Risk, Governance, and Compliance

- ▶ Federal government leaders believe that governance is a critical success factor for implementing AI in their agency. Over 90% of agencies expect CAIOs to bring value to their agencies in advancing responsible AI innovation, creating transparency with stakeholders, and addressing AI risks.
- ▶ Eighty-six percent of respondents indicated that their agencies are actively working to build public trust and citizen engagement by showcasing the benefits of AI and demonstrating compliance with privacy policies and laws.

AI-Ready Workforce

- ▶ Thirty-nine percent of survey respondents report that their biggest challenge is a lack of in-house AI skills and expertise. CAIO talent strategies are focused on internal employee training, partnering with external partners, and/or hiring new employees for AI workforce development. Eighty-four percent of federal agencies take a people-first approach to developing use cases and use human-centered design to understand citizen and employee needs.

Innovation and Use Cases at Scale

- ▶ Delivering mission impact with AI requires identifying high-impact projects. Fifty-seven percent of federal government leaders surveyed are identifying “low-hanging fruit” generative AI projects with high mission impact.
- ▶ Agencies consider GenAI to provide significant value in use cases, and 42% of AI investments go toward GenAI. Fifty percent of federal agencies believe GenAI will have a significant impact on transforming their organization in the next 24 months. This requires a “build-versus-buy” strategy for AI infrastructure and platforms.
- ▶ Agencies will future-proof their AI infrastructure by working early on with external partners. Sixty-nine percent of agencies involve a trusted partner, such as a system integrator, cloud provider, IT consultant, and/or GenAI model vendor, from the beginning to shape their road map of AI use cases.
- ▶ Seventy-eight percent of federal AI leaders enlist the support of functional leaders and elicit feedback to operationalize use cases.
- ▶ Developing an AI strategy around cloud infrastructure to leverage the advantages of public cloud solutions, driving innovation and maximizing the potential of GenAI, will be a key action.

The Vital Role of the CAIO in Advancing Responsible AI Innovation

The CAIO role is a significant new position in federal agencies. There has not been such a strategic move by the US government to build senior leadership in technology innovation since 2014. There have only been three roles before the CAIO that were mandated with an Executive Order: the CFO in the early 1990s, the CIO in 2014, and the CISO with the Federal Information Security Modernization Act.

The creation of CAIO positions in federal agencies via executive order is not only a unique procedure but also a significant step toward institutionalizing AI adoption in the federal government.

Executive Order 14110 and OMB Memorandum 24-10 require each US federal agency identified in the Chief Financial Officers Act to develop an enterprise strategy for how they will advance the responsible use of AI. Agencies are required to designate a CAIO with the experience, expertise, and authority to oversee all AI technologies that the agency uses.

AI is one of the most powerful technologies of today, and an AI-fueled agency will require significant pivots in strategy, governance, talent management, and technology.

CAIOs play a vital role in structuring and guiding the innovative use of AI to meet the agency’s mission. Per the EO mandate, the CAIO role is responsible for:

- ▶ Developing an AI and GenAI strategy and road map and technology investments
- ▶ Building the AI and GenAI workforce via recruitment and training


- ▶ Fostering an AI-centric culture

- ▶ Communicating AI strategy to stakeholders

- ▶ Leading AI innovation initiatives for new and enhanced products, services, and experiences for mission impact in line with national priorities

- ▶ Traditional AI and ML are no longer peripheral technologies in government operations, and while the adoption of GenAI is nascent, the demand is burgeoning, with new pilots and use cases emerging daily.

By effectively adopting AI, governments can enhance the productivity of their processes, provide more personalized citizen services, and bolster both operational resilience and cyber-resilience. These capabilities will increasingly become part of the fabric of the digital tools and platforms that government employees leverage on a day-to-day basis, as the benefits of AI deployment significantly improve decision-making, efficiency, and the speed of innovation.



45% of agencies surveyed state that **their organization's biggest challenge with using AI/GenAI relates to risk, including security breaches, privacy, and/or regulatory risks.**

CAIOs are tasked with implementing robust AI governance and risk management policies that address ethical considerations; promote accountability, fairness, and interpretability; and ensure compliance with regulatory environments. As agencies navigate these requirements, this playbook examines how CAIOs can successfully implement the EO, balancing the benefits of AI with ethics, safety, and governance challenges to deliver the mission impact that showcases the value of AI.

To succeed, the CAIO, agency senior leadership, and other government leaders must align around this new, mandated, multi-faceted role.

ACTION 1: Assessing AI Innovation Maturity

The EO and OMB memorandum provide a unique new leadership opportunity for CAIOs to create an AI-driven innovation organization. To begin, they must understand that their mandate (as outlined in the EO) includes determining where their agency is in terms of AI maturity and identify how they can accelerate AI innovation.

Understanding the Mandate: New Federal Government Requirements to Advance AI Governance and Innovation

Consistent with Executive Order 14110, the OMB memorandum established new agency requirements around AI. The memorandum directs agencies to advance AI governance and innovation while managing the risks from the use of AI in the federal government, particularly those affecting the rights and safety of the public.

The OMB memorandum outlines the requirement that agencies must hire a CAIO with the experience, expertise, and authority to oversee all AI technologies that the agency uses, and their responsibilities are defined as:

► **Strategy:**

Develop an AI strategy that aligns with the organization’s goals and digital transformation road map, and identify opportunities to use AI to improve user experiences, operational efficiencies, or create new revenue streams.

► **Talent:**

Build a high-performing AI team by attracting and retaining talent and working with external partners. Talent development can include enhancing AI literacy throughout the organization, creating a learning environment, and encouraging experimentation through training platforms and sandboxes.

► **Culture:**

Foster an AI-centric culture by implementing change management programs that consider employee engagement and supporting AI innovation at all levels.

► **Governance and risk:**

Enact governance policies to address ethical considerations; promote accountability, fairness, and interpretability; and monitor regulatory environments to ensure compliance.

► **Communication:**

Communicate the organization’s AI strategy and initiatives to stakeholders, including employees, the public, and the media. This may involve explaining the benefits and limitations of AI and addressing any concerns.

► **Innovation:**

Lead digital transformation initiatives that leverage AI to enhance products, services, and customer experiences. For example, a CAIO might launch an AI center of excellence or secure funding for AI training and vendor certification.

The stakes for the CAIO as leader of AI governance and innovation are immense. CAIOs must understand and embrace the full spectrum of responsibilities.

Assessing the Agency Using a Government AI Maturity Model

IDC's AI Maturity Model aligns with the key responsibilities of the CAIO in strategy, talent, culture, governance and risk, communication, and innovation as outlined in the mandates. The model describes the organizational responsibilities of the CAIO within five levels of AI maturity, from the Ad Hoc stage with limited impact to the Optimized stage in which AI innovation strategy is woven into the organization's culture at every level.

Why Does AI Maturity Matter?

AI maturity matters because more mature agencies significantly outpace their less mature peers.

Agencies with higher levels of AI maturity significantly outpace their peers in adhering to federal mandates.

- ▶ Ninety-seven percent of agencies at the Optimized maturity stage are on par with or above their peers when it comes to adherence to the EO 14110/OMB memorandum.
- ▶ Agencies operating at the most mature Optimized stage are four times more likely to pilot multiple use cases, a key indicator of progress and innovation, than those at the least mature Ad Hoc stage.

This disparity highlights the critical need for newly appointed CAIOs to assess their agency's AI maturity, as it directly impacts the effort required to achieve measurable results.

Where is the organization now in terms of its AI strategy, culture, processes, talent, and technologies? Where do CAIOs and their internal stakeholders want to be in the next two years?

Responsible AI innovation is the number one critical success factor for AI implementation in federal agencies. The IDC Government AI Maturity Model is intended to help federal agencies evaluate current AI transformation initiatives and identify the steps they need to take to advance to the next stage of maturity. Seventy-eight percent of AI/GenAI leaders enlist the support of functional leaders to execute initiatives. Key stakeholders of AI-based transformation initiatives include CAIOs; other executives with whom CAIOs collaborate, such as CTOs and CISOs; IT leadership responsible for AI implementations and outcomes; governance and risk compliance officers; and employees, partners, and suppliers.

The AI Maturity Model helps CAIOs and other government leaders, both in IT and non-IT roles, understand key best practices for AI innovation implementation and common paths agencies take in their development. It is intended to help government organizations assess their current situation and determine the critical capabilities they need to advance responsible AI innovation by providing a framework of stages, dimensions, actions, and outcomes required for organizations to effectively transform.

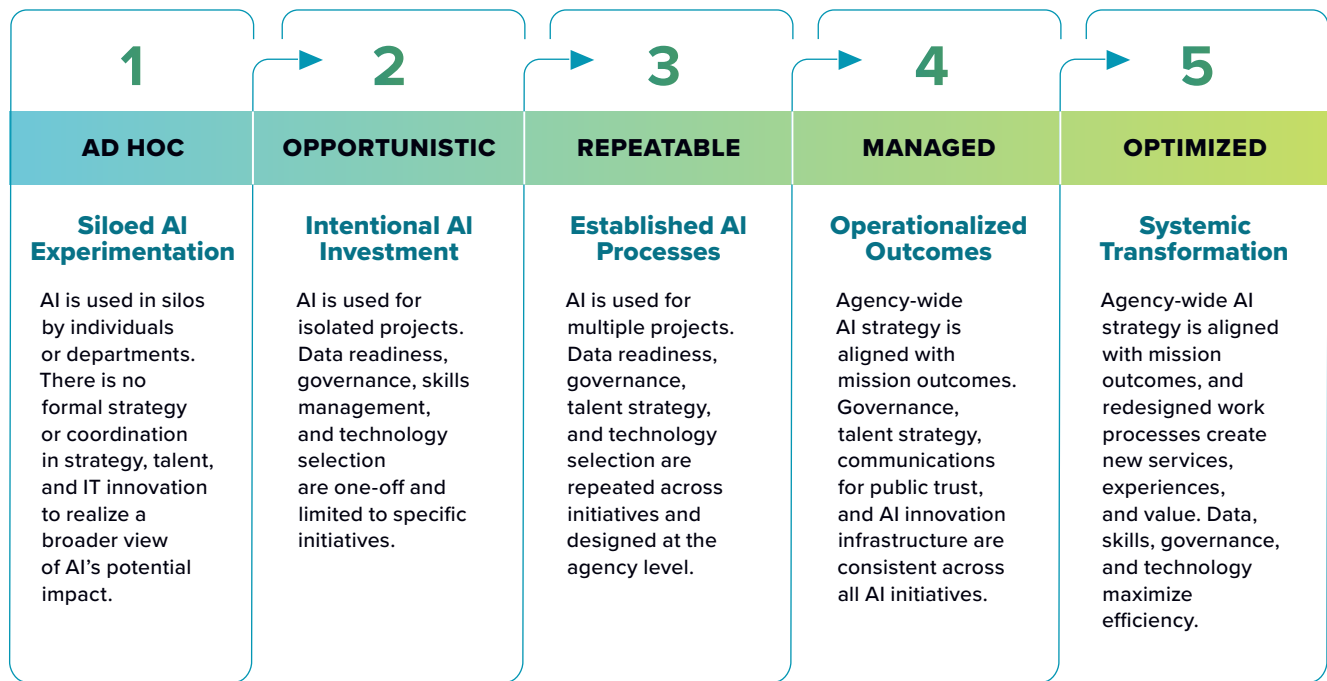
This model, at a high level, is used in this playbook as a structure to consider how to advance AI innovation.

The detailed model is designed to enable government leaders to:

- ▶ Assess current competencies and maturity
- ▶ Uncover gaps in maturity and key competencies
- ▶ Define goals and corresponding plans for improvements
- ▶ Prioritize technology, partnership, staffing, and other related investment decisions

The IDC MaturityScape for AI maturity consists of five sequential stages, from lowest to highest maturity: Ad Hoc, Opportunistic, Repeatable, Managed, and Optimized. Each stage has a defining characteristic, from siloed experimentation to systemic transformation.

FIGURE 1
IDC MaturityScape: Government AI Innovation — Stage Overview



Source: IDC, 2024

Maturity in each stage is measured via behaviors that incorporate the key CAIO responsibilities outlined in the EO/OMB mandates — strategy, talent, culture, governance and risk, communication, and innovation. All these qualities must work together, and at the same maturity level, to deliver the outcomes expected from the mandates.

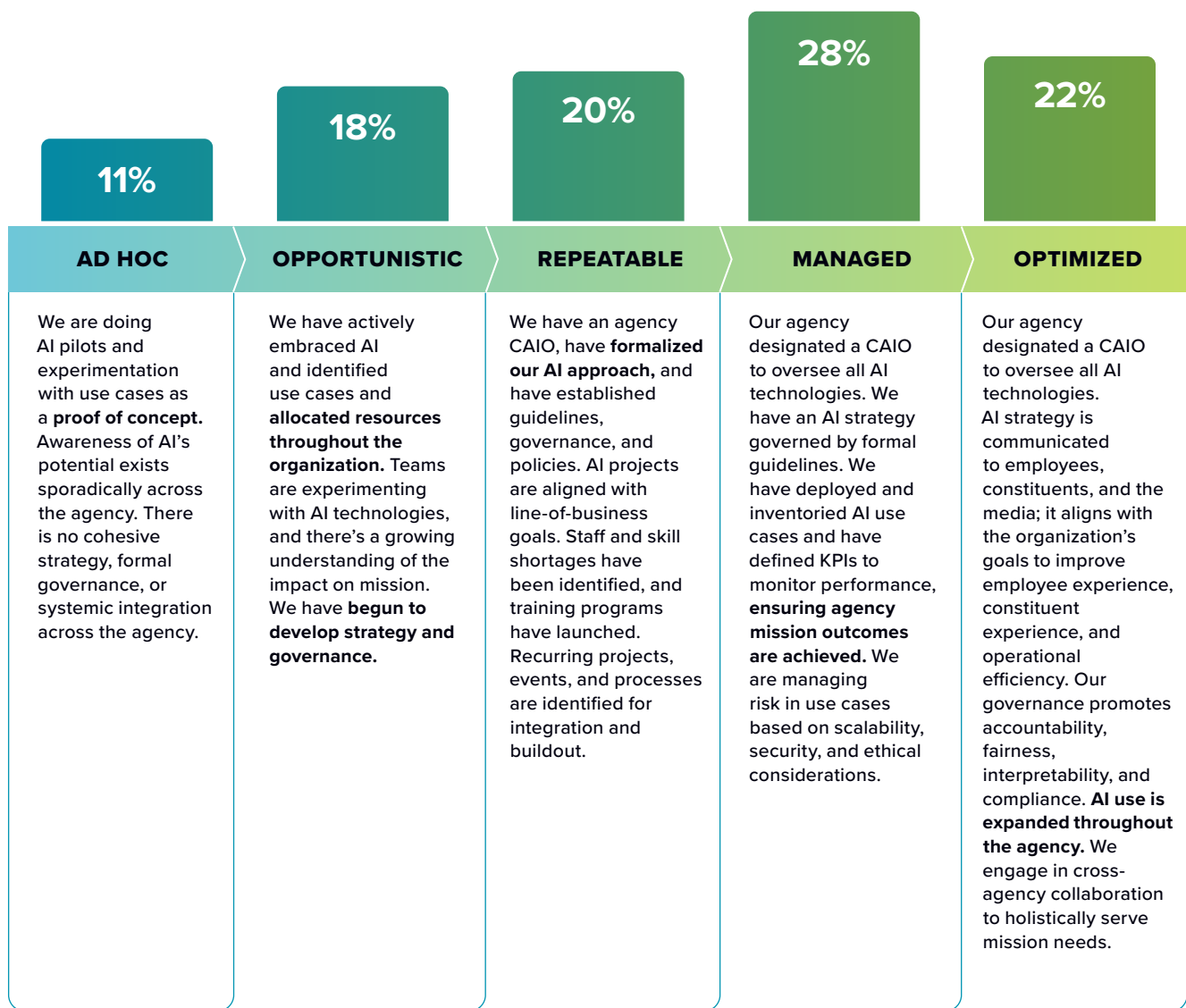
Currently, per self-assessment and report, 50% of the agencies surveyed are in the more mature Managed and Optimized stages, while the remaining 50% of agencies are in earlier stages of maturity. The more mature organizations have made significant strides in adhering to the EO and OMB mandates and are more likely to achieve success in AI implementation, as evidenced by having a CAIO in place, executing a talent strategy, and prioritizing AI innovation use cases based on mission impact.

The remaining 50% of agencies are in the earlier stages of AI maturity and have just begun their transformation journeys with AI. CAIOs of agencies with lower AI maturity levels should prioritize raising their agency’s maturity level across all CAIO responsibilities to ensure successful and impactful AI integration.

FIGURE 2

Federal Agency’s AI Maturity

Please select the description that most closely matches your agency status with AI technologies (e.g., AI, ML, GenAI).



n = 161 (federal agencies) and n = 41 (state agencies); Source: US Google Public Sector CAIO Survey, IDC, August 2024

Next Steps for Action: Assessing AI Maturity

The AI Maturity Model helps CAIOs assess their internal needs and the necessary steps to reach a higher level of AI maturity.

Specific actions for CAIOs to progress through the stages include:

AD HOC	OPPORTUNISTIC	REPEATABLE	MANAGED	OPTIMIZED
<ul style="list-style-type: none"> ▶ Inventory existing policies, procedures, and technologies related to artificial intelligence usage. ▶ Identify individual areas that could benefit from artificial intelligence initiatives and that have a high probability of demonstrating mission value. ▶ Establish a cross-functional team to begin to gather knowledge about technology, stakeholders, budget requirements, and best practices related to AI-driven business transformation. ▶ Gain management support for work transformation proof-of-concept or pilot initiatives at the departmental level. Permit experimentation at this stage. 	<ul style="list-style-type: none"> ▶ Share departmental successes with middle and upper management as well as other relevant departments that may have an interest in (or benefit from) implementing a similar artificial intelligence–driven transformation program. Engage with other organizational initiatives focused on artificial intelligence business transformation. ▶ Permit experimentation at this stage so individual groups are able to discover new processes, technologies, or solutions that offer greater value. ▶ Define a common set of KPIs to guide new efforts. Begin to develop strategy and governance. 	<ul style="list-style-type: none"> ▶ Hire an agency CAIO. Leverage learning at the departmental level to gain executive support, and establish an enterprisewide task force and/or center of excellence focused on transforming agency operations exploiting artificial intelligence. Identify staff and skill shortages. ▶ Develop enterprisewide policies, strategies, and implementation plans across all areas of AI-driven business transformation. ▶ Identify reoccurring projects, events, and processes for integration and buildout based on improved outcomes. 	<ul style="list-style-type: none"> ▶ Ensure your AI strategy is governed by formal guidelines and policies for work/data flows and usage. Evaluate previous strategies, metrics, and results for additional areas of improvement and innovation. Manage risks in use cases based on scalability, security, and ethical considerations. Define KPIs to monitor performance and ensure agency mission outcomes are achieved. ▶ Build a center of excellence team with key stakeholders. Assess the role of AI in agency transformation. Have road mapping discussions with vendors about their transformational capabilities. 	<ul style="list-style-type: none"> ▶ Continue to promote innovation in transforming agency business processes, exploring innovative uses, and reward pioneers. Engage in cross-agency collaboration to holistically serve mission needs. Expand AI transparency throughout the agency and with constituents. Grow the AI workforce. Ensure that innovative solutions address tough projects and agility and that continuous improvement brings ongoing transformation. ▶ Continue to monitor technology, internal and external policies, and best practices for meeting mission needs.

Source: IDC, 2024

This playbook will walk CAIOs through key areas to consider when progressing to higher levels of AI maturity, including risk, governance, and compliance; developing an AI-ready workforce; and scaling AI use cases.

ACTION 2: **Addressing Risk, Governance, and Compliance**

The share of federal agencies that plan to exceed peers or become best in class in adherence to the Executive Order/OMB mandates will double over the next two years.

? Where do CAIOs need to focus to ensure their organization is best in class in advancing AI governance and innovation in compliance with the EO 14110 and OMB M-24-10?

CAIOs are expected to bring value to their organizations; 34% of agencies believe that CAIOs bring “extreme value” to their organization by advancing responsible AI innovation.

Federal agencies have big plans for their response to the EO/OMB mandates over the next two years. **Currently, only 7% of agencies are best in class in adherence to the EO/OMB mandates. In two years, one-third of agencies expect to be best in class.**

There are two key areas CAIOs can focus on to become best in class in AI governance and innovation per the EO and OMB memorandum:

1. Developing an AI governance framework with a governance strategy, policies aligned with ethical principles and legal requirements, and a risk management plan for AI projects
2. Fostering public trust via transparent, proactive communications and engagement with stakeholders around AI use to address concerns about bias, fairness, and privacy

Developing an AI Governance Framework

The OMB memorandum outlines specific requirements for AI governance, innovation, and risk management, emphasizing the need for agencies to develop an enterprise strategy for responsible AI use. Survey results indicate that CAIOs are already demonstrating their value around strengthening AI governance, with 31% of respondents acknowledging the “extreme value” they bring to this area.

To fulfill this mandate and advance in AI maturity, CAIOs should proactively initiate the process of establishing a robust governance framework, revisiting quarterly or semi-annually to ensure alignment with agency goals. At the Ad Hoc maturity stage, no formal governance policies exist. As organizations advance in maturity, governance moves from policies associated with single areas or processes, such as security, technology, trust, ethics, and/or bias, to a comprehensive framework that addresses all areas.

32% of federal government leaders believe that **governance, including policies and guidelines for usage, is the most important success factor for implementing AI in their agency.**

CAIOs can further fortify AI governance maturity by championing an approach that encompasses not only the technical aspects but also ethical considerations, guiding principles, compliance measures, and the concerns of diverse stakeholders.

To effectively meet the requirements of federal mandates, CAIOs consider a unified AI governance model that complements federal mandates. CAIOs can utilize this framework to ensure that their agency's AI governance approach is robust, responsible, and aligned with best practices.

A unified AI governance model includes the following critical elements of AI governance:

► **Influences and inputs:**

An agency's AI strategy will be influenced by laws, executive orders, mandate guidelines, and influential stakeholders. Agency AI governance should support an agency's ability to absorb and address these inputs.

► **Strategy and oversight:**

AI governance needs to be part of an agency AI strategy that includes defined AI ethics and principles that provide guidelines for acceptable AI use.

► **Organization and culture:**

Organization and culture considerations must be linked to agency strategy and include clear roles, responsibilities, and decision-making processes for developers, users, and stakeholders using AI and implementing AI initiatives.

► **AI technology architecture:**

At the heart of AI governance is the AI technology architecture that consists of AI system components such as data, apps, platforms, and cloud infrastructure. Each one of these parts, such as data integrity and model transparency, needs its own governance as it relates to AI.

Processes that support governance include:

- ▶ Assessing the risk associated with AI as it relates to security, compliance, digital sovereignty, and third parties
- ▶ Operating AI systems, algorithms, and data (for example, 45% of agencies have developed agency-wide guidelines for evaluating and tracking the use of open-source GenAI code, data, and trained models)
- ▶ Monitoring operations through metrics and audits

If executed well, a unified AI governance model will support agencies' responsible AI innovation that is transparent, explainable, accountable, reliable, and inclusive, ensuring fairness through human oversight.

“

Risk management requires going beyond listing or prioritizing risks, however. Framing risks based on vulnerabilities can shift the focus of policy agendas from the “what” of each risk (e.g. “risk to safety”) to “who” is at risk and “where”, as well as who should be accountable in each case.”

UN Governing AI for Humanity, September 2024

Developing AI Policies and Guidelines Aligned with Ethical Principles and Legal Requirements

CAIOs are tasked with implementing robust AI governance and risk management policies that address ethical considerations; promote accountability, fairness, and interpretability; and ensure compliance with regulatory environments. To fulfill these responsibilities, CAIOs should prioritize the development of dependable and transparent AI models to alleviate concerns about accuracy and toxicity.

CAIOs should also actively develop tools and techniques that support ethical principles and integrate them into AI systems and platforms while also designing intelligent architectures for managing the lifecycle and governance of data, models, and mission context for every use case, with a strong emphasis on data privacy, security, and intellectual property (IP) protection.

Creating a Risk Management Plan for AI Projects

As addressed in the OMB memorandum, the reliance on AI outputs for executing agency decisions or actions, especially where responsible decision-making could be undermined, poses a multitude of risks. Framing AI risk management offers a path to minimize the potential negative impacts of AI systems, such as threats to civil liberties and rights, while also providing opportunities to maximize positive impacts.

CAIOs can address these risks and strengthen compliance by implementing a risk management framework with regular reporting and monitoring in their unified AI governance model. This involves identifying and prioritizing appropriate uses of AI that advance the agency's mission and equitable outcomes, as well as developing a risk management plan, especially for safety-impacting and rights-impacting AI applications.

98% of federal survey respondents believe that CAIOs bring value to addressing the risks around using AI.

One in five agencies believe risk mitigation is the most important success factor for implementing AI.

To proactively manage AI risks, CAIOs should lead the development of a comprehensive risk management plan that includes:

▶ **Identifying, assessing, and categorizing AI-related risks based on existing or potential vulnerabilities:**

Several governance bodies offer guidance on categorizing risk, including the NIST Artificial Intelligence Risk Management Framework (AI RMF 1.0), the European Union AI Act, and the United Nations Governing AI for Humanity framework. These all include looking at risk based on potential negative outcomes of AI systems on individuals, politics, society, the economy, and the environment. CAIOs should spearhead the efforts to evaluate the potential negative impacts of AI systems on agency operations, mission outcomes, and, per the NIST framework, “people, organizations, and ecosystems.”

▶ **Prioritizing risk mitigation strategies:**

CAIOs should implement measures to address identified risks, such as robust data security protocols, bias detection and mitigation techniques, and clear accountability mechanisms.

▶ **Establishing clear reporting and monitoring procedures:**

CAIOs should define processes for tracking AI system performance, identifying and addressing issues, and ensuring compliance with ethical and legal standards. This includes developing AI literacy for all employees with a clear understanding of what makes a “trustworthy” AI system — from underlying data, LLMs, and algorithms to the behavior of employees working with these systems.



94% of federal survey respondents believe that **CAIOs bring value to enhancing AI transparency.**

► **Promoting transparency and accountability:**

CAIOs should communicate openly about AI risks and mitigation efforts with stakeholders, fostering trust and ensuring responsible AI use.

Risk cannot be completely measured or controlled, especially at this early stage in AI development; therefore, one of the best risk management strategies is frequent and open communications with internal stakeholders and the public.

Mature agencies will address all of the above areas, identifying and prioritizing risks and risk management strategies, tracking performance, and promoting transparency in their unified governance models.

Fostering Public Trust

Communicating Transparently About AI Projects and Their Impact

To strengthen public trust, agencies must communicate transparently about AI projects and their impact. Agencies are required to communicate the organization's AI strategy and initiatives to stakeholders, including employees, the public, and the media. This may involve explaining the benefits and limitations of AI and addressing any concerns about bias, fairness, and privacy. This is not only part of the EO/OMB mandate but also part of building AI maturity to include external stakeholder adoption and trust in AI systems being used.

Engaging with Stakeholders and the Public to Gather Feedback

CAIOs are encouraged to engage in the interagency coordination and communication of AI strategies and initiatives to stakeholders and gather feedback from employees, customers, and the media:

- ▶ Eighty-four percent of survey respondents are committed to leveraging human-centered design to understand citizen and/or employee needs when developing AI use cases.
-
- ▶ Seventy-five percent have developed a use case directory to provide citizens with a holistic understanding of the AI systems and algorithms used by their agency.

Addressing Concerns About Bias, Fairness, and Privacy

To achieve responsible AI innovation, governance and risk management policies must address ethical considerations and promote accountability, fairness, and interoperability.

Survey responses suggest that agencies are on track to address the concerns about bias, fairness, and privacy by the OMB's deadline of December 1, 2024. Of the federal agency survey respondents:

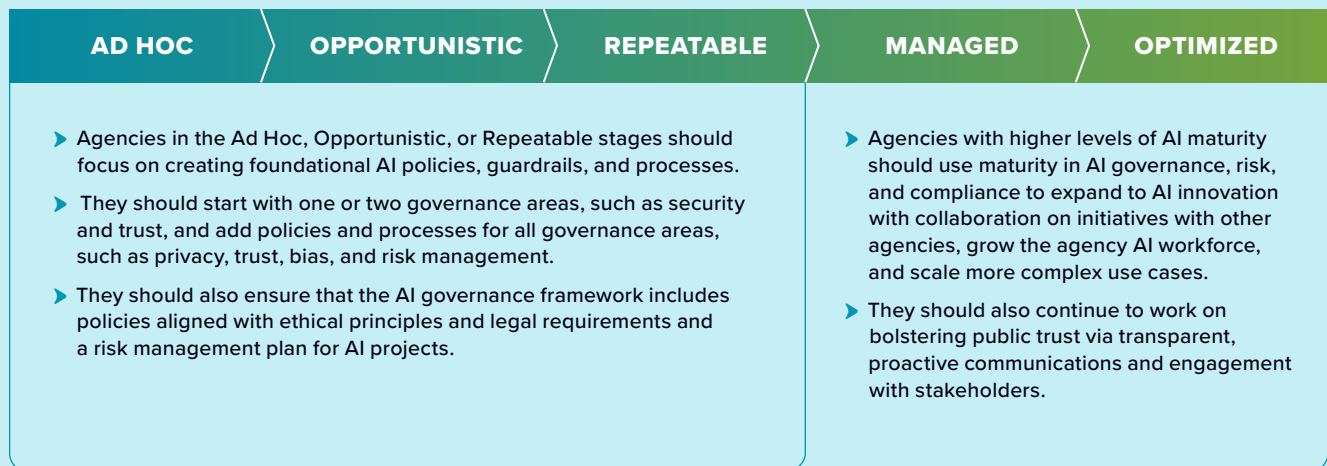
- ▶ Eighty-five percent proactively address public AI concerns, including bias, fairness, and privacy.
-
- ▶ Eighty-one percent have instituted governance and oversight to ensure responsible, secure, and equitable use of AI.
-
- ▶ Sixty-eight percent solicit citizen feedback and address concerns about bias, fairness, and privacy.

Next Steps for Action:

Addressing Risk, Governance, and Compliance

Developing a unified AI governance model to foster trust and compliance to maximize the benefits of AI while minimizing risks.

CAIOs should assess AI maturity, as agency maturity level is closely tied to adherence to the EO/OMB mandate. Federal agencies at higher levels of AI maturity outpace their peers in terms of current adherence to the EO 14110/OMB memorandum. Ninety-seven percent of agencies at the Optimized maturity stage are on par with or above their peers when it comes to adherence to the EO 14110/OMB memorandum.



ACTION 3: **Developing an AI-Ready Workforce**

CAIOs should define and implement an agency talent strategy and access the needed specialized skills and expertise via a strategic mix of reskilling existing staff, hiring new staff, and nurturing external and cross-agency partnerships.



What is the agency's talent strategy in terms of leveraging existing staff, recruiting new employees, and developing partnerships?

AI Workforce Development

To develop AI talent, as directed within the OMB memorandum, CAIOs can identify the skills gaps within their agencies and prioritize a multi-pronged strategy for workforce development.

39% of survey respondents identify a **lack of in-house skills and AI expertise as a top concern and/or challenge.**

An AI workforce strategy can be viewed in the classic “build, buy, or partner” model. The right talent and workforce development strategy will consider training and upskilling existing staff (build), options for recruiting and hiring new employees (buy), and/or partnering with outside organizations (partner), such as technology suppliers.

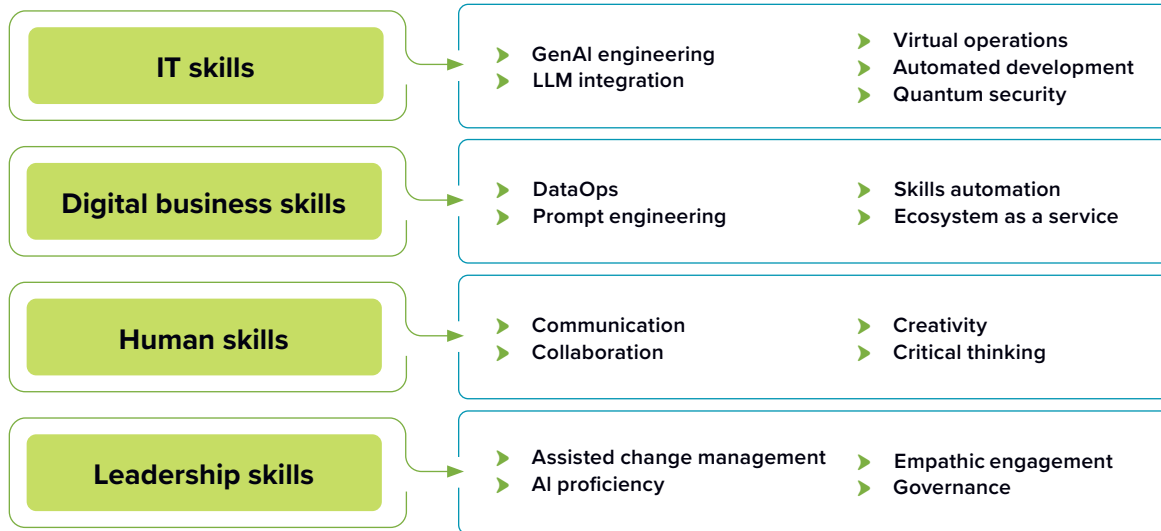
Identifying AI Talent Needs and Skill Gaps

The first step is to identify current in-house skill sets and identify skills gaps. This should be done with an eye toward future needs, as the rapid evolution of AI and GenAI will quickly impact what skills are most valuable for responsible AI innovation.

The rapid disruption of work and escalating complexity of working with AI and GenAI are driving a strategic need for new skills. The skills needed in the next five years will be different from the skills needed today. The majority of these changes over time will be in IT and digital skills, with a shift in focus from IT skills such as cybersecurity, cloud operations, and application development and digital skills such as data management, productivity tools, and low code/no code to areas such as LLM integration, GenAI engineering, quantum security, and DataOps (see **Figure 3**, next page).

CAIOs should build a sustainable, skilled workforce equipped for the AI-driven future and champion investments that include technical, digital, human, and leadership skills. CAIOs themselves should role model leadership skills such as empathy, engagement, AI proficiency, and change management during this time of rapid change in work skills and daily work processes for employees.

FIGURE 3
IDC Skills Development Framework for AI-Ready Skills Circa 2030



Source: IDC, 2024

Determining a Talent Strategy Mix

Federal agencies are currently using a mix of options to build their AI workforce:

- ▶ **Build** — 68% are focused on internal training, skilling, and retention of the existing workforce.
- ▶ **Partner** — 63% are partnering with trusted vendors.
- ▶ **Buy** — 60% are establishing new AI-related positions.

Each of these options requires a distinct set of strategic actions.

To build an AI team, CAIOs should prioritize providing comprehensive training for all employees on AI skills as well as responsible AI principles and their practical application. They should develop training tools and techniques that support continuous learning and adherence to responsible AI innovation principles.

For a partner approach, CAIOs need to look to their partner ecosystem and consider the skills, trust, and capabilities of existing relationships. There is a vibrant ecosystem of research institutions, standards bodies, and technology vendors providing guidelines, tools, technology, and expertise to help navigate these challenges and harness AI's transformative potential.

CAIOs should proactively define their AI partner ecosystem, outlining the “who,” “why,” and desired outcomes for each collaboration. This includes identifying potential partners, such as the private sector and academia, and clearly articulating the value proposition and expected outcomes of each partnership, ensuring alignment with agency goals and mission impact.

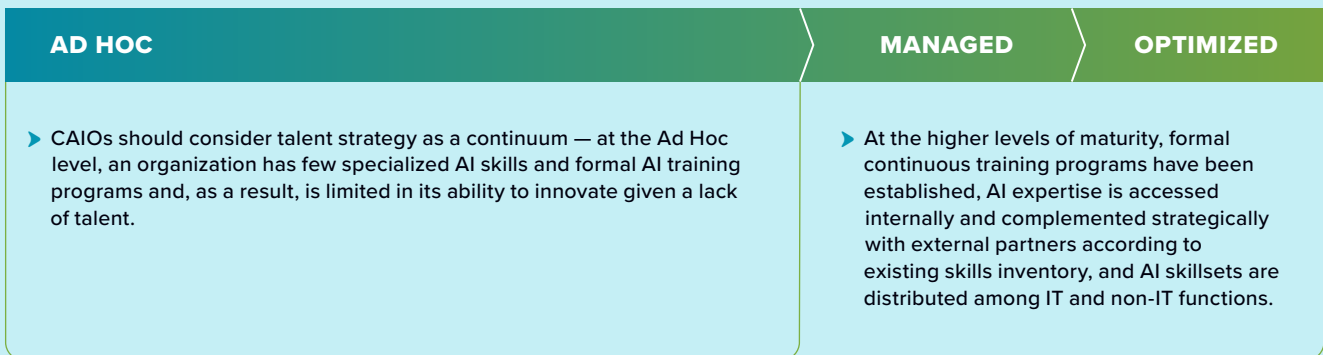
For a buy approach, establishing a new position and/or hiring from outside requires looking at budgets, job descriptions, and the talent market. To create new job categories or descriptions, CAIOs must work with HR teams. The ability to offer competitive salaries for AI skills may mean it takes longer to hire. Creating a new position doesn't necessarily mean recruiting new employees — it can offer opportunities for internal employees as well.

A build, buy, or partner strategy allows CAIOs to strategically leverage internal resources, external partnerships, or a combination of both to access specialized skills, technologies, and expertise and stay current as needs change over time, ensuring their agencies can scale AI capabilities efficiently and effectively while managing associated risks.

69% of agencies surveyed indicate that their organization has more than one trusted partner outside the government, such as a system integrator, cloud provider, IT consultant, or GenAI model vendor, that can support their agency testing and implementing AI.

Next Steps for Action: Developing an AI-Ready Workforce

- ▶ CAIOs should take a multi-pronged, continuously evolving approach to develop their agency’s AI workforce — as agencies’ technology, organization, policies, and AI applications mature, the required skills and expertise will evolve as well.
- ▶ They should dedicate time and resources to holistically improving AI maturity across the agency by investing in AI technical skills and overall AI workforce readiness and instilling an innovation mindset.




ACTION 4: **Investing in AI Innovation to Scale AI Use Cases**

CAIO should identify quick-win pilot projects that can deliver demonstrable, AI-driven mission impact that supports departmental strategies and helps secure buy-in from agency leadership.

Fifty-two percent of government agencies report that innovation is their main motivation to implement AI/GenAI systems.

Innovation is not only a key motivator and an important success factor for implementing AI but also the top positive outcome of AI. Thirty-nine percent of survey respondents indicate that the most important positive outcome that AI is currently bringing to agencies is more innovation.

 **How do CAIOs create a pipeline of high-value, high-priority use cases?**

What are the key considerations for AI infrastructure and platforms for an agile and trusted environment?

Quick Wins and Early Impact

Identifying Quick Wins with High Impact and High Potential

Once an agency implements AI, 49% of federal respondents expect to see a positive impact on innovation within 6–12 months.

CAIOs and other government leaders need to ensure a robust pipeline of AI and GenAI use cases. CAIOs need to strategically select pilot projects with readily available data and clear alignment with agency goals to demonstrate tangible value and build momentum for broader AI adoption at scale. Sixty-two percent of more mature agencies have multiple AI pilots in production compared to 9% of less mature agencies.

To ensure a pipeline of AI and GenAI innovation:

- ▶ Fifty-seven percent of federal government leaders surveyed are identifying “low-hanging fruit” projects with high potential for mission impact.
- ▶ Forty-nine percent focus on aligning with agencies’ strategic plans and priorities to determine AI and GenAI use cases.
- ▶ Forty-five percent leverage existing data to determine AI/GenAI use cases.

Strategically selecting pilot projects with high potential impact, readily available data, and clear alignment with agency goals can enable CAIOs to showcase the value of AI through pilot projects and demonstrations.

Federal agencies are already realizing AI benefits in terms of innovation, operational efficiency, and employee productivity. **They also expect to free up employees' time to focus on higher-value work in the future.**

FIGURE 4
Federal Agencies' Current Versus Future Outcomes of AI

What are the most important positive outcomes that AI is currently bringing, or that you anticipate AI bringing in 2 years, to your agency?

	Most Important Outcomes Now	Most Important in the Next 2 Years
More innovation	39%	47%
Improved employee productivity	35%	36%
Reduction in operational inefficiencies	34%	29%
Improved decision-making for employees	30%	23%
Improved decision-making for leaders agency-wide	30%	20%
Improved developer productivity	30%	26%
Enablement of employees to focus on higher-value work processes	27%	28%
Improved constituent experiences with government services	22%	23%

n = 161 (federal agencies), Source: US Google Public Sector CAIO Survey, IDC, August 2024

77% of survey respondents agree or strongly agree that their agency is actively identifying AI use cases that address societal issues or enhance internal operational productivity.

The societal issues are key motivators for considering AI technologies. They encompass a broad spectrum, ranging from bolstering cybersecurity and safeguarding critical infrastructure to fostering economic growth (see Figure 5).

FIGURE 5
Key Motivators of AI and Timeline to Positive Change

	Percentage Selected	Average Number of Months Before Positive Change in the Organization
Strengthening cybersecurity	62%	9
Boosting innovation	52%	10
Growing the economy	41%	12
Protecting critical infrastructure	40%	9
Optimizing constituent services	36%	9
Improving response to natural disasters	27%	11
Improving public health	24%	11
Addressing the climate crisis	16%	12

Source: US Google Public Sector CAIO Survey, IDC, August 2024

40% of agency surveys look at citizen-facing digital services and content for AI use cases.

35% consider internal operations and/or facilities management.

Agencies are looking at functions such as digital services, operations and facilities management, contact and call centers, and security for quick-win AI use cases, offering a clear road map for CAIOs to focus their initial efforts and demonstrate tangible value to agency leadership.

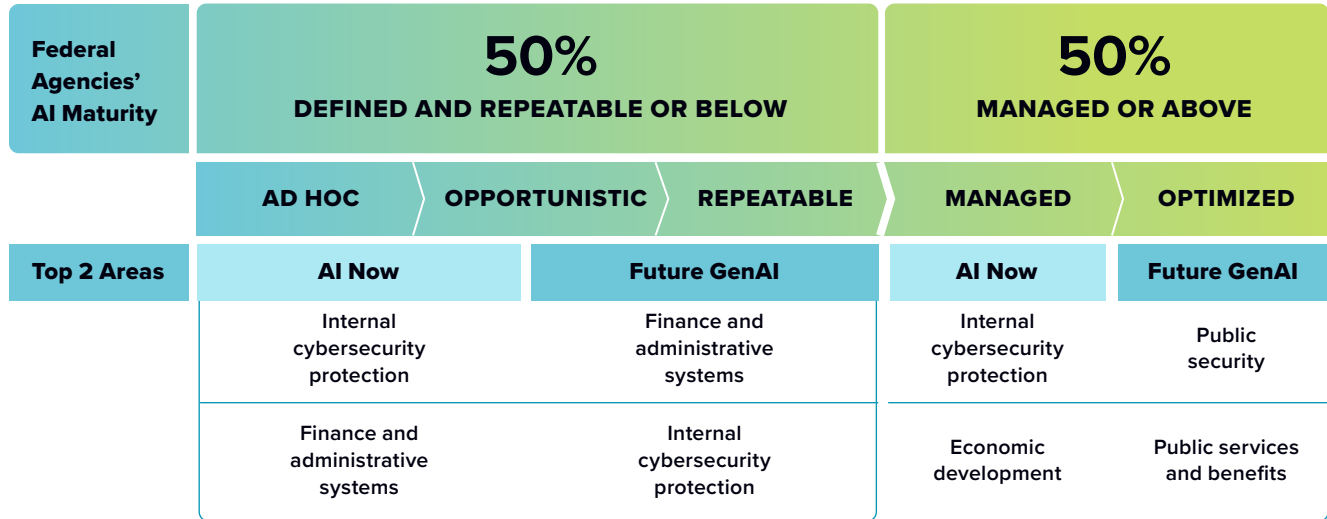
CAIOs who accelerate a cycle of experimentation and scaling to production will be able to evolve the scope and impact of AI. CAIOs who guide their agencies to higher levels of maturity will also create the drive and mindset to expand the areas and use cases that can benefit from AI and GenAI innovation.

Federal agencies with higher levels of AI maturity are taking the lessons learned from applying traditional AI/ML algorithms to internal, lower-risk use cases and the new capabilities brought about by GenAI to explore new use cases in externally facing, higher-impact (and higher-risk) areas, such as public services and benefits or public security.

Agencies with lower levels of AI maturity are limited in their ability to explore new areas; for example, they are planning to use GenAI in areas such as internal cybersecurity protection and finance and administration, where traditional AI algorithms have already been applied.

FIGURE 6
Federal Agencies' Top Areas for AI Use Cases Currently and in the Future, by AI Maturity

Where is your agency currently using AI? Where do you plan to use GenAI in the next 6–12 months?



n = 161 (federal agencies); Source: IDC's US Google Public Sector CAIO Survey, August 2024.

More mature agencies will also be able to speed up benefits realization. While the strategic drivers of AI/GenAI are similar across levels of maturity (enhancing cybersecurity and boosting innovation are the top priorities), the ability to deliver tangible value in a timely manner is different.

More mature federal agencies expect to realize those benefits one or two months sooner than less mature agencies.

Quick wins breed further success. CAIOs should target more immediate use cases with clearly identifiable pain points and measurable mission impact. These early victories can pave the way for tackling more ambitious and complex challenges, creating a virtuous cycle of AI-driven innovation.

This is the time to leverage outside expertise. Sixty-nine percent of agencies involve a trusted partner, such as a system integrator, cloud provider, IT consultant, and/or GenAI model vendor, from the beginning to shape their road map of AI use cases.

CAIOs should use partners to help develop an agency-wide AI strategy and focus on identifying “super use cases” — those that yield significant mission outcomes, build resilience, and promote overall agency health through adaptability, innovation, and sustainable growth.

High-Impact GenAI Projects

It is not possible to talk about scaling AI innovation without discussing GenAI. Over the next six to 12 months, there will be a significant emphasis on GenAI use cases in government transformation.

Forty-two percent of investment in all AI-related development, data, and infrastructure assets are being allocated to GenAI.



While only 9% of U.S. federal agencies indicate GenAI has already transformed their organization, **50% believe GenAI will have a significant impact on transforming their organization’s mission outcomes or constituent experiences in the next 24 months.**

The expected use cases for GenAI in the next 6–12 months include back-office functions and internal operations as well as planned use for public-facing use cases.

Federal agencies are already using AI in cybersecurity, finance, economic development, and HR. With GenAI, they see an opportunity to expand the range of use cases (for instance, in public security and public services and benefits).

FIGURE 7

Federal Agencies' Areas of AI Usage

Where is your agency currently using AI?

Where do you plan to use GenAI in the next 6–12 months?

	Current Usage of AI	Plan to Use in the Next 6–12 Months
Internal cybersecurity protection	60%	39%
Finance and administrative systems	48%	43%
Economic development	45%	33%
HR/HCM	42%	31%
Public security	33%	39%
Public services and benefits	31%	37%
Civic engagement	30%	30%
Crime prevention, policing, and justice	30%	31%
Emergency management and response	29%	33%
Revenue and monetary management	29%	25%
Engagement on environmental sustainability	29%	24%

n = 161 (federal agencies); Source: US Google Public Sector CAIO Survey, IDC, August 2024

Agencies surveyed will use GenAI in:

- ▶ **Finance and administration** — 43%

- ▶ **Internal cybersecurity protection** — 39%

- ▶ **Public security** — 39%

- ▶ **Public services and benefits** — 37%

To capitalize on this potential, CAIOs should proactively explore GenAI use cases, allocate resources accordingly, and increase their AI maturity.

The ability to encourage experimentation and demonstrate value in the short term is closely aligned with the level of maturity:

- ▶ Agencies operating at the Optimized maturity stage are four times more likely to pilot multiple GenAI use cases than those with an Ad Hoc approach.

- ▶ Twenty-seven percent of higher-maturity agencies are investing in GenAI and have GenAI applications in production. None of the survey respondents at the Ad Hoc level have GenAI applications in production, and only 9% of agencies in the Opportunistic or Repeatable stages have GenAI applications in production.

- ▶ Twenty-one percent of more mature agencies have GenAI applications that are producing measurable results for the agency mission compared to 3% in the less mature stages.

Building Relationships with Key Stakeholders

CAIOs must foster strategic relationships with key stakeholders across both mission and IT functions to scale AI. This includes collaborating with mission owners, CIOs, CISOs, CTOs, and legal advisors to align governance, risk, and compliance and talent strategies to maximize the potential of AI initiatives across diverse workflows and use cases.

Survey data reveals that this collaborative approach is gaining traction: 78% of respondents report that AI leaders actively engage functional leaders and seek their feedback to operationalize use cases. The data also highlights that CTOs and CISOs are among the top collaborators for CAIOs, emphasizing the importance of integrating technology, security, and AI expertise.

Federal CAIOs are collaborating with the following C-level positions the most to execute their initiatives:

1. Fifty-four percent collaborate with CTOs.

2. Fifty percent collaborate with CISOs and CSOs.

3. Forty percent collaborate with CIOs.

4. Thirty-four percent collaborate with CDOs.

CAIOs should establish strong partnerships across the agency to effectively leverage diverse perspectives and expertise to drive AI adoption and innovation.

Accelerating AI Innovation with Cloud Technology

AI Infrastructure and Capacity

Both short- and long-term GenAI workloads necessitate infrastructure resources, notably storage for the vast amounts of information required to train and continually update models. CAIOs need to ensure access to large-scale compute processing power, critical for training and tuning models, as well as supporting inferencing processes that generate responses to human- or machine-driven prompts.

CAIOs should also prioritize scalability within their agency's cloud platform to maintain service levels as demand grows. The scalability of cloud infrastructure — encompassing storage, compute, and access demand — is pivotal for managing workload fluctuations and supporting the growth of applications or users without compromising performance.

The GenAI life cycle will significantly impact agencies' underlying technology infrastructure, potentially overwhelming traditional server CPUs. To address the performance-intensive computational load of GenAI workloads and the increasing demand for GPUs, CAIOs should plan for the necessary cloud storage and compute power to support generative AI capabilities.

CAIOs can also consider leveraging private clouds for sensitive data and public clouds for shared data while ensuring hybrid cloud and multicloud interoperability for secure data access and protection.

While on-premises solutions will continue to play a role, CAIOs should recognize that the benefits of public cloud deployments, such as scalability, cost-effectiveness, access to cutting-edge hardware, managed services, data integration, collaboration, and accessibility, are expected to accelerate adoption and growth in the GenAI software services market.

To ensure alignment with their agency's growth and future AI advancements, CAIOs should select a cloud platform that is scalable, flexible, and compatible with existing systems, AI technologies, and a wide range of potential use cases.

Key capabilities of infrastructure providers for AI/GenAI, as identified by agencies for the next 18 months, include:

- ▶ **Access to AI workload performance-optimized infrastructure** — 42% of respondents

- ▶ **A comprehensive AI stack with libraries, cloud, software development kits (SDKs), orchestration, and AI tools** — 33% of respondents

- ▶ **The ability to support hybrid cloud infrastructure** — 28% of respondents

- ▶ **Seamless data repository integration across hybrid/multicloud architectures** — 28% of respondents

A key action for CAIOs is to implement their AI strategy and make informed decisions around cloud infrastructure, leveraging the advantages of public cloud solutions to drive innovation and maximize the potential of GenAI.

Ensuring Data Readiness

GenAI models are trained on massive volumes of existing (often diverse, unlabeled, or unstructured) data, including text, code, video, images, audio, or a combination of these formats.

Data readiness is a foundation of successful AI/GenAI use cases.

Survey data reveals that federal agencies are facing challenges in data management for AI/GenAI, from protecting IP and ensuring quality data to accurate/appropriate data preparedness:

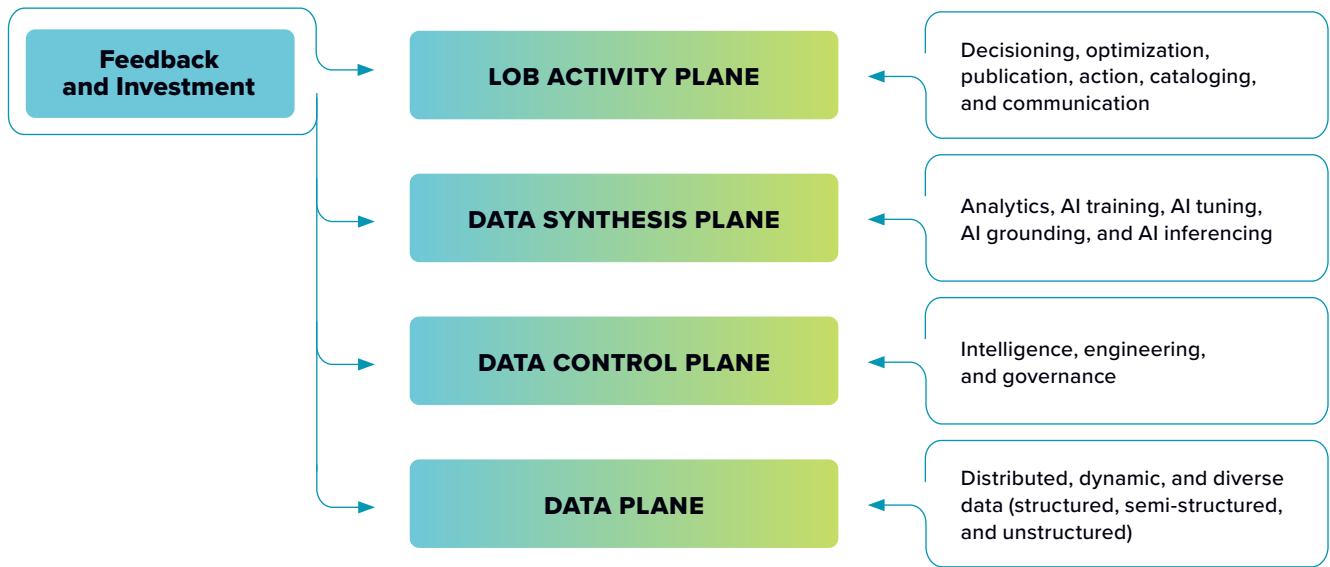
- ▶ Fifty percent of respondents completely agree that their sensitive data is always strictly monitored and controlled.

 - ▶ Thirty-eight percent agree that they have systems and processes in place to ensure the data is always high quality (current, complete, consistent, and accurate) when using AI/GenAI.
-

- ▶ Only 30% agree that they can easily understand whether data used to train AI/GenAI models has IP ownership issues (whether they train models themselves or use pre-trained models).

CAIOs should prioritize addressing data management challenges by collaborating with CDOs to ensure high data quality AI/GenAI applications. They should also regularly audit their agency’s data to identify gaps, inconsistencies, and potential biases, while actively partnering with other agencies to share data and expertise, and approach data management challenges more systemically. CAIOs can leverage an AI-ready data model to guide their agencies in thinking holistically about data management activities and technical investments required to prepare data for AI initiatives. This includes prioritizing the capture of high-value data related to their agency’s mission.

FIGURE 8
IDC’s AI-Ready Data Model



Source: IDC, 2024

- ▶ The Data Plane represents all the types of data agencies must manage — structured, semi-structured, and unstructured data distributed across the organization. Data-Plane technologies include databases, warehouses, and lakes to store, organize, and manage this data.

- ▶ The Data Control Plane is how data is engineered to support different agency activities. It is where data engineers put context around the data and where governance is applied to support AI models.

- ▶ The Data Synthesis Plane is where data is prepared for the AI use cases and where AI workflows such as AI training, tuning, grounding, and inferencing take place. These are a new set of technologies agencies need to invest in.

- ▶ The Line of Business Activity Plane is where actions such as decisioning, optimization, publication, action, cataloging, and communication take place as a result of the data.

Agencies tend to invest in the data plane and more recently in the data synthesis plane. However, the data control plane is the linchpin between the data and the synthesis, and it is one of the most important technologies for investment.

Next Steps for Action:

Investing in AI Innovation to Scale AI Use Cases

The CAIO's responsibility for AI innovation as defined in the EO/OMB mandate can take many forms. To advance in AI maturity, innovation must include piloting use cases, demonstrating AI success and impact.

The following actions are essential to improve AI maturity:

▶ **Identifying quick wins.**

Actively identify use cases for AI and GenAI testing and implementation that can realize early wins. Start with internal operations use cases, such as cybersecurity, finance, and HR, or lower-risk public-facing areas, such as contact center agent productivity and digital service chatbots. Identifying and prioritizing effective use cases sets up success for more complex initiatives. Ninety-two percent of agencies in the Optimized stage have identified AI use cases that aim to solve societal issues or improve internal operational productivity through the intelligent use of data compared to 56% of those in the Ad Hoc stage.

▶ **Developing a pipeline of AI use cases.**

CAIOs employ various strategies to build a robust pipeline of AI use cases:

- Thirty-eight percent of federal respondents emphasize the importance of leadership in creating a sense of urgency for AI/GenAI adoption to achieve mission impact.
- Twenty-four percent highlight the need for line-of-business owners to clearly articulate the expected ROI and impact on mission outcomes.

▶ **Bringing high value to innovation.**

Only thirty-four percent of respondents indicate that their CAIO is bringing high value to innovation in their agency. CAIOs must define quick wins that will show demonstrable impact and highlight innovation, create a sense of urgency to adopt AI/GenAI in daily operations, and build the needed cloud and IT architecture for innovation at scale.

▶ **Tracking successes and learning from pilot use cases.**

Track successes and lessons learned to be ready to test and scale use cases that involve higher risks and more time to realize value but may have a larger impact. Agencies operating at the Optimized maturity stage are four times more likely to pilot multiple GenAI use cases than those with an Ad Hoc approach. More mature agencies also report measurable results from applications in production.

▶ **Selecting a cloud platform that is scalable, flexible, and compatible.**

To ensure alignment with their agency's growth and future AI advancements, CAIOs should select a cloud platform that is scalable, flexible, and compatible with existing systems, AI technologies, and a wide range of potential use cases.

▶ **Working with trusted partners.**

CAIOs should work with trusted partners that can provide infrastructure and platforms for optimized workload performance, full-stack AI capabilities, and data integration across hybrid, multi-cloud environments and that are committed to human-centered AI principles.

▶ **Selecting AI technology providers.**

CAIOs should also future proof the infrastructure and platform for AI by selecting AI technology providers that can bring:

- AI workload optimization, in terms of availability, reliability, performance, security, and net zero impact
- A full AI stack of tools, from libraries and SDKs for developers to orchestration and management control planes for cloud infrastructure managers to data and AI tools for data scientists and engineers
- Open solutions and a broad/deep partner ecosystem that enable the integration of solutions with hybrid, multi-cloud environments

▶ **Enlisting other leaders.**

Finally, CAIOs should enlist other leaders to help drive AI innovation. CIOs/CTOs will play a strategic role in the selection of AI platforms and technologies. CISOs and chief risk and privacy officers must be involved to control AI risks and leverage AI to enhance cybersecurity. CDOs will be crucial to getting data management and governance ready to realize the value of AI at scale.

Conclusion

CAIOs stand at the nexus of a transformative era in government, where AI's potential to revolutionize agency operations and citizen services is immense.

To harness this potential responsibly and strategically, CAIOs should take the decisive actions outlined in this playbook, including:

▶ **Assessing AI innovation maturity:**

Agencies with higher maturity in the areas of CAIO responsibility as outlined in the EO/OMB memorandum had significantly better metrics than lower-maturity agencies. A holistic approach to all aspects of CAIO responsibilities — strategy, talent, culture, governance and risk, communications, and innovation — is required.

▶ **Addressing risk, governance, and compliance:**

Governance and risk management are critical success factors for AI success and compliance and areas where CAIOs can bring tremendous value to their agencies.

▶ **Developing an AI-ready workforce:**

Agencies are challenged with a lack of in-house, specialized AI skills and expertise. A talent strategy can apply a build, buy, or partner approach to advance AI human resources.

▶ **Investing in innovation:**

Expectations for improved innovation are driving AI and GenAI investments. Scaling innovation will require a strategic approach to cloud infrastructure to leverage the advantages of cloud solutions to drive innovation and maximize the potential of AI and GenAI.

CAIOs have a historic opportunity to make progress against Executive Order 14110. By following the actions outlined in this playbook, CAIOs can lead their agencies in harnessing the power of AI for a more efficient, effective, and citizen-centric government while ensuring responsible and ethical AI innovation.

About the IDC Analysts



Adelaide O'Brien (Retired)

Research Vice President, Government Digital Transformation Strategies, IDC

Adelaide O'Brien is Research Vice President for IDC Government Insights, responsible for Government Digital Transformation Strategies. She assists clients in understanding the full scope of efforts needed for digital transformation and focuses on technology innovations such as big data, artificial intelligence, cognitive, and cloud in the context of government use cases such as customer experience, data-driven benefits and services, and public health protection. Adelaide's research also includes a particular emphasis on journey maps that assist clients in understanding the full scope of efforts required to achieve outcomes, and she has benchmarked the maturity of deploying cloud and big data and analytics in the federal government.



Ruthbea Yesner

Vice President, Government Insights, Education and Smart Cities, IDC

Ruthbea Yesner is the Vice President of Government Insights at IDC. In this practice, Ruthbea manages the U.S. Federal Government, Education, and the Worldwide Smart Cities and Communities Global practices. Ruthbea's research discusses the strategies and execution of relevant technologies and best practice areas, such as governance, innovation, partnerships, and business models that are essential for government and education transformation. Ruthbea's research includes analytics, artificial intelligence, open data and data exchanges, digital twins, artificial intelligence, the Internet of Things, cloud computing, and mobile solutions in the areas of economic development and civic engagement, urban planning and administration, smart campus, transportation, and energy and infrastructure. Ruthbea contributes to consulting engagements to support K-12 and higher education institutions, state and local, and IT vendors' overall Smart City market strategies.

[More about Ruthbea Yesner](#)

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The key findings of this research emphasize the need for robust AI governance, investing in the training and skills needed for the next generation of agency leaders, and a focus on innovation and collaboration — we believe these are crucial to unlock AI’s full potential.

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IDC Research, Inc.
140 Kendrick Street, Building B, Needham, MA 02494, USA
T +1 508 872 8200

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