



Artificial Intelligence, Data Readiness, and Interoperability Across Government

A Federal Practitioner
Roundtable White Paper
(Chatham House Rules)

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Executive Summary

This white paper synthesizes key themes and operational insights from a government-only roundtable discussion conducted under Chatham House Rules. Participants explored the evolving challenges associated with artificial intelligence adoption across federal environments, with particular emphasis on data readiness, interoperability, governance, cybersecurity, agentic systems, and enterprise modernization. The discussion highlighted that the future success of AI in government will depend less on model selection and more on the ability to establish trusted, secure, and interoperable data ecosystems capable of supporting mission outcomes at scale.

The Federal AI Inflection Point

Federal agencies are entering a transformational period in which artificial intelligence is shifting from experimentation to operational deployment. Participants described growing pressure to operationalize AI capabilities across mission environments ranging from healthcare and scientific discovery to financial oversight, cybersecurity, and citizen services. While generative AI dominates much of the public conversation, practitioners emphasized that the larger challenge lies beneath the surface: preparing enterprise data environments capable of supporting AI-driven decision making in real time.

The discussion reflected a shared understanding that AI adoption is not solely a technology initiative. Agencies are increasingly confronting institutional, operational, governance, and cultural barriers that must be addressed before AI systems can operate effectively at scale.



The Data Readiness Challenge

Participants consistently identified fragmented and inconsistent data environments as one of the primary barriers to enterprise AI adoption. Across government, data exists within disconnected repositories, legacy systems, mission applications, research platforms, and operational silos that were never designed to support large-scale AI processing.

Several participants described the growing need for “AI-ready” data. Agencies no longer have the luxury of waiting until a mission requirement emerges before preparing data for AI consumption. Instead, metadata, interoperability standards, governance frameworks, and access controls must be established in advance.

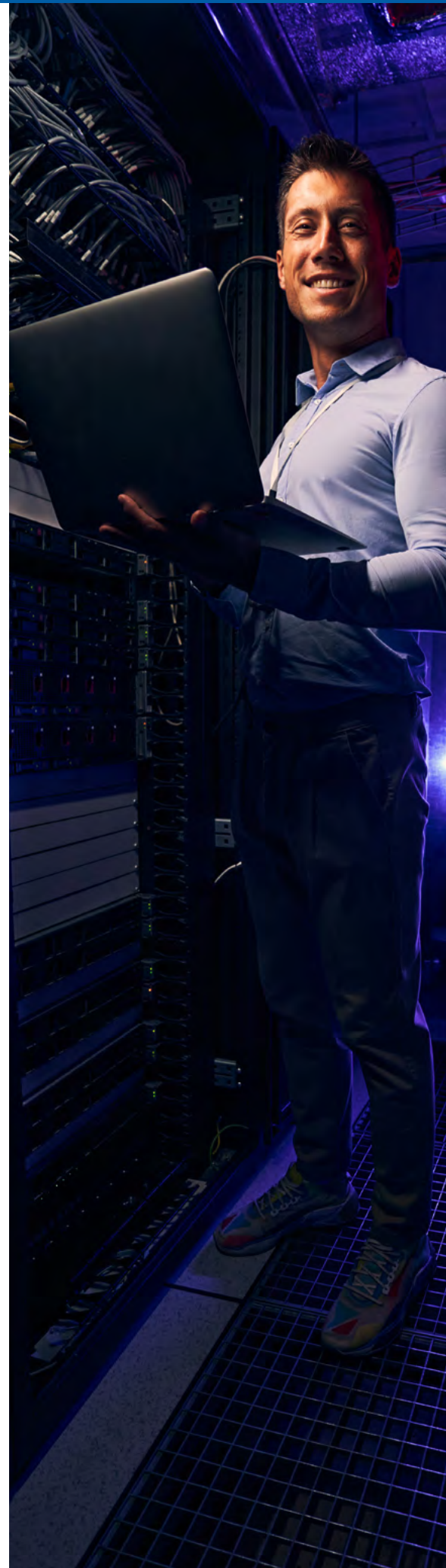
Scientific and research organizations highlighted the complexity associated with managing enormous datasets generated by modern instrumentation, simulation environments, and scientific workflows. As AI accelerates research processes, organizations are simultaneously producing exponentially larger volumes of data, creating new challenges around storage, archival strategy, metadata consistency, and long-term usability.

Interoperability in Distributed Environments

A central theme throughout the discussion involved the future of interoperability across government systems. Participants broadly rejected the idea that successful AI implementation requires centralizing all government data into a single repository or enterprise platform.

Instead, the discussion favored distributed architectures in which authoritative data remains within existing systems while secure interoperability layers provide controlled access across environments. Participants described future architectures that rely on gateways, brokers, and federated access models capable of enabling AI systems to interact with distributed data without requiring massive centralized migration efforts.

This distributed approach was viewed as more scalable, more secure, and more adaptable to future technology evolution than attempting to consolidate all enterprise data into a single environment.



Governance, Trust, and Organizational Alignment

While technical interoperability remains important, participants repeatedly emphasized that organizational trust may be the single most important factor in successful AI modernization efforts. Agencies naturally seek to maintain control over mission-critical data, particularly in environments involving healthcare, national security, financial regulation, or scientific research.

Participants noted that interoperability initiatives often succeed only after organizations establish trusted relationships, shared governance structures, and collaborative operating models. In many cases, technical barriers proved easier to solve than organizational resistance or institutional misalignment.

One recurring observation throughout the discussion was that interoperability proceeds at the speed of trust. Agencies that build collaborative cultures and governance frameworks are likely to move faster than organizations focused solely on technical integration.

Security, Access Control, and AI Governance

The rise of agentic AI systems introduces significant new cybersecurity and governance considerations. Participants discussed the growing importance of establishing secure gateways and policy enforcement layers capable of managing how AI systems interact with enterprise data environments.

Current interoperability approaches and emerging model context protocols offer substantial promise but often lack native security enforcement mechanisms. Participants stressed the importance of implementing identity validation, role-based access controls, attribute-based access policies, monitoring capabilities, and rate limiting before granting AI systems access to sensitive operational data.

Healthcare and research participants described the particular challenges associated with protecting sensitive information while simultaneously enabling advanced analytics and AI-driven operational support. Human oversight remains essential in high-consequence environments, particularly where AI-generated recommendations may influence healthcare decisions, financial operations, or cybersecurity responses.



Agentic AI and the Future of Operations

Participants explored how autonomous and semi-autonomous AI agents are beginning to reshape enterprise operations. Agencies are increasingly experimenting with specialized agents capable of performing targeted operational tasks such as document review, invoice reconciliation, policy analysis, workflow automation, and anomaly detection.

While many of these systems remain early in maturity, participants described significant long-term potential for operational efficiency gains. However, agencies also acknowledged that realizing those gains requires substantial upfront investment in training data, governance structures, operational validation, and workflow redesign.

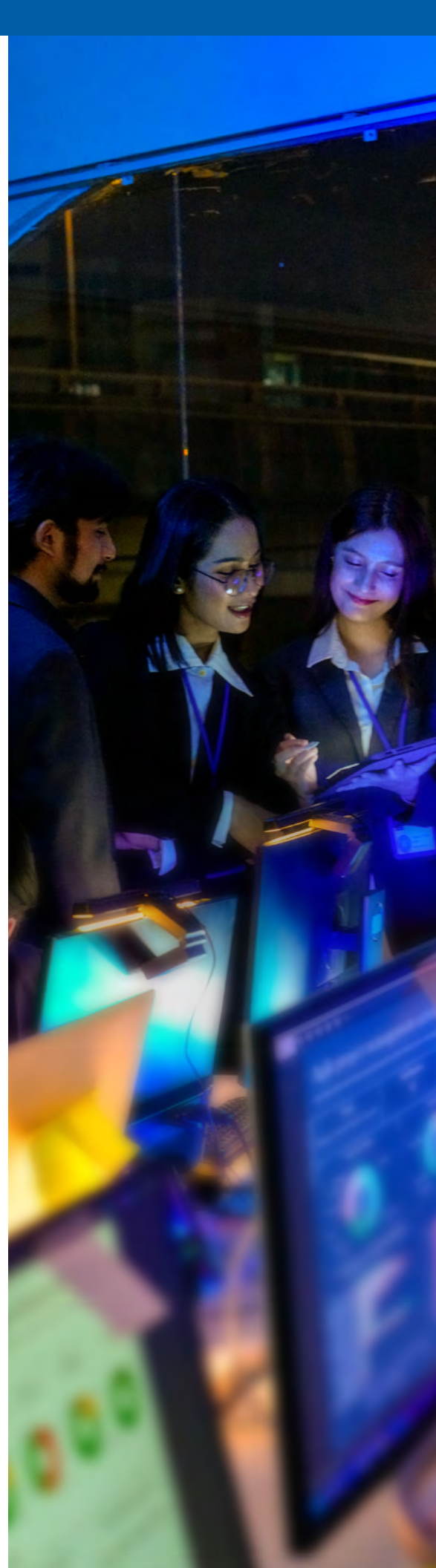
The discussion also highlighted a broader shift in how humans may interact with data in the future. Rather than directly accessing large datasets themselves, users may increasingly rely on AI agents to retrieve, synthesize, and contextualize information on their behalf.

Institutional Knowledge and Human Expertise

One of the most important themes emerging from the discussion was the enduring importance of human expertise. Across scientific, healthcare, financial, and operational environments, participants emphasized that data alone is often insufficient without the contextual understanding held by experienced personnel.

In many cases, organizations rely on small groups of experts who possess decades of institutional knowledge regarding systems, workflows, instrumentation, or mission operations. Capturing and operationalizing that expertise represents a significant challenge for agencies seeking to scale AI capabilities.

Participants cautioned against viewing AI as a replacement for human judgment. Instead, the consensus favored models in which AI augments human decision-making while experienced personnel continue to provide oversight, validation, and mission context.



The Road Ahead for Federal AI Modernization

The roundtable demonstrated that federal agencies are moving rapidly beyond isolated AI experimentation and toward broader operational transformation. While substantial challenges remain, participants expressed optimism regarding the pace of innovation occurring across government.

The next phase of modernization will require agencies to focus heavily on data readiness, governance modernization, interoperability, and organizational trust. Agencies that succeed will likely be those capable of balancing innovation with security, operational flexibility with governance discipline, and automation with human oversight.

Artificial intelligence may fundamentally reshape government operations over the coming decade, but the effectiveness of that transformation will ultimately depend on the strength, accessibility, interoperability, and governance of the data ecosystems supporting it.

Conclusion

The federal government stands at a pivotal moment in the evolution of enterprise technology. AI capabilities are advancing rapidly, but the operational value of those systems will depend largely on the government's ability to modernize the underlying data infrastructure, governance models, and interoperability frameworks that support mission execution.

The discussion reflected broad consensus that the future of AI in government will not be determined solely by algorithms or models. Instead, success will depend on trust, collaboration, secure interoperability, and the ability to operationalize data responsibly across increasingly complex mission environments.

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