



THE INNOVATION ADOPTION KIT

A Data-Driven Playbook for
Enterprise IT Modernization
in Government

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Table of Contents

Foreword	5
Executive Summary	7
Introduction	8
The Challenge of Speed Without Sprawl	9
Portfolio Thinking for Enterprise Modernization	10
The Innovation Adoption Kit Roundtable	12
Recommendations: Immediate Actions	13
Three Practices for Portfolio Modernization	15
Make the Enterprise Visible	16
Measure Pilots Against Existing Systems	17
Acquire While Divesting	18
Conclusion: An Innovation Adoption Solution	20
Session Summaries	22
Appendix: Plenary Session 1 Summary	22
Appendix: Plenary Session 2 Summary	24
About the Author	27
Recent Reports from the IBM Center for The Business of Government	28



"Government technology leaders now face the dual mandate to move faster and reduce duplication. They must move useful technology into service sooner, while bringing order to old, duplicative systems that are costly to maintain and difficult to change."

Foreword

On behalf of the IBM Center for The Business of Government, we are pleased to present *The Innovation Adoption Kit: A Data-Driven Playbook for Enterprise IT Modernization in Government*, by Kevin Hawickhorst, research fellow at the Foundation for American Innovation.

Few challenges in government technology persist more than the following: how can agencies move faster to adopt new tools, while also reducing the duplication and sprawl that make technology costly to maintain and difficult to change? This report shows that agencies can address both mandates in tandem, rather than treat them as competing priorities.

Federal technology leaders face three related demands: retiring decades-old systems, reducing technical debt, and meeting rising expectations from Congress, oversight bodies, the workforce, and the public. They must modernize at the pace of emerging technologies while continuing to meet mission needs.

Kevin Hawickhorst brings rigor and practicality to the subject. He draws on a roundtable that the IBM Center co-hosted with the Foundation for American Innovation. The event included keynote remarks from Justin Fanelli, chief technology officer of the Department of the Navy. Hawickhorst frames modernization as a challenge in portfolio management rather than as a series of disconnected acquisitions. Many modernization efforts have focused on successfully delivering individual projects; this report focuses on turning pilots into operational capabilities within an agency's overall technology portfolio.

The author distills the roundtable discussion into three practices that agencies can use to guide the decisions they currently face.

First, the report argues that agencies must **make the enterprise visible**. Agencies cannot set sound modernization priorities until they understand which systems they operate and how those systems fit together. Examples of agencies using process, data, and financial discovery to rationalize their technology portfolios give agency leaders a starting point.

Second, the report calls on agencies to **measure pilots against existing systems**. Standardized outcome measures, such as those the Department of the Navy uses across its technology portfolio, let leaders compare promising new tools with the legacy systems those tools could replace.

Third, the report calls on agencies to **acquire while divesting**, building system retirement planning directly into solicitations, project plans, and funding milestones—so that agencies identify what each new capability will replace. Drawing on the Navy's Investment Horizons model, this lifecycle view treats technology retirement as a standard part of modernization.



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This report represents a timely contribution to the IBM Center’s continuing work on government technology modernization. It complements the Center’s reports on digital modernization, IT roadmaps, and balancing transformation with legacy operations, including *Digital Modernization for Government: An Implementation Framework* and *A Roadmap for IT Modernization in Government*.

We hope this report will offer value to senior technology executives balancing speed against sprawl, program and contracting officials designing new IT solicitations, and congressional and oversight staff looking for a results-based review process. The report brings clarity and practical grounding around a topic central to the future effectiveness of government.

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Executive Summary

The IBM Center for The Business of Government and the Foundation for American Innovation co-hosted a 2026 roundtable on “The Innovation Adoption Kit: A Data-Driven Playbook for Enterprise IT Modernization in Government.” The roundtable brought together leaders from government, Congress, civil society, and industry. Participants examined how federal agencies can adopt new technologies at scale and drew on lessons from the Innovation Adoption Kit, the Department of the Navy’s framework for technology acquisition.¹

The discussion focused on a central tension in current federal information technology (IT) modernization initiatives: to modernize quickly and reduce duplication. Agencies have difficulty pursuing these goals simultaneously, because moving quickly can produce a more complicated technology estate as agencies stand up new applications faster than they retire existing ones. Conversely, attempting to reduce duplication can lead agencies to centralize approval in ways that slow modernization down.

This session discussed how agencies can adopt innovation at scale by managing their technology as part of a unified portfolio, one that enables leaders to adopt new technology in a way that displaces legacy systems rather than allowing old and new systems to operate side by side indefinitely.

The discussion highlighted three practices for applying this portfolio logic.

- First, agencies need to **make the enterprise visible**: they need to know what systems they have and how those systems fit together before they can identify technical debt and set modernization priorities. Approaches to accomplish this include process discovery, data discovery, and financial discovery.
- Second, agencies need to **measure pilots against existing systems**: they need standardized outcome measures for comparing pilots with the legacy systems they are meant to improve or replace. Participants discussed measures such as cost per user, adaptability, user experience, and operational resilience.
- Third, agencies need to **acquire while divesting**: they need a lifecycle view of their full technology estate, so new systems are adopted with a clear plan for what they will replace or simplify. Participants proposed building retirement planning into solicitations, internal modernization plans, funding milestones, and oversight agreements.

These three practices would enable executives to apply portfolio logic to government acquisition and treat modernization as a set of investment choices rather than a series of disconnected projects. This approach gives leaders an empirical basis for comparing investments while leaving room for strategic judgment about the future of their technology assets. The practices also give agencies a common language for modernization, making it easier to explain problems and share successful approaches.

1. Department of the Navy Chief Information Officer, “*Innovation Adoption Kit*,” DON CIO Memo, February 27, 2026, accessed May 20, 2026, <https://www.doncio.navy.mil/ContentView.aspx?id=20434>.

Introduction



The Challenge of Speed Without Sprawl

Government technology leaders now face the dual mandate to *move faster* and *reduce duplication*. They must move useful technology into service sooner, while bringing order to old and duplicative systems that are costly to maintain and difficult to change.

Acquisition speed determines whether modernization can keep pace with changing technology needs. When replacement takes too long, requirements become outdated and agencies pay to maintain both the legacy solution and the modernization effort meant to replace it.

Modernization efforts at the Internal Revenue Service (IRS) show how long that cycle can last. As early as the late 1980s, the U.S. Government Accountability Office (GAO) was already warning about IRS IT modernization problems.² In 1997, after nearly a decade and more than \$3 billion, that modernization effort had “fizzled.”³ In 2004, the next major effort had already spent about \$1.4 billion and remained beset by dysfunction.⁴ In 2025, the IRS was again reassessing still-unfinished modernization investments, this time in light of artificial intelligence (AI).⁵ A modernization process that routinely outlasts the technology cycle cannot meet today’s demands.

Speed has become an explicit priority in federal acquisition and modernization policy. In April 2025, a defense acquisition executive order called for reform with “speed, flexibility, and execution,”⁶ while a separate order directed a broad overhaul of the Federal Acquisition Regulation to streamline the contracting process.⁷ Congress has also continued to press for faster modernization, including by advancing reforms to the Technology Modernization Fund⁸ and by expanding the authority to use flexible acquisition authorities such as Commercial Solutions Openings and mandating their use.⁹

Reducing duplication helps ensure that each technology purchase adds a distinct capability and gives the government more leverage when buying common tools. Duplication is especially common in software, where large bundles can obscure whether individual products are adding distinct value. General Services Administration (GSA) has reported, for example, that the Department of Energy purchased nearly 180,000 licenses for Microsoft products but lacked basic information on cost and usage.¹⁰ An agency with too many overlapping tools can find it difficult to compare products by cost and suitability before buying and to periodically review the estate to identify redundancies.

2. U.S. General Accounting Office, *Tax System Modernization: IRS’ Challenge for the 21st Century* (Washington, DC: GAO, February 1990), 2–3, <https://www.gao.gov/assets/imtec-90-13.pdf>.
3. Graeme Browning, “Crashing Computers,” *Government Executive*, March 3, 1997, <https://www.govexec.com/federal-news/1997/03/crashing-computers/2104/>.
4. U.S. Government Accountability Office, *Business Systems Modernization: Internal Revenue Service Needs to Further Strengthen Program Management* (Washington, DC: GAO, February 12, 2004), <https://www.gao.gov/products/gao-04-438t>.
5. David Lawder, “US IRS Pauses Modernization Investments to Evaluate AI Technology,” *Reuters*, March 14, 2025, <https://www.reuters.com/technology/artificial-intelligence/us-irs-re-evaluate-modernization-investments-light-ai-technology-2025-03-14/>.
6. Executive Office of the President, “Modernizing Defense Acquisitions and Spurring Innovation in the Defense Industrial Base,” April 9, 2025, <https://www.whitehouse.gov/presidential-actions/2025/04/modernizing-defense-acquisitions-and-spurring-innovation-in-the-defense-industrial-base/>.
7. Executive Office of the President, “Restoring Common Sense to Federal Procurement,” April 15, 2025, <https://www.whitehouse.gov/presidential-actions/2025/04/restoring-common-sense-to-federal-procurement/>.
8. Katie Malague, “Congress Reauthorized the Technology Modernization Fund Through Fiscal Year. Why It Matters and What’s Next,” *Government Executive*, March 16, 2026, <https://www.govexec.com/technology/2026/03/congress-reauthorized-technology-modernization-through-fiscal-year-why-matters-and-whats-next/412149/>.
9. National Defense Authorization Act for Fiscal Year 2022, Pub. L. No. 117-81, § 803, 135 Stat. 1541, 1813–14 (2021); 10 U.S.C. § 3458; National Defense Authorization Act for Fiscal Year 2024, Pub. L. No. 118-31, § 813, 137 Stat. 136, 335–36 (2023).
10. U.S. Government Accountability Office, *Federal Software Licenses: Agencies Need to Take Action to Achieve Additional Savings* (Washington, DC: GAO, January 2024), 20–21, <https://www.gao.gov/assets/gao-24-105717.pdf>.

Federal policy has also moved toward reducing duplication. The government has advanced that goal through GSA's OneGov Strategy, an enterprise approach to buying common technology across agencies rather than through separate agency-by-agency deals. GSA describes the strategy as a way to use the federal government's collective purchasing power to secure better terms and set more consistent standards.¹¹ Congress has treated software duplication as an oversight problem as well, including through the Strengthening Agency Management and Oversight of Software Assets (SAMOSA) Act, reintroduced in 2025 to improve federal software purchasing and management.¹²

These two goals sound individually straightforward, if ambitious. However, the one-sided version of each reform makes the other harder. The undisciplined way to move faster would involve letting every office build and purchase software independently. This could increase the speed of acquisition but also leave agencies with more overlapping systems and more pilots that do not replace anything. Agencies can also overcorrect against duplication by requiring every new tool or project to pass through a slow enterprise approval process. Although that may reduce some overlap, it recreates bottlenecks that acquisition reform seeks to overcome.

In both cases, the narrow approach judges each acquisition in isolation by a single immediate test: whether it proceeds quickly or whether it avoids overlap. Addressing speed and duplication together requires a framework for evaluating new tools by how they fit into the broader IT estate.

Portfolio Thinking for Enterprise Modernization

Managing modernization as a portfolio provides that framework. Under a portfolio approach, leaders judge each acquisition by the capability it adds to the enterprise and by the role it should play over time. When considering a purchase, leaders need to compare a new tool with the agency's requirements and existing systems so they can tell whether it fills a real gap or duplicates an existing capability. They also need to evaluate the tool across its lifecycle, including whether it has a realistic path to move beyond the pilot stage and replace an older system and what that will cost to operate over time.

To apply portfolio logic, agencies need enterprise-wide rules that let teams move quickly while requiring enough initial comparison upfront to avoid accidental duplication and enough review afterward to simplify what the agency has accumulated. A portfolio view shifts the modernization conversation from individual acquisition choices to managing IT as a whole.

Much of the current modernization conversation focuses too heavily on individual project delivery rather than enterprise-level adoption. That conversation offers actionable recommendations for better user research, modular procurement, and stronger product teams, but says less about what agencies should do after a project succeeds. Agencies need a process for deciding whether a successful project can become an enterprise capability by replacing or consolidating older systems.

11. General Services Administration, "GSA Unveils OneGov Strategy to Transform How the Federal Government Purchases Goods and Services," April 29, 2025, <https://www.gsa.gov/about-us/newsroom/news-releases/gsa-unveils-onegov-strategy-04292025>.

12. Strengthening Agency Management and Oversight of Software Assets Act, H.R. 4898, 119th Cong. (2025).



Reformers also need a concrete model of results-based oversight, rather than a general request for greater team flexibility. Agency leaders, Congress, inspectors general, and GAO will still ask whether a new capability duplicates existing systems, improves performance, or creates a path to retire older technology. Because undisciplined flexibility can worsen those issues, agencies need evidence that satisfies oversight so that the default approach does not remain risk-averse procedural control.

A common mistake involves treating process as a burden to reduce rather than a system to improve. The call for less process may make sense at the team level, but enterprise modernization will always require process of some kind. Portfolio thinking offers a framework for making that process support modernization rather than obstruct it.

To examine how such a framework can work in practice, the IBM Center for The Business of Government and the Foundation for American Innovation co-convened “The Innovation Adoption Kit: A Data-Driven Playbook for Enterprise IT Modernization in Government,” a roundtable on enterprise IT modernization. This report draws on that discussion to develop an approach for managing modernization as a portfolio.



The Innovation Adoption Kit Roundtable

The Innovation Adoption Kit roundtable convened leaders from government, Congress, civil society, and industry to examine how agencies can apply portfolio logic to adopt new technologies at scale. The discussion drew on the Department of the Navy's experience using the Innovation Adoption Kit, its framework for technology acquisition, with keynote remarks from Justin Fanelli, chief technology officer of the Department of the Navy.

The roundtable began by reviewing the Navy's approach to scaling innovation, then moved into two plenary discussions. The first focused on prioritizing new modernization initiatives, while the second focused on measuring outcomes and setting requirements for new systems.

The roundtable discussion pointed to three concrete practices for putting portfolio logic into practice:

- **Make the Enterprise Visible:** Agencies need to know what systems they have and how those systems fit together before they can decide what to modernize.
- **Measure Pilots Against Existing Systems:** Agencies need a consistent way to compare new approaches with the legacy systems they are meant to improve or replace.
- **Acquire While Divesting:** Agencies need to make retirement part of modernization planning, so they adopt new systems with a clear plan for the older systems they will replace, consolidate, or retire.

These practices point to a menu rather than a sequence. Agencies can begin applying the framework to decisions already in front of them, without waiting for a complete portfolio model.

Recommendations: Immediate Actions

Assess the IT Estate from Multiple Views

Executives should begin with a bounded part of the IT estate and map it from several views, focusing first on an area where technical debt or duplication is already suspected. This can help agencies to identify near-term modernization targets and obvious consolidation opportunities without waiting for a complete enterprise inventory. Key steps include:

- **Business-process view:** Use customer relationship management (CRM) (or other workflow platforms) and AI-enabled process-mining tools to identify the business processes each system supports and where multiple tools support the same workflow.
- **Data-flow view:** Use high-level data flow diagrams or similar lightweight models to identify major data exchanges, duplicated data stores, and systems that maintain overlapping records.
- **Application-dependency view:** Use observability and runtime dependency-mapping tools to understand system dependencies before making changes or retiring applications.
- **Financial view:** Work with the chief financial officer (CFO) to connect systems to contracts, licenses, cloud usage, and vendor spend, using business intelligence and AI-enabled analysis to identify unregistered assets and untracked costs.

Measure Outcomes Across the Technology Lifecycle

Executives should select a small number of outcome metrics and begin measuring a manageable set of related systems. Those measures should support near-term investment decisions and give agencies a practical basis for building retirement planning into ongoing modernization work. Key steps include:

- **Pilot approvals:** Require each pilot to identify the expected outcome to improve and the metric that shows progress.
- **Solicitation and source selection:** Identify existing systems or capabilities that are candidates for replacement, name them in the solicitation, and require offerors to show how their solution would outperform and replace those systems based on the agency's outcome metrics.
- **Project planning:** Include specific retirement milestones in modernization plans, such as migration dates, read-only transitions, and system or subsystem turnoffs.
- **Portfolio review:** Use outcome metrics to compare related systems or capabilities. For a pilot, determine whether it outperforms the relevant legacy system and should replace it. For existing tools serving the same function, determine whether one outperforms the others and should become the default.

The following sections elaborate on each of the three practices in turn.



Three Practices for Portfolio Modernization

Make the Enterprise Visible

Agencies need to know what systems they have and how those systems fit together before they can make sound modernization decisions. Without that basic picture, leaders cannot identify technical debt or prioritize among competing modernization initiatives.

Participants identified three practical ways to build this visibility: process discovery, data discovery, and financial discovery.

Process discovery maps out how IT systems fit into workflows. This can follow the business process an agency uses to complete a task, for example, or map the application dependencies that support that process behind the scenes. If agencies do not understand these relationships before replacing a system, they may preserve processes that should be simplified or miss the chance to consolidate systems doing the same job. One participant described the approach he used as an agency chief information officer (CIO): we were the “first to understand the business processes” through mapping software dependencies, business processes, and data flow. That work revealed 97 different systems with associated software licenses, with many serving the same purpose. By understanding how those systems worked, the agency eliminated nearly half, reducing the IT estate from 97 to 50 licenses.

Data discovery provides a second path. Data discovery examines the information stored by different applications to look for redundancies and inconsistencies. Agencies may have separate applications that store the same information—one example discussed during the session involved 16 systems where roughly 80 percent of the data was the same. That finding suggested that the agency may not have faced 16 separate modernization problems, but several variations on a single underlying problem.

Financial discovery provides a third path. This practice uses financial data such as contracts, invoices, and licenses to discover IT assets that have not been recorded in official inventories. This is especially important in cloud and software-as-a-service (SaaS) environments, where a team may purchase or use resources without that activity being recorded in a central location. One participant described the effort to identify cloud use across several components of the agency: “We actually had to arm wrestle Amazon Web Services (AWS) to give us the full list,” which revealed more than 1,000 instances.

These forms of discovery work best together because each sheds light on a different part of the enterprise. Some realities show up in the workflow, others in the use of data, and still others in receipts and invoices. Together, they can help agencies construct the working inventory they often do not already have. In one agency’s experience, the combination of process mapping, data flow analysis, and licensing review showed where old databases and duplicate licenses could be simplified. The participant summarized the result directly: “One-third of our infrastructure was eliminated by removing duplication, removing duplicate databases, removing licenses and everything.”

Participants had varying views on how much discovery should precede action. Some emphasized the need to begin with intensive mapping, because agencies can break critical workflows or replicate dead weight if they do not understand what existing systems actually do. Others warned that discovery can become a substitute for action. As one participant put it, agencies can “establish a committee to prioritize something” and find that “two years have gone by” before the prioritization exercise is complete. This attendee proposed an approach to “time-box it to a few weeks, pick one and run with it.”



Taken together, these views suggest that senior leaders should make discovery time-bounded and tied to decisions. Enterprise visibility comes from the top because it depends on combining usually separate views: systems, workflows, data, and finance. Agencies do not need a perfect map before they begin, but they do need enough of a shared picture to act responsibly.

Measure Pilots Against Existing Systems

To assess modernization initiatives, agencies need standardized measurements of outcomes that compare pilots with the legacy systems they are meant to improve or replace. Without those measures, it is difficult to compare a promising new approach with a functional but brittle legacy system. The benefit of the new system may lie not in lower cost alone, but in outcomes such as being easier to update and less likely to crash.

The Department of the Navy offered the most developed example of this approach. The Navy picked five outcome metrics for assessing technology: user time saved or lost, adaptability, cost per user, user experience, and operational resilience. These measures translated operational details into a smaller set of outcomes that leaders could use to compare technology investments.

Outcome measures offer a shared language for explaining modernization. Participants discussed how that language could help different audiences: agency leaders running programs, funders managing investments during operations, and officials in oversight roles.

For agency leaders, outcome measures help decide whether a pilot is ready to scale and what role it should play in the enterprise. A new tool may look promising in isolation, but leaders still need to know whether it performs well enough to justify replacing an existing system. As one participant stated plainly, does a new tool make things “easier, faster, and simpler”?

The most actionable measurement, participants noted, was “adaptability.” This offers a promising way to quantify technical debt by measuring the difficulty of changing an old system. Many legacy systems may continue to function, but become increasingly difficult to change. For example, a Navy project had been launched to improve network performance but, more importantly, the project enabled the Navy to make changes faster: “We mislabeled the actual impact. The difference is if you don’t like something, now it takes two weeks [to change it] instead of a year.”

For those funding modernization efforts, outcome metrics turn approval into an ongoing management conversation. Participants described the Technology Modernization Fund (TMF) process as “more like a venture capital interaction,” with agency and Technology Modernization Fund experts working together to agree on metrics such as data center closures and customer satisfaction. Once agreed upon, those metrics can be used throughout the modernization effort. One participant described a project where funding was frozen for missed key performance indicators (KPIs), then reset under clearer governance. This pointed to the broader lesson that modernization should be tracked in real time so that flawed projects can be set right, rather than penalized after the damage is done.

For Congress, inspectors general, GAO, and other oversight bodies, outcome metrics offer an alternative to process-heavy oversight. Instead of asking whether a project followed the required steps, they can ask whether user experience improved or whether systems became easier to modify. As one participant argued, Congress is “pretty open if you have data linking activity to outcomes to tell some of these stories.”

Participants also recognized that metrics cannot replace judgment. They debated the proper scope of metrics, with one participant warning that agencies can end up “marching to the metric” instead of asking whether the metric still reflects the larger purpose of the work.

Once agencies can compare old and new systems in terms of outcomes, they have a stronger basis for deciding which efforts deserve continued investment and which should be canceled.

Acquire While Divesting

Agencies need a lifecycle view of the technology estate to connect adopting new systems with retiring old ones. Without a link between technology adoption and retirement, modernization can leave agencies with new systems layered on top of old. A lifecycle view asks when an existing system has become more costly to keep than to replace, and whether a new approach is mature enough to take its place. This approach gives pilots a path to scale by giving legacy systems a path to retirement.

The Department of the Navy’s Investment Horizons model offered the most developed version of the lifecycle view. The Navy model places technology in stages: evaluating, emerging, investing and extracting, and retiring. That structure gives leaders a way to distinguish technologies that are still being tested, technologies ready for broader investment, and technologies that should be drawn down as better options take their place.

Lifecycle frameworks give leaders a disciplined way to decide when a newer technology can scale and what older technology it should replace. Participants pointed to three places where that discipline could be built into the modernization process: solicitations, internal modernization plans, and funding or oversight agreements.

Solicitations and proposals provide a first place to require divestment planning, by enabling agencies to ask vendors what systems their products would replace. In the Navy, when companies proposed new logistics capabilities, the response was, “Which of the systems do you turn off?” The follow-up was sharper: “You think we can pay for a 251st logistics system? Pick five of these. And figure out how to kill them.” That kind of question makes replacement part of the offer, rather than something the agency must solve after buying the new system.



Second, agencies can build divestment into project planning by including concrete retirement milestones alongside delivery milestones for the new system. One participant described a modernization effort focused on improving digital services for the public that set a goal of reducing roughly 40 data centers to two along the way. The project ultimately closed 37 data centers and saved \$40 million. This approach lets agencies improve operations as the project moves forward, while steadily replacing the legacy infrastructure.

A third approach includes retirement milestones in funding and oversight plans, so that missed targets trigger reassessment while time remains to correct the project. One participant described a mainframe modernization project overseen through the Technology Modernization Fund with concrete milestones, including dates for moving subsystems off the mainframe and ending certain reports. When milestones were missed, the effort was reset and brought back under clearer management. Funding plan milestones impose discipline on recipient agencies, ensuring they purchase new capabilities at scale.

Participants differed about the proper scope of consolidation. Some urged leaders to think at the enterprise level, “get rid of the org charts,” and look across budgets and capabilities. Others cautioned that “having some competition across organizations is still good,” and that the answer does not always need perfect uniformity. At minimum, the discussion suggested that agencies should distinguish accidental sprawl from variation that serves a clear purpose. The Navy experience captured that distinction with a payroll modernization example: “We went from 24 to 4, not 24 to 1.”

A lifecycle view makes IT retirement a normal managerial decision. When retirement is built into modernization plans, agencies do not have to relitigate every shutdown as a separate fight.

Conclusion: An Innovation Adoption Solution



A recent Atlantic Council commission on defense innovation argued that the United States does not lack innovation so much as it struggles with innovation adoption.¹³ The roundtable discussion reached a similar point in more practical terms: “We’ve proven over and over that we can pilot quickly, but does it scale?”

Adopting innovation at scale can best be pursued at the enterprise level rather than project-by-project. This requires a shift from project-level modernization to portfolio management, with each decision judged by how it affects the technology estate as a whole. Such a framework gives leaders an empirical basis for comparing investments while leaving room for strategic judgment about the future of the enterprise.

Moreover, innovating in this way helps reconceive IT acquisition as an investment rather than a purchase. A purchasing mindset frames the agency as buying a product; an investment mindset asks what return the agency gets on the spending, relative to its existing portfolio. Especially in a constrained budget environment, agencies should demand that IT spending deliver continuing improvements.

Treating modernization projects as investments also helps agencies tell clearer stories about how their spending delivered operational improvements and replaced old technology. As one participant argued, if government cannot tell stories about technology investments that attract talent, investment, and support, “we’re in huge trouble as a country.” Those stories give officials a common language for sharing what works, build support for continued investment, and demonstrate that public institutions can adopt innovative technology and use it well.

ADDITIONAL READING ON MODERNIZATION:



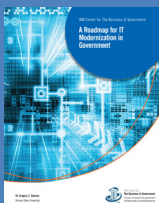
Digital Modernization for Government: An Implementation Framework

by Dr. Gregory S. Dawson, Dr. James S. Denford,
Kevin C. Desouza, and Marc E. Barda Picavet



Balancing Digital Transformation and Modernization: Pathways for Public Managers

by Marc E. B. Picavet, Kevin C. Desouza, Dr. Gregory S. Dawson,
James S. Denford, and Daniel Chenok



A Roadmap for IT Modernization in Government

by Dr. Gregory S. Dawson

13. Atlantic Council Commission on Defense Innovation Adoption, *Atlantic Council Commission on Defense Innovation Adoption: Final Report* (Washington, DC: Atlantic Council, January 2024), <https://www.atlanticcouncil.org/in-depth-research-reports/report/atlantic-council-commission-on-defense-innovation-adoption/>.

Session Summaries

Appendix: Plenary Session 1 Summary

The first plenary session began with opening remarks and a discussion of the Navy's approach to scaling innovation. It then turned to the first question: "What decision process should agencies use to prioritize among possible modernization initiatives, in the context of legacy systems that continue to operate?"

The discussion began by noting a tension in current federal IT efforts. As the first discussant put it, the "lazy way" to reduce duplication is to centralize all IT modernization efforts, while the "lazy way" to move faster is to let every team do whatever it wants.

Participants described the federal government as having significant tech debt and processes that are inadequate for addressing it. Some agencies are "more than a decade behind" in their technology and some currently operating systems are so old that the original vendor will no longer support them.

Participants also noted that IT portfolios contain significant duplication, which they ascribed to root causes that included contracting, acquisition, and legislation. They noted that overly prescriptive legislation can assign money and responsibility to a specific program office, which then buys tools without coordinating with the agency. Other specific causes include uneven CIO authority, "little pockets of shadow IT," and "deep functional ownership of workflows" that have evolved over decades. Contracting can reinforce the same pattern, where a 12-month requirements-gathering phase can make an enterprise IT project outdated from the beginning. Similarly, oversight incentives may reward careful risk management more than improved delivery cadence.

One participant considered risk management tradeoffs to be the central issue in acquisition reform, claiming that agencies may need to "increase acquisition risk to lower operational risk." Another put the divestment problem in practical terms: if a department already has 250 logistics systems, a new private-sector solution cannot simply become the 251st.

Participants agreed that agencies need better visibility into their existing IT portfolio and discussed several different forms of visibility.

One participant emphasized financial visibility: using records of spending in order to discover IT assets that the agency is paying for but has not included in its records. For example, one office had to "arm wrestle AWS" to get a full list of cloud instances, revealing more than 1,000 instances across roughly 450 program offices.

A second participant described process visibility: mapping business processes, software dependencies, and data flow. A process visibility initiative reduced 97 systems to 50 and helped collapse duplicative database structures and software licenses.

A third approach discussed was data visibility. One agency found that 80 percent of the data across multiple systems was the same. Participants noted that modernization initiatives, in turn, should inform the data that an agency collects. Agencies might discover, for example, a lack of management data during rationalization initiatives, or might discover they lack the operational data needed to know whether operations are improving.

The discussion also turned to how visibility becomes evidence for decisions. Participants suggested that it can reveal a fuller set of costs and benefits. However, one participant warned against “creative writing exercises” that exaggerate the benefit of proposals. Others urged that benefits be estimated on concrete measures such as time saved, reduced staffing burden, and costs avoided. Cost analysis should likewise be grounded in hard usage figures and fuller measures of burden, including cyber risk and process time.

Participants also discussed how Congress needs concrete stories about what was turned off, what worked, and what law or regulation it should “delete from the code.” Another participant added that concrete stories can help agencies advocate for flexibility in the application of risk control. Such advocacy is more likely to be well received if it has hard data and a principled explanation of why a control fails to advance the larger policy goal in a particular case.

Responding to calls for extensive visibility before modernization, several participants warned against letting analysis delay action. One view was that agencies should put a short limit on the prioritization exercise, choose a starting point, and begin. Another was that agencies should become comfortable with “a good enough set of requirements,” backed by an iterative approach to building systems.

A related point was that progress in modernization should be judged by how many times a team iterates on its product, rather than merely by dollars spent or time elapsed. Another participant distinguished modernization from experimentation: modernization can imply that the agency already knows the answer, while experimentation starts from not knowing. He suggested prioritizing work by ease of experimentation and possible impact. He also noted that experimentation makes it easier to let some efforts die.

This led to a set of comments on how modernization efforts stay organized once underway. They highlighted the need for widely agreed-upon metrics for judging the success of projects. One participant described a successful modernization effort that had buy-in from the White House, Office of Management and Budget (OMB), agency leadership, and the agency C-suite. That effort was tied to concrete goals such as improving service, closing data centers, and saving money. Another participant described a project funded by the Technology Modernization Fund (TMF) as being akin to a venture capital interaction, with agency experts negotiating success metrics with TMF that were then used as project milestones. The Navy’s experience pointed in a similar direction, where successful scaling required a shared set of metrics, portfolio discipline, and investment decisions connected to what the agency will stop funding or operating.

The discussion addressed how to turn successful projects into enterprise-wide capabilities that operate across the technology lifecycle and replace legacy technology. Identity management was one example, with one agency having more than 1,000 implementations across its teams, each with “their own little homegrown” approach. They tackled the problem by designating one product an enterprise service. This made migration more repeatable and avoided the need to negotiate separately with every system owner. Cloud infrastructure faced a similar problem, with the agency discovering more than 1,000 instances only after protracted investigation.

However, other participants cautioned against treating all variation and apparent duplication as waste. Some competition across organizations or vendors can be useful, so the issue is not whether all overlap should disappear but whether it is intentional and well-calculated.

Another major theme was that the civil service would need to possess new competencies, particularly in the AI era. Participants discussed the problem of talent recruitment from two viewpoints. On one side, technical knowledge may not track seniority, as younger technical staff might often be the most informed people in the room. On the other, AI-native staff still need to collaborate with experienced operators who understand issues such as supply-chain risk management, regulation, and national security. One participant emphasized that civil service reform had to be tied to broader questions of government modernization by first asking what functions ought to be done in-house and then recruiting the talent necessary to bring those functions in-house.

The discussion also pointed to broader models of service. One participant described the goal as creating “dual citizens” who understand both public-sector and private-sector technical cultures, and argued that many technically skilled people may be willing to make public service one chapter in a longer career rather than a 30-year commitment.

A broader caution ran through the discussion: modernization should not begin by assuming that the system as it currently exists is the right thing to optimize. One participant asked what modernization means if the agency is simply taking for granted its current processes, warning: “Don’t modernize what shouldn’t exist.” Another added that agencies should return to the underlying functions and priorities beneath existing processes and requirements.

Participants suggested several approaches for rethinking systems from first principles. One was to rethink business processes during modernization, with a warning that reengineering can become a “façade” when agencies recreate the same workflows in a new system. Another was to begin by considering the intended outcomes. One participant described modernization after a major government reorganization that started from the common result the organization needed to achieve, rather than from the preexisting systems and processes. Another was to rethink the enterprise itself, “get rid of the org charts,” and examine the whole agency, or even the federal government, rather than look office-by-office.

Appendix: Plenary Session 2 Summary

The second plenary discussion began from two related questions: “How should agencies measure outcomes to assess the impact of modernization—whether performed in-house or by contractors—and effectively compare new technologies with legacy systems?” and “What architectural or other standards should agencies require of new systems to ensure they are secure, interoperable, and adaptable over time?”

The first question was framed around assessing when pilots are successful enough to “pull the trigger” and replace legacy technology. The second question’s framing focused on setting requirements that ensure new technology fits into the existing technology estate.

The discussion began with the Navy’s experience incorporating metrics in its decision-making. Its experience had originated in a program office that had seven different metric systems that were treated as all equally important. When asked how the various metrics were reconciled against each other, the answer was “in meetings.” The Navy’s response was to choose five standard outcome measures that could be applied across every IT portfolio: user time saved or lost, adaptability, cost per user, user experience, and operational resilience.

These metrics were used for adding discipline to modernization efforts. As the participant put it, if a proposal could not map to an outcome, it did not get to start. The metrics also gave leaders a way to describe benefits that cost alone would miss. For example, measuring adaptability would make it possible to quantify tech debt: outdated systems are often brittle and difficult to change, which is a real cost, although this cost is difficult to describe in monetary terms.

Participants then moved from the Navy's experience specifically to metrics more broadly. They began by discussing how metrics help agencies choose among competing IT modernization initiatives. One participant argued that outcome measures make it easier to prioritize spending by impact. That participant emphasized that budgets are already tradeoff mechanisms, so agencies need metrics that make tradeoffs fully explicit in budgetary decisions.

Others added that metrics could offer new ways to discuss costs and benefits. Two proposed options for measuring the benefit of projects were delivery cadence and user experience. One participant proposed using opportunity cost to measure the broadest set of costs for a government project. Another participant suggested that organizations should set highly ambitious KPIs to motivate agencies to realize the new possibilities of the AI era.

Metrics were also seen as a promising method for overseeing modernization initiatives as they progress. Several participants pushed against waterfall-style review cycles, arguing instead for frequent check-ins that ask what teams have learned and how they have adapted. One described a project where funding was frozen after KPIs were missed, then reset under clearer governance with specific deliverables that included milestones for deprecating subsystems of the legacy technology. Another suggested that agencies should also measure switching costs, complexity, and maintenance burden, citing an experience where merely changing contractors required recreating one of the agency's most important databases.

Participants also considered the limits of metrics. One raised the "ghost of Goodhart's Law," while another shared an anecdote about how metrics can prove counterproductive: a government once rewarded people for killing snakes, leading the populace to breed snakes in order to collect the reward.

The discussion highlighted the need to adjust metrics rather than treat them as set in stone. One participant described them as "living and breathing things." Another noted that goalposts should move because, as an agency makes progress, it will try to improve new parts of the system. Participants also distinguished metrics from vision and judgment, leading to a debate over whether metrics were more useful for measuring risks than for quantifying success.

In the discussion, risk tolerance emerged as the binding constraint for efforts to move faster. One participant framed modernization as a tradeoff between speed and risk, while another argued that agencies need room for prudent risk-taking if they want to make meaningful progress. One participant noted that programs with stronger oversight such as TMF can be hard to expand because they require participants to accept more scrutiny.

Several comments suggested that attitudes about risk tolerance are driven by institutions outside the project team itself. One participant argued that external direction is critical for setting risk appetite and suggested that Congress can play a central role in this conversation. Another asked how agencies should deal with entities whose top-down guidance imposes risk aversion, particularly with respect to OMB. In a concrete illustration, one participant described an actual proposal with benchmarked AI-enabled efficiencies. The participant recounted that the projected gains were heavily discounted because evaluators had little appetite for downside risk from any AI-related projects.

The concepts of product thinking and user value recurred throughout the roundtable. One participant argued that programs should have user agreements and spend real time understanding what users value in a system. Another put the point more sharply: "learning your user should not be a three-month effort." A third suggested a simple test for benefits: did the modernization make the work "easier, faster, and simpler"?

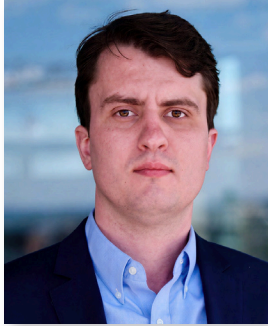
Participants also connected this to a broader shift toward product operating models. One described product thinking as a totally new operating model that requires changing everything from budget and procurement to management and oversight. Another discussed Wardley mapping to argue that product thinking might be less appropriate for commodity services than for product problems.

The plenary session also discussed the second question about how architectural requirements could ensure that new technology can fit into an agency's existing IT portfolio. Participants discussed formal approaches such as the Navy's Modern Service Delivery framework. They also stressed the basic work of understanding how data moves across systems and what common workflows could be combined. One participant connected financial resources to technological modernization, noting that budget categories often fail to show leaders the real IT and procurement spending required for portfolio decisions.

Others, however, warned against imposing rigid architecture requirements. As one participant argued, the speed at which ecosystems change and systems become outdated implies that contracts should avoid dictating architecture in excessive detail. One participant warned that implementation teams can become "hoarders for functionality" when they are trying to comply and avoid risk, and argued that implementers instead need more autonomy.

The discussion closed with a call to make successful experiments easier to share and repeat. The closing remarks emphasized that many problems are common across agencies and that participants already had individual examples of successfully confronting these problems. The ongoing task was to share those success stories so agencies can learn from one another and scale what works.

About the Author



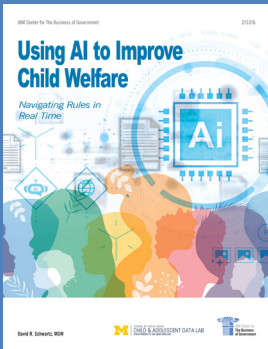
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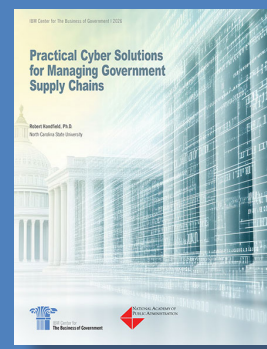
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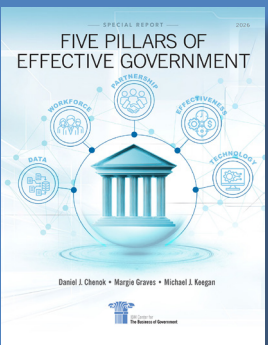
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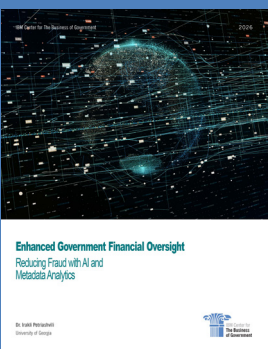
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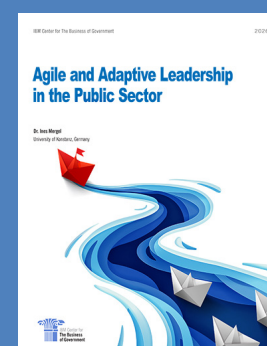
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