# Scaling IT Modernization Playbook

# Acknowledgement

# Overview

Across the U.S. Government, agencies are undertaking IT modernization and digital transformation efforts in pursuit of more efficient and impactful service delivery. Though these modernization efforts often deliver outstanding results, many times, their benefits remain isolated within a small portion of the organization. This Scaling IT Modernization Playbook was created to recognize and address the challenges inherent in scaling modernization efforts at an agency and department level and government wide.

This playbook is intended for anyone who wants to improve the way that the government buys, builds, and operates technology. This playbook provides tools to help organizations **increase the velocity, speed, and scale of modernization efforts, create efficiencies, and make a greater impact**.

To create this playbook, a team interviewed 20 federal and commercial IT leaders and distributed a survey to gain the perspectives of the members of the Chief Information Officer, Chief Information Security Officer, and Chief Data Officer councils with over 40 responses. We gathered and synthesized valuable insights related to their collective challenges and lessons learned from real-world modernization initiatives.

The results of these interviews and analyses are **10 plays** to help you and your organization accelerate and scale federal IT modernization efforts. The plays are categorized by themes and are not listed in any hierarchy or order of priority, so they can be treated modularly. All the plays are important contributors to success. Relevant foundational elements to derive the full benefit from a play are included and are recommended to be in place prior to executing a play.

We acknowledge that **scaling IT modernization is a journey** and have identified ways to make this playbook useful to you – wherever you may be on that path.

**Scaling IT Modernization** refers to the actions that enable an organization to move towards comprehensive, coordinated, and enterprise ready capabilities thereby realizing the transformative value of IT modernization more quickly to achieve mission outcomes.

# Playbook Overview

> ## "In any major transformation there are multiple disciplines. [To be successful] you need all those wheels to move together, quickly."

| | MISSION FOCUSED<br>Business-Driven Innovation | SPEED & AGILITY<br>Performance at speed | ONE ENTERPRISE, ONE GOVERNMENT<br>Coordination at scale |
|---|---|---|---|
| **THEMES** | "Value outcomes over process."<br><br>*Never pursue modernization for modernization's sake. Center IT modernization efforts around mission outcomes and how to better serve the customer, whether that be government employees or the public.* | "We underrate speed as value."<br><br>*Technology moves fast; so too should modernization efforts. Make sure your organization has the right tools, culture, and environment to enable true agility.* | "Diminish the learning curve by getting people to work together early [in the process]."<br><br>*Work together across government to overcome common barriers, leverage relationships, and share assets that provide cost or efficiency advantages.* |
| **PLAYS** | 1. Evangelize a shared vision<br>2. Shift to a product management mindset<br>3. Fast-track data adoption | 4. Reframe risk and deploy responsive cyber<br>5. Empower the workforce<br>6. Foster a learning culture<br>7. Accelerate solution delivery | 8. Embrace efficient, flexible acquisition<br>9. Build world class shared services<br>10. Elevate coalitions |

Throughout the interviews, leaders shared how technology was rarely the barrier when scaling IT modernization efforts. Time and again, successful transformation came down to people, process, policy, politics, and culture – what one contributor called "soft-tissue issues". After consolidating and analyzing the feedback, we grouped fundamental elements of scaling IT modernization into three main themes, each with a set of related plays.

A **play** is a strategic set of actions that can scale IT modernization. We recognize that scaling modernization is a journey, and each organization may be at a different stage of maturity. For each play, we identified a set of 'relevant foundations,' or necessary components and success factors that need to be established before executing a play. **Foundational play components** include considerations across the following functions:

- Funding
- Talent
- Leadership
- Program Vision

- Security
- Architecture
- Governance

# Mission
# –focused

# 01 Evangelize a shared vision

**TO DRIVE TOWARDS A SUSTAINABLE OPERATING MODEL**

Understand how your organization creates value for internal and external customers. Modernization should stem from the mission of the organization, in service of its customers, rather than growing innovation out of IT. Find the **intersection between mission goals and business needs,** always connecting technology back to the mission. To scale IT modernization efforts, it is important to be well-defined with your vision – what you are trying to achieve and why. Then, send that message out loud and clear.

**Align on a common vision with effective, simple, and consistent messaging.** Engage key stakeholders to co-create a common vision from the start. Once you have your big picture vision, socialize it and share out broadly. Effective and consistent messaging helps people connect to the common outcomes that everyone is trying to achieve. Get buy-in from workforce veterans, as they can be your biggest cheerleaders by amplifying the message and navigating barriers.

**Update your operational model to reflect how modernization will change the way the agency operates (e.g., matrixed organization).** Once the shared vision is defined, think through how the organization will operate. First, understand what your current operating model is and what it is not. Drive towards a flat or matrixed operating model that is sustainable and continuously improving. Strive towards a model that allows for the CFO and CIO to work alongside one another.

**Develop an IT strategic roadmap using a collaborative and transparent process.** An accessible and clear IT strategic roadmap communicates what you are doing now and where you are going and will put your vision and operational model into action. Don't create this from the top down – invite business owners and technologists to share their ideas and provide input. Create space that allows for a co-creative and iterative process to ensure people feel seen and heard. This upfront work, done in a way that's inclusive and transparent, will help build trust.

**Generate buy-in through storytelling.** Find success stories and share them far and wide. Even promoting small wins will help build credibility and generate future buy-in from others in the organization. Find like-minded people, get them excited, and equip them to take the message back to their teams. Surface and address concerns early on to help turn initial resistors into effective champions.

**EXAMPLE**
For the **Air Force** it was about *"connecting the Airman"*. They turned something complex into something that resonated with others. Their move from strategic to tactical communication eased fears due to the simplicity of their vision and relentless evangelizing.

**Go with 1-to-3-year plans.** Technology moves too fast for 5-to-10-year plans. 1-year and 3-year plans are more practical and can keep pace with rapidly evolving technology. Use 1-year plans for a more detailed outline of your quarter-by-quarter plans. Use 3-year plans for your broader vision and goals. Introduce agile and iterative development to further break down timelines.

# "Have an audacious vision with practical execution."

## RELEVANT FOUNDATIONS

| | |
|---|---|
| **LEADERSHIP** | A strong coalition of leadership within and outside the IT organization<br>CIO Council Handbook |
| **PROGRAM VISION** | An understanding of mission needs to connect to your IT strategic roadmap<br>Partnership for Public Service - Meeting the Moment |
| **FUNDING** | A clear line of sight to budget and funding for modernization efforts<br>IT Investment Baseline Management Policy |

### ADDITIONAL RESOURCES

President's Management Agenda (PMA)

plainlanguage.gov

18F Product Guide

Government Performance and Results Act (GPRA)

## KEY CONSIDERATIONS

**Develop a talent strategy that is tied to your IT modernization plan.**

Not having the right people to carry-out and successfully implement your vision and goals will hinder your modernization efforts.

**Speak the language of business and mission.**

Use words that resonate with your business colleagues, don't perpetuate IT-focused language and jargon that might alienate or confuse a broader audience. Start this collaboration early so everyone uses common terms and can understand what it is they are trying to accomplish every step of the way. Build relationships and work to connect that messaging with the front-office.

**Consider interagency collaboration.**

Have room in your vision to consider touchpoints with outside agencies, particularly when you have overlapping customer journeys, and whether learnings and successes from them can be utilized.

# 02 Shift to a product management mindset

**WITH PRODUCT TEAMS LED BY PROGRAM OWNERS**

## RATIONALE

Effective modernization demands understanding and responding to evolving program needs. Shifting from a **project** management to a **product** management approach establishes an underlying culture that ensures modernization efforts are continuously aligned with business outcomes and the mission. The cross-pollination of teams between the program and IT helps break down organizational silos that traditionally act as a barrier to scaling initiatives. Shared ownership and accountability between business and IT, coupled with a focus on customer needs that orient requirements, can converge to deliver value rapidly.

## ACTIONS

**Integrate teams across business and IT.** Organize teams with representation from the business and technology from the top down. Establish a team with a business product owner and a technical manager to work together in an iterative cadence. Find managers that can act as a catalyst between the business and technology, who understand the functional portfolio demands and customer needs and can translate them to the technical capability. Understand that your product teams are much more than just developers and testers, and need the autonomy and technical capacity to own, operate, secure, maintain, and enhance the technology in service of the mission.

**Name a product owner from the business.** Formally establish a business product owner from the program side with the responsibility to make prioritization decisions to best fulfil mission needs and customer-centric goals which will drive IT requirements. Utilize Objectives and Key Results or Key Performance Indicators set by business lines, and organize team success around achieving these business outcomes.

**Create a "badge-less culture".** Successful product teams need more than just business representation in name only. To foster collaboration, create a self-contained product group that shares a physical or virtual space. Create a team structure that does not mirror the current organization, breaking down organizational silos that traditionally slow progress and impede modernization. Support the core product team with critical representation from procurement and finance functions.

**EXAMPLE**
**The United States Patent and Trademark Office (USPTO)** moved their *project* management office to a *product* management office, going from 158 projects to 30 business products, mapped across four product lines aligned to their mission (patents, trademarks, enterprise business, and IT infrastructure).

**Give product teams autonomy by delegating accountability and authority.** For speed, product teams need the autonomy to make decisions at their level. Operate with direct transparency so decision-making hierarchies are clearly understood. To effectively delegate accountability, teams need control and authority over the use of product funds and the ability to envision and prioritize development needs as they see fit. Teams can inspire and encourage each other to find contracting efficiencies and competitive technologies, creating a marketplace of opportunity.

**Approach work in a flexible, agile manner.** Product teams need the flexibility to focus development on-demand where it's needed. Working in an agile, sprint-based model allows teams to continually assess direction, manage their backlog, and pivot as needed, all the while keeping product development grounded in customer-centricity and design thinking. To allow accelerated value delivery, add experimentation to the capacity of the teams' continuous delivery pipelines.

# "Establish two-in-the-box leadership with shared accountability."

## RELEVANT FOUNDATIONS

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|---|---|
| **FUNDING** | Line of sight to flexible funding for modernization efforts<br>Technology Modernization Fund<br>Meeting IT Priorities with TBM |
| **PROGRAM VISION** | A north star vision for clearly defined product lines<br>SAFe for Government<br>USDS Product Management Resources |
| **TALENT** | Staffing plans with integrated project teams (IPTs) comprised of internal and external resources for advanced projects<br>OPM – Workforce Re-Shaping |
| **ARCHITECTURE** | Common, integrated collaboration technologies that are understood by staff<br>GAO Best Practices for Agile Adoption and Implementation |

## ADDITIONAL RESOURCES

US Digital Services Playbook          Agile Manifesto          High Impact Service Providers
18F Agile Principles          18F Product Guide          TechFAR Handbook

## KEY CONSIDERATIONS

**Ensure your contracts allow for new ways of working.**

Partner with procurement organizations to set up acquisitions to incentivize meeting business outcomes by modularizing contracts. When possible, focus acquisitions on using Statements of Objectives and other avenues that define the problem area rather than list requirements, leveraging tools like the TechFAR Hub to understand your flexibilities. This enables the flexibility required by product teams to identify priorities and explore new technologies with a reduced risk.

**Allow product teams to drive innovation.**

Once established, your product teams can in turn provide direction to incubation groups. When determining which new technology to explore, gather suggestions and requirements from product teams.

**Enable product teams to run at hyper speed with shortened time horizons.**

Focus on three core areas to set up product teams for success: Software as a Service to write applications faster, Infrastructure as a Service to flip a switch for deploying in the cloud, and Shared Services to increase collaboration and optimize use of resources.

# 03 Fast-track data adoption

**TO CONNECT MODERNIZATION EFFORTS TO MISSION SUCCESS**

The value of data as a strategic asset is well accepted throughout the federal government. Data is not only used to measure performance but can also be utilized to communicate how modernization efforts drive improved mission delivery. This means integrating the data strategy with mission delivery objectives and curating data sets that can be used to measure outcomes and not just outputs. Purposeful data becomes a tool to understand and measure program performance, service quality, and impact value.

**Understand the purpose for collecting data then collect once.** Understand the metrics that drive mission success. Create a secure and trusted data ecosystem within the enterprise to curate 'source of truth' data sets, speeding up solutions for collaborating across agencies while reducing the expenditure drain to profile data constantly. Establish a baseline to build business cases that clearly articulate how specific data will be integrated with the program vision.

**Invest upward in data analytics literacy.** Creating a data-centric organization is a shared leadership responsibility, across IT and the programs. Train mission leaders on how data can enable better decision-making. Empower and work alongside the Chief Data Officers (CDOs) to drive the development and deployment of a data strategy through practitioners.

**Democratize data assets to expand your impact.** Put the power in the hands of the people (employees, government agencies, and the public) through self-service data analytics capabilities and tools to expand your reach across the enterprise. Segment your rollout, deploying the self-service capability starting with core common datasets and expanding based on domain and emerging demand.

**Move data to the Cloud to enable Data-as-a-Service.** Migrating data to the Cloud enables agencies to auto-scale rapidly to accommodate rising demand and flexible data management services. Bring end-users on the migration journey, educating them on new capabilities and including them in the data curation process. Move to a microservices architecture for deploying services to the Cloud and leverage Cloud monitoring tools to continuously improve Data-as-a-service. Understand cloud charging services and how they work with your data strategy.

**EXAMPLE**
**At Department of Transportation (DOT),** Data-as-a-service was turned up in a hybrid cloud environment and took off when big data users began using the cloud environment to process large volumes of safety data originating from states.

**Make your data analysts good story tellers.** Executives need concise data and good stories to communicate results and advocate for funding. Encourage data analysts to look for relevant insights that can be combined with human-centered anecdotes to bring your program to life. Enable effective storytelling through compelling data visualizations that can be easily tailored to address the questions and needs of different audiences.

# "Cultivate purpose-driven data sets – ones that can be reused and [are] useful for other users."

| RELEVANT FOUNDATIONS | |
|---|---|
| **GOVERNANCE** | An operational data governance model aligned with data strategy<br>Federal Data Strategy—Data Governance Playbook<br>Federal Data Strategy—2021 Action Plan<br>Federal CDO Playbook |
| **ARCHITECTURE** | A full understanding of your data stack and how it is augmented by Cloud services<br>US Digital Services Playbook<br>GSA Database Transformation Playbook<br>GSA Cloud Adoption Playbook |
| **TALENT** | An understanding of your data skills gaps and a plan to manage it<br>Agency Data Skills Playbook |

| ADDITIONAL RESOURCES | |
|---|---|
| TBM Playbook – Data Evidence Act | CDO Council |

## KEY CONSIDERATIONS

**Beware! A lack of data strategy will lead to modernizing in the wrong direction.**

Not having a data strategy integrated with the mission may lead to collecting the wrong data, curating incorrectly, or miss answering the right questions impacting quality of service delivery. This can waste time and resources invested in the wrong data curation and analysis.

**First, have the Success Metrics conversation.**

Does the mission have metrics to measure its business success?

Does the mission have a well-defined baseline and a clear line of sight on how well the organization is doing?

Can the mission measure and optimize for speed, transparency, and fairness?

**Win over the controlling groups.**

Acknowledge the complexity of data use and work with groups (e.g., analysts, database administrators, data stewards, data owners) that control their own data infrastructure to negotiate barriers that increase cost and complexity of data utilization, in turn impacting technology adoption and customer experience. Myth-bust or find solutions to balance common challenges like privacy rules or regulatory requirements with mission delivery.

**Know your open data beneficiaries.**

Typically, the first users of publicly available agency data are peer employees from other government agencies that can utilize supplemental data for enriching their own insights. Track data use to understand new users and stakeholders who may be able to contribute to data quality.

# Speed
# & Agility

# 04 Reframe risk and deploy responsive cyber

**TO BECOME AN ENABLER FOR MISSION FOCUSED INNOVATION**

**RATIONALE**

To scale modernization, organizations must be able to respond quickly to changing technologies, secure operations in a complex business environment, and support an increasingly mobile workforce. This agility requires balancing comfort with risk while preserving security and trust in mission systems. It is possible to transform the entire compliance ecosystem from controls and compliance (e.g., risk associated with accessibility, privacy, records management, etc.) if integrated product teams know what their compliance requirements are and have well defined mission-based risk thresholds. Implementing a suitable program to operationalize cybersecurity and manage risk can increase accountability while opening space for safe exploration.

**ACTIONS**

**Define risk tolerance to experiment quickly.** Understand the business risk appetite upfront to support the need for quick transitions and to deliver automation during modernization. Give programs guardrails to operate in a zone with acceptable risk thresholds to conduct pilots with new technology. Ensure that the risk tolerance is understood by all involved parties.

**Treat cybersecurity as your base.** Build a strong cyber security posture for cyber, data, and cloud to create peace of mind and address security for the creative exploration of new technologies. This makes cybersecurity an enabler rather than a control and compliance function. Emphasize security first to allow the program to focus on the mission and product portfolio.

**Build compliance into platforms and infrastructure to reduce the compliance burden for program teams.** Utilize automation as controls for tracking and acceptance processes to manage risk during deployments and production updates.

**Continuously revisit governance standards (e.g., GovernanceOps).** Partner with mission program teams to establish governance standards that are flexible. Insert a learning component into governance, conduct effective problem solving, and make governance leads accountable for enabling change.

EXAMPLE
**At Lawrence Livermore National Lab,** governance for the cloud was driven by first focusing on the network connectivity, enforcing security policies, billing, and controls based on the technical architecture. A participative framework helped create excitement with the early adopters.

**Leverage myth busting along with storytelling to tackle barriers.** Unravel learned behaviors of avoiding risks rather than managing them. Drive risk visibility and management throughout the modernization life cycle. Continuously ask "why?" to get to the root of perceived risk and governance barriers and determine if they are statutory restrictions or just policy interpretations. Encourage IT professionals to communicate from the mission point-of-view when talking about cybersecurity and compliance. Use real world examples to showcase impact to the mission.

**Establish a modern security architecture.** Pivot away from the perimeter defense model for securing data to the principles of a Zero Trust security model, following guidance from CISA and others. Tackle the most critical assets first to reduce disruption to cybersecurity strategy. In more federated organizational structures, centralize cybersecurity to standardize timely patching, handle access points, and respond quickly to vulnerabilities.

# "Move from NO risks, to KNOW [your] risks."

## RELEVANT FOUNDATIONS

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|---|---|
| **GOVERNANCE** | A risk management framework<br>NIST Risk Management Framework (RMF)<br>Safecom best practices for Government charters, 2022 |
| **ARCHITECTURE** | A full understanding of technical stack to establish standard governance<br>GSA Cloud Adoption Playbook<br>GSA M3 Playbook: Maintain and Execute Risk Processes |
| **SECURITY** | A well-defined security posture<br>NIST Fact Sheet: EO on improving the Nation's Cybersecurity<br>CISA Emergency Directives<br>CISA Zero Trust Security Model |

## ADDITIONAL RESOURCES

| | | | |
|---|---|---|---|
| CIO Council Policies & Priorities – Cybersecurity<br>CISA – Cybersecurity | CISA – Applying Zero Trust principles to enterprise mobility | Enterprise Risk Management Playbook for the US Federal Government | TBM Playbook<br>QSMO Services - Risk Assessment \| CISA |

## KEY CONSIDERATIONS

| **A lack of governance can lead to tech and data sprawl.** | **Avoid conflicting governance models.** | **Participate in federal councils.** | **Strategize on timelines.** |
|---|---|---|---|
| Establish principles and guidance at an enterprise level while deploying Infrastructure-as-a-Service cloud capabilities to avoid inefficient use of resources. | Don't have a blend of both centralized and decentralized cloud infrastructure models within an agency. Decide on one option for the enterprise, then build an economic model and governance structure for it. | Mitigate risks across the federal government through participation in federal councils and interagency working groups. Speed up experimentation by participating in sandbox pilots along with other agencies. | To reduce risk, break modernization efforts into smaller, iterative, and agile chunks that are more meaningful, manageable and deliver value early. |

# 05 Empower the workforce

## WITH THE RIGHT SKILLS AND TOOLS TO SUPPORT THE MISSION

**RATIONALE**

Talent and technology acumen need to be at the forefront of modernization plans because the skills needed for successful IT transformations are varied and often scarce. Technology is constantly changing, and your technology skillset and capabilities should too. Recognize that the federal government cannot just hire itself out of the skills gap but must have a multi-pronged strategy (e.g., hire, contract, cross-train, automate) to ensure both leadership and employees are aligned in terms of tools, capabilities, and operating models related to technology. To scale IT modernization, you need to set both your technology staff and ancillary staff up for success by prioritizing education, training, and support for new technologies and by giving them permission to experiment autonomously.

**ACTIONS**

**Incentivize training by declaring it as a business goal with dedicated permission and space.** Show leadership support and prioritization of training by allowing for training to be done during work time. Don't expect people to do training as an extracurricular activity. Tie training back to the business goal and showcase how it's an overall priority and investment. Support those early in their careers as technologists by creating appropriate career development paths for greater transparency and mobility.

**Invest in formal training to upskill and reskill employees.** Combine formal training, coaching, and hands-on practice through projects. Reduce the complexity and the cost of training with training on-demand (e.g., bite size videos) and making training less burdensome. Take a digital first approach, and provide multiple channels for training to accommodate the different ways people learn.

**EXAMPLE**
**Air Force's CIO** created a Digital University (DU) to make trainings on-demand and engaging for emerging technology.

**Overcome talent gaps by anticipating future business needs.** Formalize periodic reviews of emerging technology to reflect the constantly changing and evolving landscape. Continuously assess your current technology capabilities against your future technology needs to predict gaps in workforce capabilities. Understand when outside help is needed and optimize those staffing mixes (inhouse vs. outsourced) when applicable.

**Elevate a cadre of modernization champions to evangelize change.** Find and focus more on the early adopters who embrace innovation and get them on board. Don't dwell on those who constantly resist new ideas and technologies. Once you engage your champions, people will notice and won't want to be left behind.

**Ease fears of automation with clear and consistent messaging.** Successful adoption of technology requires convincing people that their jobs will not be threatened. Address the fear of the unknown by reinforcing the value your workforce brings and showing them how they fit in the new operating model. Acknowledge their dedication and organizational knowledge and let them know that embracing automation and new technologies will increase overall productivity by letting them focus on higher value work. Be authentic and have open and honest conversations to understand their fears and frustrations.

> # "If you're not aligned [workforce-wise], you won't be able to scale."

## RELEVANT FOUNDATIONS

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|---|---|
| **FUNDING** | An understanding of your IT budgets and contracts to ascertain where training budgets align<br>Federal IT Dashboard |
| **LEADERSHIP** | A holistic view of your IT portfolio to see current and predicted gaps in the future |
| **TALENT** | Understanding and filling gaps in talent<br>OPM Talent Surge Executive Playbook<br>OPM Talent Surge Hiring Authorities<br>GSA Training Opportunities for Federal Employees |

## ADDITIONAL RESOURCES

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|---|---|---|
| CIO Council Future of the Federal IT Workforce | OPM Executive Playbook for Workforce Reshaping | OPM ReskillingToolkit |

## KEY CONSIDERATIONS

**Be mindful of the skills gap.**

Lack of IT talent is a government-wide issue that can be a challenge when it comes to building, buying, and integrating technology. Plan accordingly and have the right team with the right skillset to carry out technology transformation efforts. For example, when buying agile development skills, ensure that agile security skills are also included.

**You don't become a technology expert from a day's worth of YouTube videos.**

To get buy-in and widespread use of a (new) technology, your users of technology need to feel some level of comfort and confidence in the tool. That takes formal training and practice, not simply informal training and videos.

**Inspire the next generation to come into government.**

Leverage your successes (and small wins) to gain credibility and in turn attract talent. Utilize special recruiting and hiring authorities to bring people with commercial experience into government and leverage programs like 18F and the U.S. Digital Corps to continue to attract and hire qualified talent.

# 06 Foster a learning culture

**BY EMBRACING EXPERIMENTATION TO BE FUTURE READY**

**RATIONALE**

The ability of agencies to adopt future technologies and scale them is directly related to their readiness for change and the management of their innovation pipeline. To begin, agencies should focus on strengthening an organizational culture of learning and continuous improvement. The goal is to build evidence about what is and is not working. By embracing a test and learn mindset through piloting, elevating successes and creating feedback loops across the enterprise, the federal government can expedite adoption and efficiently uncover and define applicable use cases to scale new and emerging technologies and services.

**ACTIONS**

**Empower experimentation without fear of failure.** Provide the workforce with the right tools and mindset to confidently innovate through rapidly iterated prototypes and pilot solutions. Introduce emerging technologies for a singular use case in an environment that is safe to test. Leverage the tested findings to guide implementation, then identify the pros and cons before widening the scale. Re-frame failed pilots as learning opportunities. Provide both business and technology leadership support to help with cultural adjustments and to encourage pilots to demonstrate incremental wins.

**Establish a capability to evaluate and adopt emerging technologies.** Build an innovation pipeline and technology roadmap to drive investments informed by business and mission needs and include a defined vision, governance, and guiding principles for implementation. Evaluate opportunities and determine what is important through established feedback loops and regular periodic reviews of possible disrupters in the marketplace and begin iterating on these initiatives. Create new technology pilot plans to include near- and long-term initiatives, provide details on how the technology investment fits into the broader mission or service, and address efforts occurring outside of the pilot to ensure coordination between all groups.

**EXAMPLE**
**At a fast-moving commercial organization,** the leadership meets formally twice a year to review disruptive trends to determine whether to partner, adopt, own, or build.

**Always have a listening ear.** Create feedback mechanisms between the business and technology providers to discover and prioritize strategic and technological drivers. Ensure protocols are in place to apply feedback to improve operations and delivery and identify opportunities for innovation. Proactively engage leadership with the workforce in business and technology organizations to understand resistance to change and enable people to grow and better support the mission.

# "Do not underestimate the importance of cultural change."

| RELEVANT FOUNDATIONS | |
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| **FUNDING** | Line of sight to flexible funding for piloting modernization efforts and new technologies<br>Technology Modernization Fund<br>Federal Budget Process |
| **LEADERSHIP** | Top-down enablement of necessary culture change<br>OPM's Guidance for Change Management in the Federal Workforce |
| **ARCHITECTURE** | Embedding learning tools and methods into the architecture<br>18F Methods & Tools for human centered design<br>US Digital Services Playbook |

| ADDITIONAL RESOURCES | |
|---|---|
| OPM Promoting Innovation in Government<br>Digital.gov - Innovation | 18F Agile Principles |

## KEY CONSIDERATIONS

**Rigid rules are off limits.**

Move toward managing risk consistent with the effort. Establish the guardrails to allow experimentation for testing new technology in a safe environment, instead of imposing all compliance rules upfront.

**Don't expect to get it perfect.**

Iterate experimentation to allow for continuous improvement of a new technology. Allow it to continuously evolve as long as it can scale to fit the business needs of the mission.

**Create funding structures that allow for innovation to occur, with a path towards enterprise-class solutions.**

Understand the sources of innovation funding such as TMF and WCFs within the organization. Incentivize innovation by allocating a small portion to it in acquisition.

**Storytelling successes is imperative.**

Find the compelling story within a successful deployment and utilize it to make the case for both winning the workforce over, and to secure funding for increasing the scale of the technology impact.

# 07 Accelerate solution delivery

**WITH MODERN TECHNOLOGY TO FREE UP RESOURCES AND DEMOCRATIZE INNOVATION**

Accelerated solution delivery is a set of capabilities that include ways to design, develop, test, deploy, and manage applications at scale. It enables the organization to efficiently leverage an application across an enterprise and process a large volume of application modernization efforts. This includes concepts such as agile development, DevSecOps pipelines, and infrastructure-as-code. Collectively, these capabilities are managed in a planned, standardized, and automated manner with the objectives of improved delivery quality and customer value at a greater capacity and velocity.

**Take advantage of Cloud architecture.** Leveraging Cloud technologies enables delivery of software securely and efficiently at scale and avoids unwanted shutoffs.  A cloud environment eliminates handoffs between siloed functions and speeds up the journey to adopt new technology by end users and frees up engineering resources. A reusable enterprise cloud platform with the right controls for architecture, security, and billing, can offer an engineer's capability in the cloud to end-users directly.

**Deploy collaborative technology to enhance teamwork.** Establish guiding principles to identify the top technologies that will most benefit the whole enterprise. Standardize and rationalize for a unified automation DevSecOps tool across the enterprise to maximize cross-team collaboration and avoid multiple siloed technology stacks for development. Continue to pursue infrastructure-as-code approaches and expand to other areas such as configuration-as-code and governance-as-code.

**Keep an enterprise perspective to develop reusable components and avoid technical debt.** Automating the right things is critical to achieving mission success.  Focus on and improve the business process first, find commonalities, and then automate with enterprise-wide components, e.g., build an API that is consumable by multiple apps for sharing data, then reuse.

**EXAMPLE**
**At Internal Revenue Service (IRS),** savings realized from the cost of Cloud were reinvested into innovation for testing and improving the customer experience and service quality of the front-end.

**Allow for processes to support continuous Authority to Operate (ATO).** Leverage FedRAMP to rapidly scale up core services and reuse existing security authorization investments. Clearly outline time-line expectations for injecting new technologies, and work with those groups to continuously integrate these into the larger pool of preapproved ATOs.

**Find opportunities to automate workflows.** Start with the mission and work backwards to the application. Prioritize self-service applications during digital transformation and spend time upfront thinking how automation can relieve time and resources for the mission and improve customer experience. Make delivery autonomous by automating control mechanisms for deployment or production updates. Fully leverage technologies with low barriers to entry such as low-code technologies.

**Make incremental successes highly visible to build momentum.** Break things into smaller chunks for service delivery and to modularize for experimentation. It is important to build and show service delivery. Eventually, improved services build trust and gain momentum of their own. Provide a forum to recognize and showcase the added mission value. Map service use cases to technology capabilities.

# "Think about automation at the onset – it should not be an afterthought."

| RELEVANT FOUNDATIONS | |
| --- | --- |
| **ARCHITECTURE** | Established platforms and core architecture & a DevSecOps Pipeline<br>Tool/app rationalization playbook<br>GSA Cloud Adoption Playbook<br>DOD DevSecOps Playbook<br>DevOps Institute |
| **TALENT** | A developed Technology Talent Strategy and Plan<br>OPM Playbook for rebuilding the federal workforce |
| **SECURITY** | Standardized baselines<br>FedRAMP Agency Authorization Playbook<br>Air Force Continuous ATO Playbook |

| ADDITIONAL RESOURCES | |
| --- | --- |
| CIO Council<br>CDO Council | GSA Infrastructure Optimization Center of Excellence |

## KEY CONSIDERATIONS

**Don't forget about the human element.**

Successful leaders scaled modernization efforts with change management plans focused on the talent side of the equation. They had to constantly reinforce the value of the workforce and continue to address the perceived fear of job loss triggered by automation.

**Redeploy funding into innovation.**

Incentivize vendors to find cost savings during implementation and utilize that savings to deliver continuous innovation.

**Work towards an "Everything-as-Code" vision.**

Adopt this stretch mindset now and begin capability development to support a future shift.

**Build intelligent monitoring for IT Operations.**

Utilize machine learning and AI to monitor IT operations and augment it with human capabilities to improve decision-making, user experience, and efficiency.

# One Enterprise, One Government

# 08 Embrace efficient, flexible acquisition

**TO GET THE RIGHT SUPPORT FOR MODERNIZATION EFFORTS**

Acquisition underpins all modernization efforts. Government agencies need technology and support to successfully execute on large scale transformations. To ensure the right goods and services are procured, acquisition needs to be connected to the business and incorporate flexible procurement methods to keep pace with technology. Acquisition is a common barrier across government. Procurements can be complicated and take up a considerable amount of time and effort. Find commonalities, elevate successful approaches, and work together to fix the parts that are broken.

**Bring acquisition and delivery closer together.** Too often the teams building and delivering modernization efforts are siloed from the teams procuring the support. Create 360 acquisition teams with members from finance, acquisition, and IT offices, along with the Contracting Officer Representatives (CORs) embedded with the business to ensure that contracts reflect true delivery needs.

**Focus on desired business outcomes, not technical requirements.** Put more emphasis on accurately defining the business objective rather than listing long and often restrictive requirements that focus solutions on compliance rather than quality. Don't presume the solution. Rather, better identify your business problem. To encourage innovation and invite competition, allow respondents the flexibility to suggest new approaches.

**Engage creatively with industry to learn about new technologies.** Together with your procurement and delivery teams, take time up front to conduct market research and discover possible technology spaces through Requests for Information (RFIs), 1:1 collaboration sessions or industry days. Establish cross-agency agreements (e.g., MOUs) to incentivize large vendors and service providers to work across agencies and accommodate government needs. Through this engagement, you may find new problem-solving approaches, technologies, or solutions.

**Contract to incentivize innovation.** Craft flexible contracts by establishing broader categories with room for additional requirements that inevitably come up. Explicitly incorporate innovation into contracts through mechanisms like innovation "check-points" in long-term contracts or allocate a percentage for change in requirements as innovation funds. Incent innovation implementation that demonstrates impact, rather than creating an inventory of aspirational ideas. Pursue new contract structures that account for the changing nature of technology consumption. For example, explore a utility-model for tools like cloud.

**EXAMPLE**
**Department of Homeland Security (DHS)** created the Procurement Innovation Lab (PIL) as a space to explore new technology and acquisition methods at speed, lowering barriers to innovation and shortening procurement timelines from years to weeks.

**Leverage existing acquisition accelerators.** Make use of the acquisition related shared services that can help you get to quicker, cheaper, or better solutions. Where there are efficiencies, leverage government-wide contract vehicles that support innovation, like the Technology Transformation Services from Federal Acquisition Service (FAS). Understand the intricacies (and flexibilities) of existing policies and guidance such as FAR part 12 and FedRAMP and how they can work for you. Share best practices and lessons learned across government through councils or agencies like OMB.

# "To streamline the acquisition process, we need broader categories and more flexibility."

## RELEVANT FOUNDATIONS

| | |
|---|---|
| **FUNDING** | Financial backing to support new acquisitions<br>Technology Modernization Fund<br>Meeting IT Priorities with TBM<br>TechFar Handbook |
| **PROGRAM VISION** | An established target state of fund allocation between O&M and modernization |
| **LEADERSHIP** | Close working partnership and budget transparency with the CFO<br>Capital Planning and Investment Control |
| **GOVERNANCE** | Guardrails and technical controls to ensure no unauthorized procurements or unexpected costs<br>GSA Best Practices for Cloud Procurements |

## ADDITIONAL RESOURCES

BUY.GSA.GOV
GSA Governmentwide Acquisition Contracts
FAR part 12

FedRAMP Agency Authorization Playbook
18F De-Risking Government Technology

## KEY CONSIDERATIONS

**Work smarter, not harder.**

Be strategic in your procurement footprint and try to limit your total number of contracts. Look for repeatability and find commonalities across items that are bought together so that you can contract holistically and not piecemeal. When possible, do multi-awards or BPAs.

**Acknowledge and manage acquisition risks.**

Acquisition shops are often risk averse when it comes to procuring new technologies, with good reason. Protests and regulatory oversight can derail modernization timelines. Understanding and managing risks effectively allows agencies to use forward-leaning acquisition approaches.

**Manage budgets with radical transparency.**

Take a critical eye to legacy projects and established programs. Re-evaluate the value those projects are bringing to mission delivery and determine if those funds can be better used elsewhere.

**Make leadership allies.**

To help advocate for funding, provide program leadership with the right language to talk about the success of the initiatives. Highlight the benefits that are brought to the public through stories and data points, always connecting back to the mission.

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# 09 Build world class shared services

**TO IMPROVE INTER-AGENCY INTEROPERABILITY (AND RECIPROCITY)**

Commonalities often exist across federal agencies that can benefit from the deployment of government-wide shared services and increased collaboration. For the successful adoption of shared services however, offered services need to be better, faster, or cheaper than agencies going alone. Where world class shared services exist, government agencies can step out of the business of supporting IT services and dedicate their resources to focus on their core mission. The challenge is to find the right service, execute it well, and fund it once it is operational.

**Establish what the customer experience is and who owns it, preferably the business.** Establish services for the most common customer experiences. Prioritize digitalization and activities that reduce time. Find solutions that can be configured to support diverse experience segments. Push forward with digital transformation strategy and the CX Executive Order.

**Understand the commonalities in the ecosystem first.** Commoditize the core business processes and convert to Software as a Service (SaaS). Build shared services that are at least optionally available to everyone in the environment. If possible, refactor while migrating instead of a simple lift and shift. Otherwise, containerize for custom process needs.

**Prioritize investment for initiatives that serve the common core processes.** Seek to elevate the shared services to serve an entire ecosystem, but look across the enterprise to identify common technology needs (e.g., Cloud email, Teleconferencing, etc.) that increase collaboration and interoperability.

EXAMPLE
**The U.S. General Services Administration (GSA)** created Login.gov using TMF funds as a shared identity service for use across the federal government. This shared service helps reduce government costs, standardize customer experience, and increase cybersecurity and privacy.

**Put the customer at the center of the products and services.** Building world class shared services demands approaching the solution from the end users' perspective, particularly when they span agencies. Create customer-centric products and services through collaboration and co-creation with users and business leaders. Take a human-centered approach to requirements gathering, and actively engage with the users and customers through defined feedback loops to refine and continuously improve product and service delivery.

**Buy and build for commonalities across agencies to improve your points for TMF approvals.** Utilize the Quality Service Management Offices (QSMO) agencies for shared services functions that your agency needs. Think at the enterprise level first to avoid incurring expenditure by investing in expensive tools (e.g., supply chain ERP) independently.

# "Look for commonalities in the ecosystem for successful shared services."

| RELEVANT FOUNDATIONS | |
| --- | --- |
| **LEADERSHIP** | Consistent, stubborn leadership to remain steadfast in supporting and driving shared service initiatives |
| **FUNDING** | Know your funding mechanisms for the initial build and have a future cost model<br>Technology Modernization Fund |
| **ARCHITECTURE** | A full understanding of your data stack and how it is augmented by Cloud services<br>US Digital Services Playbook<br>GSA Cloud Adoption Playbook |

| ADDITIONAL RESOURCES | |
| --- | --- |
| GSA Shared Services | CIO Council |
| Quality Service Management Offices | TTS Handbook Collaboration Tools |
| TMF Project Spotlights | |

## KEY CONSIDERATIONS

**Be clear about funding for shared services.**

Funding for cross-governmental shared services can get complicated very quickly due to Congressional budget processes that fund agencies separately. Upkeep of the shared services needs continued funding as well. Think "people, process, budget, [then technology]".

**Bring in efficiencies from the commercial sector.**

Just because there is a shared service within the government doesn't mean that it is more efficient. There may be some learnings that could be borrowed from the industry. If there is no clear roadmap to ramp up the capability of a government-wide shared service, it will create an incentive for agencies to look for better, faster, or cheaper solutions from the marketplace.

**Different agendas drive differing priorities.**

To be able to serve a broader mission, legislative or other institutionalized coordination may be needed to drive the shared behavior to enable a shared service to be widely adopted.

**Build trust to deploy cross-governmental shared services.**

Although leadership may be on board, success depends on getting teams on board for working together and across agencies. To deploy secure shared services, it requires diving deep and addressing the culture of each organization.

# 10 Elevate coalitions

**TO LEARN, COORDINATE, AND EXPLORE TOGETHER**

To scale modernization, take a team mindset. Bringing together key relationships of like-minded leaders and using them as early adopters can create a cohort of people to support and advance your modernization mission. Leverage the scale of government to learn from others' successes and failures and to tackle barriers to modernization together. Pilots or pockets of transformative IT can be elevated and amplified to demonstrate impact and successes.

**Utilize interagency networks and councils to foster collaboration.** Use formal spaces like the Chief Information Officer, Chief Data Officer, and Chief Information Security Officer councils as opportunities to learn from others' experiences and share best practices. For example, the successful command and control models now being used at DOD agencies had their origins in similar challenges faced by other federal agencies. Look for commonalities and incorporate peer knowledge so you don't repeat known mistakes. Work together across government to navigate common barriers that are difficult to overcome in a silo, like updating policy impacting multiple agencies to address common roadblocks.

**Leverage OMB to prioritize cross-agency implementations.** Many of the most critical citizen services that the government provides cross multiple agencies and require complex navigation. To successfully modernize these services and transform customer experience, agencies need strong coalitions to align around customer needs and prioritize shared mission and business goals in a timely manner. OMB can ensure the necessary incentives are in place to work together to integrate services and create seamless customer journeys, particularly for life experiences that often require interactions with multiple federal agencies.

**Experiment together to share risk and resources.**
Often, there is increased risk to being the first mover on new technology. Run small pilots through interagency councils to learn quickly in a less restricted environment. Look for opportunities to make experimental resources accessible to sister agencies, and document and share results to diminish the learning curve for large-scale efforts.

**EXAMPLE**
When looking to run a continuous diagnostics and mitigation (CDM) pilot in the cloud, the **Small Business Administration (SBA)** worked with DHS to leverage their environment. Working together, SBA became the first agency to roll out CDM in the cloud.

**Be loud in sharing success.** Sharing success stories across government provides a forum for agencies to learn from each other and to generate buy-in from political leaders and budget personnel for continued support. It's important to dedicate time to highlight what government is getting right, and the critical services that are being delivered to meet people's needs, when too often the conversation focuses on what is going wrong. Broad recognition of modernization successes helps communicate the tie between technology and the mission and can inspire the next generation of the workforce to join the government.

# "Identify pockets of excellence – take that magic, and copy and paste it elsewhere."

## RELEVANT FOUNDATIONS

| | |
|---|---|
| **LEADERSHIP** | Identified leaders and early adopters to form your coalition |
| **ARCHITECTURE** | Collaboration tools established to communicate across organizational boundaries<br>TTS Handbook Collaboration Tools |
| **GOVERNANCE** | Established interagency working groups with active charters<br>CIO Council Charter |

## ADDITIONAL RESOURCES

| | |
|---|---|
| TMF Project Spotlights<br>CIO Council | CDO Council |

## KEY CONSIDERATIONS

**Don't confuse coalition with consensus.**

It's important to have a unified group of leaders aligned on a common end goal. Focus on getting everyone on the same team, but don't wait to get everyone to agree.

**Keep governance lightweight.**

Balance building a coalition while keeping the flexibility to move quickly. Too much oversight in terms of committees, reviews, or rules can disincentivize participation.

**Lay the groundwork for the adoption of new technologies.**

Interagency networks and councils can provide a great benefit to agencies by establishing the rules for the responsible use of new technologies. By setting up guardrails for technology advancements such as Artificial Intelligence, organizations can more quickly adopt their use into modernization efforts.

**Keep success metrics in mind for coalitions as well!**

Much like it is important to share success stories of individual modernization efforts, keep in mind how you can capture and communicate the value of coalitions.

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