Transforming the Way Government Builds Solutions

ACT-IAC Institute for Innovation

2013
American Council for Technology—Industry Advisory Council:

The American Council for Technology (ACT) is a non-profit educational organization established by government leaders in 1979 to improve government through the efficient and innovative application of information technology. ACT was created to provide an objective and trusted forum for collaboration and education. In 1989, ACT established the Industry Advisory Council (IAC) to bring industry and government executives together to collaborate on IT issues of interest to the government.

ACT-IAC is a unique, public-private partnership dedicated to helping government use technology to better serve the public. The partnership provides programs that facilitate collaboration, education and action to advance government. Recognized as the premier collaborative forum in the government IT community, ACT-IAC has been called “a model of how government and industry can work together” and “the Switzerland of the government IT community.” ACT-IAC does not lobby and was created to increase the effectiveness of government.

ACT-IAC welcomes the participation of all public and private organizations committed to improving the delivery of public services through the effective and efficient use of information technology.

Disclaimer:

This document has been prepared to provide information regarding a specific issue. This document does not – and is not intended to – endorse or recommend any specific technology, product or vendor. This is a collaborative product and the views expressed in this document do not necessarily represent the official views of the individuals and organizations that participated in its development. Every effort has been made to present accurate and reliable information in this report.

Copyright:

©American Council for Technology, 2013. This document may be quoted, reproduced and/or distributed without permission provided that credit is given to the American Council for Technology and Industry Advisory Council.

Further Information:

For further information or collaborative discussions regarding these recommendations, contact the American Council for Technology -- Industry Advisory Council at (703) 208-4800 or www.actiac.org.
Executive Summary

The Office of the Federal Chief Information Officer (CIO) and the Office of the Federal Chief Technology Officer (CTO) asked the ACT-IAC Institute for Innovation to develop recommendations that would enable government to transform the way it buys, builds and implements successful 21st century solutions through the application of modular development, open data, rapid innovation, and agility, as well as seamless integration of reusable components. “Reusability” can produce more cost effective solutions while lowering risk, increasing agility and providing flexibility to meet the ever evolving (and often underfunded) mission needs of the government. The overall goal of this project is to provide actionable recommendations to accelerate successful implementation of the digital government strategy and shared services policies. The charter for this study includes ways to:

- Build government solutions in a modular, agile manner using open data and machine readable APIs with effective security and privacy measures.
- Increase the discoverability of existing applications and data sources that can be adapted to other uses.
- Drive broad adoption of the recommendations across government and industry, including acquisition, IT and financial policies and other change management innovations.

OMB recognized that government and industry must support common procurement methods and implementation approaches to create a “lower risk surface” and increase program success. The Federal CIO, in particular, expressed a desire to accelerate project implementations through the application of these techniques and be able to measure the impact of IT project implementations within 150-180 days of award.

The Institute for Innovation’s challenge was to focus on the “need to enable a new, fair approach to acquiring, building and maintaining systems while accelerating successful implementation of the Digital Strategy and Shared Services Policies.” The “25 Point Plan” and the “Digital Government Strategy”, as well as other supporting documents, provide a vital context for this paper. Based on the input from 23 interviews of government and industry leaders with strong backgrounds in complex IT procurements and implementations, combined with the expertise of member volunteers, the team identified four recommendations. If implemented, the proposed actions can enhance current initiatives by accelerating acquisition and implementation. Each recommendation has several supporting strategies.

The Institute for Innovation welcomes feedback and comment on the following recommendations and strategies:

1. **Promote shared services that have proven effective by removing barriers to their use.**

   1.1. Develop policy guidance outlining the rationale, strategy and targets for shared services flexibility and competition among service providers.

   1.2. Establish baseline data to monitor increases in mission area technology spend through PortfolioStat.

   1.3. Augment PortfolioStat processes to include multi-agency shared service initiatives.

   1.4. Ensure long-term quality in shared services through continuous competition.

2. **Support a community that promotes rapid adoption and maximized use of open data.**

   2.1. Establish a “Center for Excellence (CoE)” for effective development and execution of rapid adoption methodologies based on open data that includes best practices to integrate innovative and/or reusable modules.

   2.2. Identify key agency champions to provide leadership with the CoE.

   2.3. Mandate/incent the use of shared open data repositories.

   2.4. Encourage wider involvement by incentivizing agencies to fund/host/cultivate Communities of Interest (Cols) and CoEs.

3. **Make it simple to acquire and build reusable components.**

   3.1. Create a central repository for acquisition artifacts that support adoption and reuse.

   3.2. Establish a procurement CoE to support development of acquisition strategies to incorporate a philosophy of rapid adoption and reuse from inception.

   3.3. Resolve intellectual property issues associated with reuse.

   3.4. Stimulate development of resources for future reuse.

   3.5. Provide training to increase skills in agile and reuse.

4. **Build a workforce that understands and values rapid, modular adoption and reuse.**

   4.1. Implement metrics that assess leaders on how they are implementing the overall goal of rapid adoption, modular development and reuse.

   4.2. Develop competency areas and training to strengthen federal IT program managers’ skills in buying and building according to modular and reusable principles.

   4.3. Rotate government senior leadership to promote cross-agency use of best practices.

The recommendations detailed in this paper are driven out of a need to ensure the responsible and effective use of limited financial, technical, acquisition and human resources to achieve mission success. There is evidence suggesting that government agencies driven to achieve
mission success, may sometimes miss opportunities to leverage relevant work done by the private sector or other agencies -- or even within their own agencies. PortfolioStat and TechStat sessions have revealed that innovations or solutions successfully deployed in Agency X are often not widely known outside the agency. This lack of awareness -- or lack of trust -- leads Agency Y to invest scarce resources to accomplish the same or similar tasks.

Central to this effort are the concepts of modular development, reusability and open data. Supporting all of these concepts is the need to dramatically expand awareness of innovative technologies and available applications at all levels of government and among industry through public – private partnerships. A “marketplace” for reuse can emerge from Centers of Excellence and Communities of Interest where artifacts readily available in the public or private sectors can be discovered, discussed and, ultimately, put to use. Looking to the future, state and local government participation in these endeavors would provide even greater benefits and savings.

Through discussions with thought leaders within and outside the government, project team members developed a model that defines the concept of reusability within the IT marketplace in three categories: shared business services; software, data, components and services; and, knowledge, processes, skills and prior discovery. Refer to Appendix A, Categories and Examples of Reusable Artifacts, for a more detailed description of these three categories.

Many initiatives and programs within the current federal IT management framework, such as the PortfolioStat program, the Shared Services lines of business, FedRAMP, open data policy and Data.gov, work to further the goal of prototyping, reusing and sharing data, services and knowledge within the federal government. This study and its recommendations strive to institutionalize this goal by building upon the current IT management framework. In addition, impactful implementation of these recommendations will involve coordination across the acquisition (CAO), financial management (CFO), and HR (CHCO) communities, who could leverage their roles and authorities to drive IT improvements across agency activities. In that light, the OMB Deputy Director for Management (DDM) could provide executive sponsorship for the effort, working with agency management leaders to establish a governance framework and measure results as a part of the Administration’s Management Agenda.

By transforming how government acquires, builds and implements solution, government can better serve its internal customers and the American people. As the President’s emerging Management Agenda notes, more effective government can free up public sector resources and data to promote economic growth and social gains. The recommendations in this document are most likely to be broadly adopted if they are viewed as part of the overall management agenda and not just IT management. This requires that the recommendations be embraced beyond the CIO community to the CAO, CFO and CHCOs at a leadership level.

Introduction
Building on the Current Federal IT Management Framework

Agile – Modular – Shared Services – Open Data – Accelerated Acquisition ... these words are now a part of our vernacular and represent current IT trends. The Presidential Innovation Fellows, among others, have several projects premised on the tenet that seeking out and using modules already developed and repurposing them for new applications can save both time and money. In addition, there are also many examples of opportunities for government data, if properly formatted and discoverable, to provide an engine for economic growth; such examples include enhanced access to Department of Commerce weather information to enable improved location decisions in manufacturing, or combining local power and water grid data to promote more sustainable economic development in communities.

Two documents in particular detail federal IT priorities: the “25 Point Implementation Plan for Reforming Federal IT Management” (“25 Point Plan”) issued in December 2010, and “Digital Government: Building a 21st Century Platform to Better Serve the American People” (“Digital Government Strategy”) issued in May 2012. This section provides a high level summary of these two initiatives as they relate to the challenge of “Transforming the Way Government Builds Solutions”. These documents contain key mandates and resources that can (and should!) be leveraged to advance transformation. A much more complete analysis and summary of these policy documents may be found in the Appendix, B Detailed Analysis of and Observations on the Current Federal IT Management Framework as it Promotes the Concept of Reusability.

At its core, this paper suggests that there already exists a federal IT management framework that provides a strong foundation for improving government acquisition and implementation of IT systems. This paper sets forth several strategies to advance the initiatives addressed in the 25-Point Plan and the Digital Government Strategy. The proposed strategies, if implemented, can move government to the next phase of accelerated acquisition and effectiveness through modular development and reuse.

The 25 Point Plan Addresses Innovating, Sharing and Aligning Technology and Acquisition

The 25 Point Plan focuses on how government can leverage technology for its own use more efficiently. Federal data center consolidation asks agencies to reuse spare capacity both within and between agencies. The “Cloud First” policy provides a mechanism to achieve cost savings through the use of shared computing resources and, as a result of its standards under FedRAMP, consistent security practices and accelerated adoption through reuse of assessments and authorizations. Two GSA Blanket Purchase Agreements (“Infrastructure as a Service” and “Email as a Service”) provide contract vehicles to speed agency procurement and promote competition among a highly qualified pool of contractors.

---

The Shared Services Strategy, part of the 25 Point Plan, addresses several components critical to the promotion of reusability. As noted below, more recent GAO reports identified potentially duplicative investments; a more stable approach to reuse could enable integration of such redundancy. The Shared Services Strategy should lead agencies to a wave of reuse of public and/or private sector assets by: mandating a research step when developing a procurement strategy that looks for potential resources for reuse; designing solutions with an eye toward future reuse; and, providing resources and incentives for agencies to make use of modules and shared services. The PortfolioStat sessions provide a vehicle for an assessment of agency attainment of goals set to drive efficiency and eliminate waste and duplication.

It is generally understood that there is a disconnect between the fast pace of technological change and lengthy acquisition cycles. This disconnect means that many programs are outdated from the day of contract award. This problem is especially acute in the federal government due to the nature and length of the procurement cycle. The 25 Point Plan addresses the need to “align the acquisition process with the technology cycle” and tasks OFPP to “develop guidance on contracting for modular development.”

The Digital Government Strategy (DGS) Identifies Web APIs, the Digital Services Innovation Center and Advisory Group and the Enterprise-Wide Asset Model to Drive Use of Open Data.

As the DGS illustrates, reusability applies to more than just whole systems or system modules; data reuse is an equally important concept. The DGS confirms the need for Web API-related agency mandates and challenges government to extend the same thinking to reusable modules. The DGS drives agencies to identify high-value data and content, ensures new IT systems follow the guidance, establishes a repository and offers helpful resources. These are all critical ingredients to attaining success as demonstrated by widespread use of shareable data and modules. The concepts behind the Digital Services Innovation Center and Digital Services Advisory Group are also supported in this paper through our recommended adoption of Communities of Interest and Centers of Excellence. The Enterprise-Wide Asset Model, as its name suggests, provides enterprise-wide contract vehicles for mobile devices and service and their management. The DGS sets the vision, provides support and offers tangible value for agencies to attain the OMB’s goals.

GAO Calls for Elimination of Duplication

Federal IT budget growth has slowed in the last four years. Despite the slowdown, an estimated $82 billion will be spent on information technology in FY14. Some of that spending is duplicative and results in an unnecessary drain on taxpayer dollars. In September 2013, GAO issued a report identifying 12 investments at three specific agencies that it considered clear examples of what duplicative projects. Those 12 investments alone represented $321 million in spending between 2008 and 2013 and represent only a small sample of much larger potential savings.

---

6 “Key Federal Agencies Need to Address Potentially Duplicative Investments,” GAO-13-718.
achievable through elimination of duplicative efforts. GAO wrote several other reports in earlier years performing similar analyses.

Despite the evidence that duplicative projects exist, it is not clear whether sufficient emphasis is placed on shared services nor how OMB evaluates duplicative investments. In this paper, we recommend specific ways to influence agency use of shared services and propose additional resources that could be provided to agencies that make adoption of a new accelerated and cost-effective approach more readily embraced.

**Recommendation 1. Promote Shared Services That Have Proven Effective By Removing Barriers To Their Use.**

Many individuals involved in government acquisition put reusability of resources in the “too hard” and/or “too risky” category. Often, barriers were reported that stem from a lack of trust and transparency. Agency representatives doubted the ability of existing resources to meet their custom preferences (e.g., security, “perception” of unique mission requirements). If an opportunity to reuse existing resources was considered, it was because one person on a team had personal knowledge of successful implementation in a different environment. Without clarity regarding what data and services are actually modular and integration-ready, agencies default to building new and often duplicative solutions that cost the government millions of dollars each year.

Traditional barriers to promoting and adopting the reuse of technology resources among agencies include:

- Legislation and contracting policy that prevent or restrict reuse.
- Lack of awareness or misperceptions of reuse options during decision-making.
- Implementation decisions do not appropriately consider reuse.
- Lack of incentives or pressure for potential federal providers or private sector providers to meet the needs of other agencies or even within their own agency.
- Decisions that prioritize the agency or sub-agency rather than the larger federal enterprise.

While reuse is often touted as “the right thing to do” for government, OMB and OFPP leadership have yet to reinforce the reuse principle to project teams and, consequently, agencies have not embraced this new direction. Today, there are neither sufficient measures nor mandates from the Executive and Legislative branches to enforce reuse, nor adequate incentives to promote the leverage of existing resources. Through a series of specific initiatives, building on the Federal IT Shared Services Strategy and leveraging its oversight and budget authorities, OMB should act to remove the traditional barriers to reuse and provide guidance to agencies on how to implement, acquire and promote reuse.

---

Existing Institutionalized Processes Provide an Opportunity to Promote Reuse

OMB, in both its budget and management oversight and governance roles, is in the best position to influence the degree to which agencies seek out and take advantage of opportunities to reuse existing processes, solutions, services and technologies. The budget (Exhibit 300s), TechStat, PortfolioStat, IT Dashboard and other institutionalized processes provide built-in mechanisms that, when used wisely, can focus and direct agency behavior toward the strategies described in this paper. Use of OMB’s unique policy authority can also effect changes in the federal enterprise to create a more conducive environment for reuse. These changes include:

- Increased information availability and transparency in federal IT decision-making.
- Agency incentives for reuse or making resources available for reuse.
- Introducing competitive pressure to ensure the long-term quality of shared services.
- Additional resources and support to agencies wanting to increase their reuse.

Strategies

The following strategies are designed to move government to the next level of sophistication in driving efficiency, effectiveness and cost savings by reusing data, systems and solutions while minimizing/eliminating duplication. Many resources within the public and private sector can help achieve this goal by creating an environment where reuse of resources is the default approach when acquiring, designing, developing and implementing solutions. By establishing baseline data as recommended below, progress toward moving funds from support and operations to mission areas can be accelerated. Rather than spending limited resources on implementing operations and other support functions, agencies can devote more of those resources toward their respective mission areas. Removing barriers is challenging at best and requires change both within agencies and across agencies. The strategies below address these challenges.

1.1 Develop policy guidance outlining the rationale, strategy and targets for shared services flexibility and competition among service providers.

Create a working group comprised of CIO and CAO Council members and industry representatives to research ways to lower or eliminate barriers to shared services. Some of these barriers include:

- Economy Act limitations.
- FAR challenges regarding sharing contracts.
- FISMA-related concerns.
- Technology-related challenges, such as incompatibilities across systems.
- General lack of awareness of what is available and how it can be used.

Charge the working group to report back in 90 days with recommended tangible, practical improvements that can be implemented in less than 12 months, then issue appropriate guidance to launch an initiative based on the recommendations.
1.2 Establish baseline data to monitor increases in mission area technology spend through PortfolioStat.

Establish a baseline of agencies' spend on technology in “mission” areas (those areas tied directly to the agency's mission), “support” areas (key business functions, such as payroll processing) and “commodity” areas (basic technology needs, such as email or computers). The six major parts of the Exhibit 53 submission could categorize agency data. In addition, information from the Enterprise Roadmap submitted as part of the IT Shared Services Strategy could provide input to baseline information on IT Asset Inventories. These documents can provide insight into low risk, high-potential targets for reusability across agencies.

Agencies should be required to track and report on relative IT spend on mission support areas vs. commodity areas, with a clear definition of each to reduce data errors and allow comparative analyses. OMB should work with agencies as part of the PortfolioStat process to identify opportunities to leverage common, commodity technologies and platforms to support mission and non-mission IT.

By leveraging a model that promotes the reuse of common services and platforms, agencies should be able to achieve cost savings through reduced duplication and increased efficiency, thereby allowing greater investments in mission areas. Government needs to make a long-term commitment to the promotion of reusability as it takes time to demonstrate a payback for removing duplication and driving investments to critical mission areas.

GSA Achieves Cost Reductions
The General Services Administration Chief Technology Office has estimated that it has realized up to 92% reduction in total cost of ownership per application developed using shared components within an enterprise modular platform, as compared to developing the same applications natively.

1.3 Augment PortfolioStat processes to include multi-agency shared service initiatives.

Use a multi-agency approach to set and track goals based on baseline data and targets for higher-level consolidation around mission and business-level capabilities. The benefits of leveraging innovation and effort conducted within one agency across the federal government can dramatically improve project performance, reduce cost and risks, and promote a more strategic approach to acquiring and managing technology. Reusing common open source platforms such as Drupal and open source modules speed the deployment of government-wide websites in a matter of weeks, rather than months or years.

There is little or no incentive for agencies to collaborate and share applications, data, services and expertise. In a few cases, collaboration around common mission areas or functions such as healthcare, cyber-security, counter-terrorism, screening, payroll processing and cloud computing have achieved remarkable results. The FedRAMP program demonstrates the value of collaboration and sharing. DHS, DOD and GSA have
jointly taken the lead to establish processes and standards to evaluate cloud service providers for compliance with federal information security requirements. The strategic sourcing initiatives in the areas of cloud services, package delivery, commodity supplies, and wireless services have allowed agencies to come together around a common goal, and led to significant savings for the taxpayer.

The PortfolioStat program can serve as a coordination and forcing function to evaluate similar IT investments across federal agencies and identify targets of opportunity where greater collaboration and coordination between agencies may lead to reduced costs and improved solutions. PortfolioStat could also be modified to look at different agency capabilities and issues such as “Can one agency or CoE perform the acquisition using better agile and modular techniques?” Identification of either similar technology or mission areas between agencies (for example, case management, content management, continuous monitoring, CRM, etc.) will lead to a roadmap for reviewing and approving agency investments, allowing for a structured ability to ensure that reuse is adequately considered before an agency considers procuring its own solution.

1.4 Ensure long-term quality in shared services through continuous competition.

Mandating the adoption of shared services and reuse is hard because there is little incentive for the provider to innovate to ensure a consistently high quality of service, leading to “Centers of Mediocrity” rather than “Centers of Excellence”. When it comes to mission areas, agencies are often unwilling to accept a mediocre or minimal service provided by another agency. Such situations include the not-always-exemplary service provided by the existing Shared Services Lines of Business within the federal government. Mandatory shared services often lack the desired quality and innovation due to lack of continuous competition; this leads to provider complacency and mediocrity.

Competition within and outside government is crucial to ensure long-term quality assurance for shared services. Where competition does exist, it would be valuable to have a user rating system, such as that found with Trip Advisor or Yelp. Long-term quality assurance in shared services requires a few considerations as follows:

- **Availability and Market:** Multiple providers, government and industry, must exist for different use cases within that area, with pre-negotiated service offerings available to federal agencies. For example, web-hosting services can be made available by different agencies for different technology platforms (Drupal, SharePoint, Java, etc.) as well as different levels of security and privacy (FIPS199 Levels Low, Medium, High). The result would be a catalog for web-hosting services offered by federal agencies and private sector providers, with associated security, privacy, technology and service-level offerings with associated prices. Agencies could choose the best, most viable service offering based on their specific needs. Over time, this approach would lead to competition among agencies and the private sector, ensuring high quality services at competitive cost points to meet the wide spectrum of government needs.
Portability and Compatibility: Design services with a high level of portability in mind. To ensure long-term competition, consumers must be able to switch providers with a reasonably low level of effort to avoid provider “lock in.” Consumers should not be tied to a service provider whose quality of service or cost efficiency has declined over time. To ensure portability, all shared services providers (public and private) should agree on a common set of data meta-models, schemas and interface architecture. Examples of these domain standards include the Joint Financial Management Improvement Program (JFMIP) standards for federal financial management systems, Human Resources Line of Business Technical Model version 2 interoperability standards for Federal HR systems, and the National Information Exchange Model (NIEM) information sharing standards for case management systems. Over time, this commonality will allow the consumer to switch from one provider to another without having to worry about the provider’s back-end technology architecture, service descriptions and having to re-code internal systems. For example, all providers offering financial management line-of-business services should first agree to, and then implement, a common set of data models, service offerings and API architecture to allow consumers to interface with their internal acquisition, budgeting and related systems. If this data and API architecture remains consistent across providers, switching from one provider to another should be a more straightforward task. Agreeing on a common data and API architecture per service area is a task that should be undertaken before a service area is established. It should be developed and subsequently governed through a collaborative governance body.

To the extent a consumer is forced to transition from one shared service provider to another provider due to the provider’s inability to meet its service level agreement metrics, there should be an enforceable policy and framework established requiring the service provider to fund the consumer’s migration to its new service provider.

Private Sector Engagement: Shared service areas that cross-functional areas frequently mature over time. A service offering that may have been highly specialized for the federal government may evolve to be a standardized service across the private and public sectors. It should be natural then to open up the competition for this service -- initially designed for federal consumption -- to the private sector. To provide maximum options, the federal strategy should ensure that the private sector is engaged wherever appropriate. Potential providers can commit to federal service requirements (such as security, compliance, API and data architectures, etc.). For example, government agencies may leverage the expertise and capital investments from private sector providers who specialize in loan processing, grant management, asset management, logistics, eCommerce, fleet management, property management and energy conservation. These leading private sector organizations often do not participate in traditional federal acquisitions, but can offer tremendous benefits to agencies that are solving similar problems in similar functional domains within the government.
Recommendation 2. Support A Community That Promotes Rapid Adoption And Maximized Use Of Open Data.

A successful transformation in the way solutions are built requires both government and industry support. The intent of this recommendation is to promote the establishment of voluntary Communities of Interest (CoI) and Centers of Excellence (CoE). Envision an environment where industry and government personnel with needs and expertise can find and share resources, influence and adopt common practices and standards, and promote rapid adoption via open data. These groups would encourage economic growth, improve government accountability and citizen engagement, and increase government efficiency through more effective government business execution. They would also share practical experience and best practices to support each other as they structure modular solutions for reuse by others, assist in the discovery of modules and assess their viability in a different environment.

It is only recently that government has started to consider the possibility that data should be treated as a public good and that it should be more transparent to the American public, through efforts such as the Open Data Policy, Data.gov and the IT Dashboard. Many efforts promote or mandate re-use and open data but do little to give the targets of these objectives the tools, concrete guidance and support to rapidly progress these initiatives. There are still numerous walls that exist – information that should or could be shared is not being made available.

A national awareness campaign that directs developers to CoIs and CoEs as well as artifact repositories is an essential component for successful growth. By intentionally creating data sets that can be used commercially for open source developers, the CoIs can start to demand and create standards. One CoI goal would be the development of a common data model and common taxonomy to drive growth and adoption of reusable artifacts.

The value of sharing data is demonstrated in the example of YELP’s use of restaurant health care data. One key to success is the insertion of consistently-formatted critical information to citizens who come to the YELP site to research restaurant choices making the health department
information more valuable because it is placed in context and is easily accessible. This is one example of a successful public-private partnership.

While culture cannot be changed overnight, an important approach to promoting change is to bring people together across agencies, industry and the public to share expertise and ideas that promote open data and reuse of data, shared services, applications, and even acquisition documents (e.g., alternatives analyses, security accreditation). CoIs, groups of experts and interested parties, who come together to share ideas around a central topic, are a first step towards establishing practical consensus. CoEs take this concept a step further by clarifying a formal mission and engaging the varied resources to execute against that mission. The example below demonstrates the potential value that comes from people from various backgrounds who come together for a single purpose. They naturally look for resources to share within their communities to help solve common problems. This approach demonstrates the value that can come in a trusted environment where individuals work together to explore common solutions and leverage each other’s existing data, systems, services and solutions.

Figure 1. CoI and CoE Attributes

There are a number of CoIs and CoEs that work well due to natural economic incentives or strong policy frameworks. For example, the Legal Entity Identifier program demonstrates the value of a global standard used for financial markets that fosters a more accurate analysis of transactions across markets, products and regions. The Identifier provides a tool for determining concentrations and emerging risks. This program was successful because a need was identified and a law subsequently passed. As with the development and sustainment of the National Information Exchange Model (NIEM), there was a common passion to develop a shared solution, real benefits for the constituents, and standards bodies that could adopt a global framework.
Benefits of Community Support for Sharing and Reuse

By successfully promoting a community that supports open data and reuse, government should see reduced costs of capabilities. The ability to “reuse it” by leveraging open data for discovery and adoption should show a greater reduction in costs compared with the typical approaches of “create it” internally or “acquire it” externally. Consistent with the “Federal Shared Services Implementation Guide,” dated April 16, 2013, “…when a Shared-First approach is implemented...standardized architecture methods, and digital government planning concepts, agencies will have a stronger set of tools by which to innovate with less”.

By encouraging the formation of CoIs and CoEs with searchable repositories (or network of repositories) of resources will establish recognized targets of opportunities for federal program managers looking to leverage open data during system implementation projects (e.g., documents, services, methodologies, governance, verticals). Development of standards and taxonomies enabling sharing to take place in a manner that enables discovery of resources and meta-data necessary to reuse a resource, thereby encouraging community engagement. A valuable and growing network of identified knowledgeable change agents, who are incented/desirous of promoting change, is essential to establishing a culture of resource discovery and reuse.

There is a high potential for broad benefit in the areas of procurement and information assurance. These resources can help colleagues avoid dead-ends or redundant approaches that are already known by people in the community. By using CoIs/CoEs to identify resources and processes, government can streamline procurement by reducing rework and duplicative or inconsistent efforts. CoIs and CoEs should engage directly with acquisition review boards to ensure analysis is done in a procurement’s market research stage to identify alternatives that may already be available for sharing and reuse.

There are many good examples all around us that started at state and local levels and have grown to national standards by leveraging open data. Trucking information is tracked nationally, cars travel through multiple states using “EZPass” to pay tolls that are directed to specific entities, “See-Click-Fix” reports non-emergency issues is now adopted in many cities following its launch in Washington DC. “See-Click-Fix” uses a common application combined with GPS data to report maintenance issues to the appropriate jurisdiction. As reuse of solutions like this increase, citizens benefit from better service and the application quickly becomes accepted practice.

Strategies

The overall strategy is to more formally leverage and empower existing CoIs/CoEs and identify opportunities where an effective Col/CoE can provide significant value.
2.1 Establish a “Center for Excellence” for effective development and execution of rapid adoption methodologies based on open data that includes best practices to integrate innovative and/or reusable modules.

While there are many effective private, public, and private-public communities of interests, there are many disciplines unique to the federal sector that impact reuse where there is no active community. The first step is to conduct an environmental scan of existing cross-organizational CoIs/CoEs that exist and work well. Based on the scan findings, OMB should consider funding or sponsoring specific CoEs using open data for disciplines such as procurement, information security, information assurance, budgeting and funding. The goal is to build skills and establish federal communities/resources. CoEs can drive sharing and reuse in the context of existing rules and regulations. The CoEs can also be a resource for proposed changes to rules and regulations and the creation of a general acceptance of reuse as a way to transform solution development. Moreover, CoEs should be the Open Data Initiative’s lead group for developing certain resource taxonomies and standards for government information in discoverable, machine-readable formats to comply with existing government initiatives (e.g., Open Data and Shared Services). For example, the Federal Procurement CoE should establish standards so that required procurement documents that were executed by federal agencies in compliance with the FAR (e.g., RFPs, SOWs, SOA, IAAAs, etc.) are accessible, searchable and machine-readable to promote information sharing and reuse. The information assurance CoE, for example, could focus on standards for documents such as system security plans, ISAs, MOUs, etc.) as called for by FISMA/NIST. Marketing-based expertise should be used to develop an approach to establishing brand and increasing awareness. These CoEs also represent an opportunity to accomplish a “virtual reorganization” across federal agencies – bringing together expertise in common areas of affinity that would struggle to connect within the constraints of agency stovepipes, thereby opening opportunities for innovation and common solutions that would otherwise go unrealized. The energy and enthusiasm for such an approach exists today; the CoEs would provide a constructive outlet.

2.2 Identify key agency champions to provide leadership with the CoEs.

Key champions who will “own” and evangelize the federal community around each CoI/CoE resource repository can help ensure the long-term viability of the repositories, promote the value of resources shared and develop continual incentives, measurement and innovation. Given the importance of open data, shared services, and other reuse initiatives, agencies/sub-agencies over a threshold size should be required to identify champions and community representatives. These individuals would promote and assist their agency with bold and critical change initiatives and drive the development of data sharing taxonomies and metadata dictionaries.

2.3 Mandate/incent the shared use of open data repositories.

Develop processes and policies to incent (and mandate as appropriate) sharing and
reuse through contract clauses, agency reviews like PortfolioStat and CIO Council agreements. For example, there are a number of statutory processes (e.g., FISMA, CPIC) that require the creation of artifacts that contain data and approaches that, while protecting sensitive and proprietary information, should be sharable across government (and possibly industry). While the statutes require the creation of certain artifacts (e.g., systems security plans), they do not require that non-sensitive portions be electronically readable and posted in a government- or publicly-sharable repository where they could be searched, discovered and reused. Investment processes and alternatives analysis policy should mandate search of the appropriate resource repository to identify where in government this problem was solved before.

2.4 Encourage wider involvement by incentivizing agencies to fund/host/cultivate Communities of Interest and Centers of Excellence.

Involvement is crucial to the sustainment of CoI and CoE momentum: the greater the involvement – the greater the benefits. This can be done in a number of ways, including funded communications campaigns (e.g., providing feedback to the community on progress made via blogs or message boards, targeting specific audiences for fresh insight, and moderating forums). Recognizing contributions through award programs, such as ACT-IAC’s Excellence.gov and Igniting Innovation awards, provides incentives to tackle the hard problems. Another example is GSAs “10% Initiative” which provides a mechanism for cross-agency sharing of talent in an informal manner through the use of “job jars” in common interest areas to spur collaboration and creative solutions. Even the simple incentive of providing a large meeting space where CoIs/CoEs can hold conferences can be a significant contributor to promoting CoIs/CoEs. Providing members with a voice and giving them the ability to influence the end product of CoI/CoE efforts is also a significant motivator.

Recommendation 3. Make It Simple To Acquire And Build Reusable Components.

“Reinventing the wheel” is costly. In order to create and sustain a culture of reuse within the government, a reliable, authoritative and “endorsed” repository of reusable artifacts must be established. Further it should be accessible, easily navigated and easily searched. This repository should become part of the federal system development processes (source selection, market research, acquisition alternatives analyses, etc.). Acquisition policy should require program managers to find and reuse available resources before expending funds to create new resources. It should also become common practice that acquisition strategies should be designed to foster the development of artifacts in formats for future reuse. In this way, agencies will contribute newly created resources for others. The repositories, to the extent possible, should also fit within existing federal government-wide systems and platforms currently in place (such as MAX.gov, Uncle SAM’s list, Data.gov, etc.), rather than developing a new destination for federal managers.
When implemented, the government should benefit from reduced cycle times and development costs. By minimizing complexity and uncertainty, government can reap the benefits of reusing resources. Further, government should reduce risks associated with uncertain or poorly defined requirements as they gain visibility into an aggregated pool of proven options. In order to promote an environment of “reuse first”, innovation in the relationship between service provider and agency buyer is required. Utilization of existing flexibilities within the FAR can be used to incent vendors and remove barriers within the acquisition process. Vendor incentives could include: increased period of performance, evaluation criteria based on percent of reuse of existing government code in proposed solution, increased past performance evaluations for attaining previous reuse goals, and cost-sharing methods where reuse of previous implementations can reduce costs.

**Strategies**

A four-pronged approach is recommended to further build on OMB’s 25 Point Plan as it relates to fostering a modular approach.

- Establish a repository for acquisition artifacts that can be leveraged across government to promote reuse.
- Establish a government-wide focal point for agency and industry support of reuse.
- Resolve intellectual property issues associated with reuse.
- Where code must be newly developed, ensure others design modules as part of an overall agile software acquisition plan for future reuse.

**3.1 Create a Central Repository for Acquisition Artifacts that Support Adoption and Reuse.**

Federal IT procurement specialists and the acquisition community in general, are ill equipped to structure procurements or solicitations to promote reuse. This is partly through a lack of understanding, but also through lack of good, approved examples of reuse. Addressing issues with sharing and reuse in the acquisition process presents a clear opportunity for OMB and OFPP to take a leadership role. OMB should develop a repository of artifacts, tools and other resources for the acquisition community to effectively structure future contracts to promote reuse across program portfolios. Through an OMB-sponsored repository, or Common Acquisition Platform, of modular, flexible, reusable contract/acquisition vehicle designs, federal acquisition specialists would increasingly structure IT solicitations to promote reuse, such as the evaluation criteria, past performance, statement of work or statement of objectives, etc. Use of such a platform and repository should be incorporated into the Federal Acquisition Institute’s training program. This will help increase the awareness of this resource and tool.
3.2 Establish a Procurement CoE to Support Development of Acquisition Strategies to Incorporate a Philosophy of Rapid Adoption and Reuse from Inception.

By establishing a Procurement CoE, OMB and OFPP can support the broad acquisition community (contracting officers, program/project managers, etc.) with the organizational means, appropriate management and technical talent to execute acquisitions designed to reuse previously developed artifacts and design new artifacts for those who follow with similar requirements. The goals of a Procurement CoE include fostering the:

- Awareness of best practices to streamline the development of an acquisition’s concept of operations, “Reuse First” acquisition strategy, proposed schedule, resource requirements, and success criteria (i.e., required outcomes).

- Continual discovery of reuse opportunities and environmental assessments.

- Development of relationships across the major federal agencies and large component organizations to gain practical understandings of the critical challenges facing the IT leadership and practitioner communities.

- Development of appropriate relationships with provider organizations to illuminate technology, contracting and other government-specific issues associated with solutions delivery.

- Formulation and communication of critical recommendations for structural changes to acquisition and technology management policies and regulations.

- Establishment of a portfolio of business cases and sustainment strategies that evidence outcomes and consensus of government and industry support.

- Development of a standard methodology for calculating savings from reuse.

It is important to note that several initiatives currently underway can serve as important focal points to encourage reusability within the system acquisition and deployment life cycle. As an example, GSA’s Common Acquisition Platform

**GSA Develops Acquisition Platform**

The General Services Administration is currently developing a concept for a Common Acquisition Platform (CAP) to bring consistency and efficiency within all stages of the acquisition life cycle. Once completed, this environment will allow agencies to use readily available modules to automate parts or all of the agencies’ acquisition processes (such as RFP development, proposal evaluation, contract writing, price comparison, etc.) and will allow access to readily-available knowledge base(s) of guidance, templates and policies relevant to acquisition processes from the same environment.
initiative will serve as a repository for agencies to share and reuse acquisition-specific artifacts and knowledge related to systems implementation, such as SLAs, legal clauses, contract language, market research and prices paid. Similarly, the FedRAMP program inherently supports reuse of security certification and accreditation for cloud services, and can perhaps be strengthened by making relevant security packages, Authority to Operate (ATO) letters, system boundary documents and other related material with consuming agencies in a secure manner.

3.3 Resolve Intellectual Property Issues Associated with Reuse.

Intellectual property (IP) rights to code, data and related artifacts is a key area of consideration when encouraging reuse within the systems’ developed life cycle. IP rights are historically complicated. Standard approaches to code and data ownership are not well developed or understood across the federal government. Agencies could benefit from a coalition of IT, acquisition and legal experts to standardize expectations and policy related to Intellectual property rights within federal IT contracts. We recommend that GSA provide the leadership for this effort.

Typically, IP rights are negotiated at contract award. Each contract action leads to a different outcome for IP-related issues. This lack of consistency and clarity leads to a confusing and complicated environment, where government agencies and vendors are not always able to share code, data and other IP. Industry partners often rely on retaining IP rights when making significant investments in innovation making clarity around this issue very important to all parties.

The following high-level guidelines should be considered when developing specific policy and acquisition guidelines related to intellectual property rights:

- Collect and analyze the current state of IP rights within federal system development contracts across the federal government with the intention to identify success stories that foster healthy industry and government partnerships. Develop and document lessons learned.

- Adopt a policy stating that all IP created using taxpayer dollars is owned by the public and, therefore, shareable for others. Develop standard contract language in collaboration with the DOJ and other stakeholders for all agencies to adopt within IT contracts. Identify any policy exceptions.

- Develop a standard public domain license which could be based on any of the readily available open source license models such as the GNU General Public License, ISC, MPL, OPaC FPL, BSD/MBSD, Fair License, etc. The license should ensure that all code shared by the government is reusable by any member of the public or private sector communities at no cost but cannot be resold. The license should allow industry partners to get paid for enhancements, integration, modification, support services and customizations.
Identify an open, collaborative, public domain platform (such as GitHub, or for more internally-focused applications, forge.mil) as the government’s recommended code and IP sharing platform.

Require agencies to report on all code that is open sourced as part of each major investment in the Exhibit 300/53 submissions and assess agency compliance via TechStat and agency IRM Strategic Plans. Require agencies to document the rationale for any exceptions (such as sensitivity, security, privacy concerns) as part of the Exhibit 300/53 package, as well as the each system’s Privacy Impact Assessment (PIA) and Certification and Accreditation package.

Require each agency to publish an inventory of all code shared in the public domain on Data.gov, and/or on the agency.gov/open webpage.

### 3.4 Stimulate Development of Resources for Future Reuse.

While “reuse first” is the preferred strategy, there are times when software needs to be developed. Agile software development techniques represent the extreme of modular approaches. That process is designed to generate small usable portions of code that promote the identification and incorporation of reuse elements. Accelerating the use of agile development enhances an agency’s ability to incorporate reuse into the development process⁸.

While there has been some success with agile approaches within the federal government, current widespread attempts to use an agile approach for federal projects have revealed three primary challenges and validate the need to exercise a much greater degree of IT services reuse as part of agile development activity. These challenges address the need to develop an acquisition strategy that implements agile “reuse” approaches and adheres to agile principles while maintaining the government’s mandate to ensure prioritized business outcomes are achieved within an approved budget and schedule.

- Ensure the business objective is met within governance-approved allocation of resources (time and cost).
- Contracting methodologies either overly restrict requirements to the point of bringing agile back to the incremental development process or are overly administratively burdensome to achieve the desired requirements flexibility, which

---


---

**VA Uses Agile for Benefits System**

VA was required to implement the Post-911 GI Bill with initial deployment within 90 days. Utilizing agile software development practices, VA was able to deploy the first release of the New Education Benefits System on schedule. VA’s implementation of agile highlighted some significant success by improving the on-time delivery of software from 32% in FY 2009 to 89% in FY 2012.
goes against FAR 1.102 (b) (2), Statement of Guiding Principles for the Federal Acquisition System, mandating the minimization of administrative operating costs.

- Appropriately allocating risk in contract type selection based upon FAR 16.103 (b), Negotiating Contract Type.

### 3.5 Provide Training to Increase Skills in Agile and Reuse.

Training is required to increase skills in agile development and reuse methodology. A training program provides a vehicle for official recognition of government-wide best practices through case studies. The VA Acquisition Academy has a Federal Agile Project Manager training series. This effort is currently funded and uses a cross-agency team to develop its methodologies. Information gathered from AcqStat reports could be incorporated into such a training program by reporting on successes and limitations of various approaches. A goal of a comprehensive training program could be to assist agency representatives in the development of an acquisition plan for a pilot program that incorporates reuse and supports the representative throughout the process.

**Recommendation 4. Build A Workforce That Understands And Values Rapid, Modular Adoption And Reuse.**

In recent years, federal workers have become increasingly aware that data their programs collect and create in many cases should be treated as a public good and made transparent to the American public through efforts such as the Open Data Policy, Data.gov and the IT Dashboard. The success and widespread use of services that leverage this data, such as Zillow.com, demonstrate the incredible value that is achievable through the reuse of government data. These successes have further increased awareness among the federal workforce of the intrinsic value of the data and the urgency of making this data transparent. To accelerate the development of a workforce that understands and values reuse, OMB should leverage its oversight authority to measure and monitor progress in developing a workforce that values reuse as a key employee developmental characteristic.

Modern IT innovations such as agile, cloud, shared services and open source are relatively recent and many in the federal IT workforce are poorly equipped to adapt to this changing landscape. For example, in 2006, a mere 7 years ago, Amazon.com introduced the Elastic Compute Cloud, the most successful Infrastructure as a Service (IaaS) offering in the market. Further, recently introduced cloud enterprise email services, such as Microsoft Office 365 and Google Apps, will garner 10% of the market for all enterprise email by 2014, according to Gartner. That represents an absolutely staggering adoption rate. Given that the average age of the federal worker is 47 years old with 14 years on the job, this means that when the average federal worker joined the workforce, services such as Amazon EC2, Microsoft Office 365 and Google Apps had not yet been conceived. Given this rapid rate of change in IT, the federal IT workforce should be encouraged and motivated to strengthen their understanding of modern IT and stay current with the industry state-of-the-art through training.

---

9 Wave of federal retirees to hit government, CNN Money, June 13, 2013.
Strategies

OMB should utilize its position and influence to develop a workforce that understands and values reuse through the following specific strategies.

4.1 Implement metrics that assess leaders on how they are implementing the overall goal of rapid adoption, modular development and reuse.

To create a workforce that values rapid adoption, modular development and reuse, it is critically important for federal IT leadership (program managers, CIOs, Chief Acquisition Officers (CAOs) and Chief Financial Officers (CFOs)) to model this behavior and lead by example. It is recommended that OMB work with OPM to develop a process requiring all IT SES and GS-15s to demonstrate a measurable contribution to a CoI or a sharing opportunity outside their immediate mission area. Participating in a CoI or sharing a solution that is outside their immediate mission area is a key way for leaders to demonstrate the importance of this initiative. Establishing and adopting a framework to measure this participation, as well as publishing the quarterly results, will help identify and promote the right behaviors in federal IT leadership across government. Furthermore, OMB can work with OPM to encourage this “sharing” behavior through policies and regulations associated with SES candidate development programs (e.g., Senior Executive Service Candidate Development Program Requirements (5 CFR 412.302(c)) and associated rotational assignments.

4.2 Develop competency areas and training to strengthen federal IT program managers’ skills in buying and building according to modular and reusable principles.

OMB, in collaboration with OFPP, should direct OPM to establish workforce competency areas for modern IT, including SOA, Agile, cloud, reuse models, APIs, open source, etc., with each competency area supported by training, mentorship, and professional growth opportunities. Trained employees would become increasingly effective at engaging in IT transformational activities such as promoting reuse and more adept at promoting increased reuse across their portfolio of programs. Through OPM, OMB should provide the means for employee recognition by identifying and showcasing federal IT employees who advance their understanding of modern IT by featuring their achievement in newsletters, websites and annual appraisals.

4.3 Rotate government senior leadership to promote cross-agency use of best practices.

One significant barrier to reuse is the desire to “own” the entire portfolio of IT systems. Generally the motivation is to reduce risk, but it also reflects a distrust of others and reluctance to share resources. OMB should promote mechanisms to rotate government senior leadership. Leaders would see the opportunities for reuse from all sides and be encouraged to adopt and transfer best practices in reuse and sharing with each assignment.
Conclusion

The time is right. The need is real. Technology is not an impediment to attaining the goal of reusability. What is needed is leadership to navigate the difficulties with implementing a major change in the way federal IT systems are planned, acquired, implemented and managed with a “reuse first” mindset. A change of this magnitude requires a “push” from the top by setting measurable goals and policies that have their roots in the budget process and a “pull” from those in agencies who know there is a better way to acquire and implement solutions in a rapidly changing environment.

Risk avoidance is often at the core for approaching a project in the traditional way -- whether it is the best way to achieve results or not. Momentum will grow with highly visible case studies that demonstrate efficiency and cost savings.

When an initiative requires a substantial change in work practices, there can be a tendency to just try to ignore it until the next administration and hope it will change again. This resistance to change can stall growth and the adoption of new best practices. Recent administrations have advanced the methodology for how federal government planning, designing, developing, implementing and operating IT solutions. These developments include administrative reforms to encourage greater usage of shared services, cloud computing, data/module/service re-use, and streamlined acquisition of IT solutions. Despite these advancements, the federal IT environment continues to have substantial and unnecessary duplication of systems and efforts, slow adoption of inter-agency shared services, and unclear reuse of data/modules/services.

In light of the dynamic political environment, the following challenges exist to sustaining current progress toward the aforementioned administration priorities:

- **Priority Squeeze:** As the administration addresses multiple implementation, legislative, and budget challenges, maintaining focus on current initiatives may prove challenging in a crowded field of federal and national priorities

- **2nd Term Focus:** While the administration has until January 2017 to implement its initiatives, past history suggests that focus will fade and implementation momentum will slow following mid-term Congressional elections in 2014. This has in part been because in the last two years of a political administration’s second term, political appointee leaders, may leave their current positions, thereby limiting the support for ongoing reforms as the current administration’s term

- **Initiative Sustainability:** In light of the fact that all current IT management reform initiatives were generated through a combination of strategies (e.g., DGS, “25 Point Plan”, etc.) and OMB policy memoranda (e.g., M-10-28 (FedRAMP), M-13-09 (PortfolioStat, etc.), a more enduring framework is necessary to continue these efforts beyond the January 2017 end of the current term.

The following recommended actions can be taken by OMB in the short and mid-term to continue progress made to date and help ensure initiatives endure beyond the expiration of
existing administrative reforms (e.g., 25 Point Plan, “Cloud First”, Data.gov, etc.) and the end of the administration in January 2017.

- **Implementing Administrative Reforms through Statute:** By tying administrative reforms to statute, government-wide adoption becomes more likely due to the enduring nature of legislation signed into law and the historical oversight applied by the Government Accountability Office (GAO) and congressional oversight committees. The reforms should strike a balance between being tangible enough to enable their implementation (e.g., shared services consideration, data re-use governance, etc.) while being broad enough to endure beyond the current technical focus (e.g., cloud first, etc.).

- **Tie to Second Term Management Reform Agenda:** As OMB finalizes its Second Term Management Reform Agenda, there’s an opportunity to increase focus on specific IT reforms by including them in the reform agenda. While a number of reforms may see reduced focus as the administration draws to a close, including discrete IT reforms may continue their momentum through the next term. Doing so will send an important message to agency stakeholders that those reforms are important and, therefore, should be enduring.

- **Utilize Budget Enforcement Mechanism:** While OMB has a number of oversight and tools to apply to management reform initiatives, the use of the fall budget guidance (“Passback”) provides the most consistent and enduring mechanism to ensure compliance of government-wide mandates and administrative initiatives. In particular, the fall budget guidance is the sole guidance document that consistently gets enforced by agency budget directors and OMB on an annual basis.

Whether or not the above recommendations are the most appropriate for accomplishing the goals set forth in this paper, it is critically important that thought be given to what we call the challenge of “making it stick” from one administration to the next. This is a continuing challenge and one that must be addressed by leadership if change is going to be adopted and government is going to transform the way it builds solutions.
Appendix A

Categories and Examples of Reusable Artifacts

1. **Shared business and mission services**: Standardized business processes and services, such as payroll processing, financial accounting, HR processing, and acquisition support, are offered by one agency or organization to others at scale, leading to cost efficiencies. This model currently forms the core of the federal shared services and lines of business under the eGov Act. Approved lines of business offer business services to other agencies, leading to reduced duplication of IT system investment and higher cost optimization across the government. There are also opportunities for sharing in mission-related activities such as screening, identity management and logistics.

2. **Software, data, components and services**: Packaged software components, applications, source code, data and application services (APIs) allow better (more agile, less costly, more resilient) system architecture, reduce the effort and cost required for system development, and improve the quality of government systems. This model of reusability is well established and has been employed extensively in the private sector for many years. Good examples include: extensive collaboration and sharing within the various open source networks (Mozilla Foundation, the Linux community, GitHub, etc.); extensive reuse and repackaging of data and services by companies like Zillow and Yelp; and, the IT architectures prevalent within modern, large scale cloud providers such as Amazon and Google. By designing software applications in components, focusing on reuse throughout their enterprise architecture, and mandating “reuse first” design policies, these companies not only avoid significant costs, but more importantly deliver faster, more flexible and extensive services that allow them to compete more effectively and even define new markets (for example, the Amazon Web Services offering).

3. **Knowledge, processes, skills and prior discovery**: Technical designs, plans, analyses, market research, solicitation and evaluation plan templates, service level agreements, award/incentive plan samples documents, past performance, technical designs and other knowledge artifacts are necessary to successfully design, procure and implement solutions. By reusing and leveraging existing knowledge and experience that may exist elsewhere in government or even outside government, agencies can build better solutions, improve the success rate of projects and avoid efforts to “re-invent the wheel.”
Appendix B

A Detailed Analysis of and Observations on the Current Federal IT Management Framework as it Promotes the Concept of Reusability

The core concepts in this paper are not new. Many government efforts are directed at getting agencies to reuse existing services rather than building new ones and to build or acquire solutions with future reusability in mind. This section looks at current initiatives and focuses on two primary sources: the 25 Point Implementation Plan for Reforming Federal IT Management\(^\text{10}\) (“25 Point Plan”) issued in December 2010, and Digital Government: Building a 21st Century Platform to Better Serve the American People\(^\text{11}\) (“Digital Government Strategy”) issued in May 2012. The current Administration’s priorities regarding federal IT stem primarily from these two documents. In each document, a set of agency mandates and resources are provided.

“Agency mandates” are deliverables that agencies have had (or will have) to provide to OMB, GSA or other entities. “Resources for agencies” are programs, websites or documents that agencies can use to further their reuse efforts. We have broken these out in the sections below for convenience. In addition, in some areas we provide observations regarding the initiatives drawing from our experience as well as reports published by GAO.

This section is intended to be a resource that recognizes the broader environment in the recommendations in the preceding paper must operate.

25 Point Plan

The 25 Point Plan is mostly inward-facing, meaning that the directives and recommendations are focused on how government can leverage technology for its own use more efficiently. Although many of the 25 points are related in some way to the topic of this paper, the following are most directly related:

- Reform Items #1&2: Data center consolidation
- Reform Item #3: “Cloud-first” policy
- Reform Items #4&5: IaaS and commodity IT contract solutions
- Reform Item #6: Shared Services Strategy
- Reform Item #15: Modular development guidelines

---

\(^{10}\) http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/25-point-implementation-plan-to-reform-federal-it.pdf

Federal Data Center Consolidation Initiative (FDCCI):

Federal data centers are often cited as examples of duplicative spending. At the time of its publication, the 25 Point Plan stated “...we now know that the government is operating and maintaining almost 2,100 data centers.” The main focus of FDCCI has been to shut down unneeded data centers and reutilize spare capacity both within and between agencies. Reform Item #2 states:

Within the next 18 months, OMB and GSA will create a government-wide marketplace that better utilizes spare capacity within operational data centers.

This online marketplace will match agencies with extra capacity to agencies with increasing demand, thereby improving the utilization of existing facilities.

Although considerable attention has been paid to the number of data centers and the goals regarding closing facilities, we were not able to find any public information regarding the data center marketplace or whether agencies have been able to reuse spare capacity from other agency facilities.

FDCCI Agency Mandates:

- June 2011: Identify senior FDCCI program manager
- September 2011: Final agency data center consolidation plans due to GSA
- October 2011: First quarterly progress report due to GSA, then ongoing
- Agency-specific targets set in consolidation plan and reviewed by OMB periodically

FDCCI Resources for Agencies:

- Online marketplace for data center capacity (see note above)
- FDCCI Task Force website with templates, guidance documents and best practices12

FDCCI Observations:

The FDCCI program focus and goals have shifted slightly in the last couple of years, as has the scale of the situation. When the 25 Point Plan was published, the original goal was “to consolidate at least 800 data centers by 2015” representing roughly 40% of the 2,100 known at the time. The total number of data centers was based however on conflicting definitions of a “data center”: on the one hand, the FDCCI stated in 2010 that a data center was “any room greater than 500 square feet in area devoted to data processing, and meeting a tier (I, II, III & IV) classification defined by the Uptime Institute.” Later, in an effort to recognize the significance of

12 https://cio.gov/deliver/data-center-consolidation/
smaller facilities, the definition was changed to “a closet, room, floor or building for the storage, management, and dissemination of data and information.”

With this change the number of data centers rose from 2,100 to 3,133. The goal of closing 40% remained, making the number of desired closures 1,253 and a dollar savings of $3 billion. Then in July 2013, GAO testified before the House Subcommittee on Government Operations\(^\text{13}\) that several agencies uncovered an additional 3,000 data centers that had not previously been reported, making the total in excess of 6,000 facilities.

With the increased number of data centers, the goal for closing them has also shifted. With the July 2013 PortfolioStat guidance, OMB requested that agencies report on “core” and “non-core” data centers (to be defined by each agency). The 40% goal now only applies to “core” data centers.

GAO issued three reports on the initiative - in 2011\(^\text{14}\), 2012\(^\text{15}\) and 2013\(^\text{16}\) - and has consistently stated that OMB needs to strengthen its oversight of the program in order to achieve the cost savings goal. In particular, GAO highlighted the need to develop mechanisms for determining how much money is saved as facilities shut down. GAO cited OMB as saying that it had not (as of April 2013) determined how cost savings would be measured. This same criticism was leveled in other areas of IT reform.

**“Cloud-first” Policy**

Cloud computing is frequently cited as a mechanism to achieve cost savings through the use of shared resources. Rather than building a data center or standing up new physical servers every time a new system is deployed, cloud computing allows an agency essentially to rent capacity (e.g.: CPU time, memory, storage) as needed. This capacity can be provided by the private sector or within the agency’s own (or a partner agency’s) facilities. OMB and GAO have both cited cloud computing as a best practice.

**“Cloud-first” Agency Mandates:**

- December 2011: Move at least one service from legacy infrastructure to cloud-based infrastructure.
- June 2012: Move at least two more services to cloud-based solutions.
- Under the FedRAMP program, agencies will be required to follow specific processes when they acquire cloud-based services.


\(^{15}\) [http://gao.gov/products/GAO-12-742]

\(^{16}\) [http://gao.gov/products/GAO-13-627T]
“Cloud-first” Resources for Agencies:

- Federal Cloud Computing Strategy\(^{17}\)
- FedRAMP program\(^{18}\)
- Portal for information about cloud computing, best practices, etc.\(^{19}\)
- Contract vehicles (see below)

“Cloud-first” Observations:

The 25 Point Plan set specific targets for agencies to migrate to cloud-based services. GAO issued a progress report in July 2012\(^ {20}\) indicating that some targets had been met and others had not or would not be met on schedule. Since that time, however, no progress reports have been issued by OMB or GAO regarding the three services each agency was to migrate to the cloud. Instead, focus has shifted to the FedRAMP program that has the following stated goals:

- Accelerate the adoption of secure cloud solutions through reuse of assessments and authorizations.
- Increase confidence in security of cloud solutions.
- Achieve consistent security authorizations using a baseline set of agreed upon standards to be used for Cloud product approval in or outside of FedRAMP.
- Ensure consistent application of existing security practices.
- Increase confidence in security assessments.
- Increase automation and near real-time data for continuous monitoring.\(^ {21}\)

OMB has moved from setting a goal and monitoring progress to standing up a program that agencies must comply with as they adopt cloud-based services. There are pros and cons to this approach. On the plus side, more resources are available to agencies so that they can adopt cloud services more easily and with more confidence about the security of those services. However, without clear goals there is less incentive for agencies to move to the cloud. Agencies embracing the concept now have more requirements. Skeptical agencies do not have to use the cloud at all\(^ {22}\), and can cite the FedRAMP process as another reason why moving to the


\(^{18}\) [http://www.fedramp.gov](http://www.fedramp.gov)

\(^{19}\) [http://cloud.cio.gov/](http://cloud.cio.gov/)


\(^{22}\) In fact, agencies must provide evidence that cloud-based alternatives were considered when documenting investments through the budget process in the Exhibit 53; however, very little detail is required and agencies can simply claim that they evaluated cloud solutions but none were available or acceptable. See: [http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/fy14_guidance_on_exhibits_53_and_300.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/fy14_guidance_on_exhibits_53_and_300.pdf)
cloud is difficult and costly.

The cloud-first goals in the 25 Point Plan were widely regarded as aggressive and possibly unrealistic. But the goals were at least clear. In theory, the budget process and PortfolioStat will be opportunities for OMB to press agencies in their use of cloud services; in practice, without clear goals agencies will have multiple reasons for moving slowly toward adoption.

IaaS and Commodity IT Contract Solutions

The 25 Point Plan recognized that in order to consolidate system hosting environments as well as “commodity IT”, agencies would need additional contract vehicles. To that end, OMB tasked GSA to develop a government-wide “Infrastructure-as-a-Service” (IaaS) contract as well as cloud-based solution contracts for commodity services, starting with email.

Contract Solutions Agency Mandates:

- No specific mandates, although the Shared Services Strategy (see below) would later point to the contracts as sources to consider when migrating existing or implementing new services.

Contract Solutions Resources for Agencies:

- GSA’s IaaS Blanket Purchase Agreement (BPA)\(^{23}\)
- GSA’s Email as a Service (EaaS) BPA\(^ {24}\)

Contract Solutions Observations:

Of the 25 Point Plan items, these two were unequivocally regarded as completed and of value to the federal government. However, we were not able to find any information regarding how many agencies had signed contracts using these BPAs. An article dated August 6, 2013\(^ {25}\) indicated that the Department of Interior awarded a contract based on the EaaS vehicle; it is possible that more awards will be published in the coming months.

Shared Services Strategy

Perhaps none in the 25 Point Plan areas has received as much attention as the Shared Services Strategy. In May 2012, OMB issued the Federal Information Technology Shared Services Strategy\(^ {26}\) document (the strategy document was actually late; it was due to be released by December 2011 according to the 25 Point Plan). Unlike the earlier Federal Cloud Computing

---

\(^{22}\) [http://cloud.cio.gov/gsa-iaas-bpa](http://cloud.cio.gov/gsa-iaas-bpa)

\(^{24}\) [http://www.gsa.gov/portal/content/112223](http://www.gsa.gov/portal/content/112223)


\(^{26}\) [http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/shared_services_strategy.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/shared_services_strategy.pdf)
Strategy that provided information and guidance when considering cloud-based services, this document includes separate agency mandates. The Strategy coincided with reforms codified in the April 2012 Common Approach to Federal Enterprise Architecture ("Federal EA").

Shared Services Strategy Agency Mandates (quotes from Strategy document):

- **March 2012:** “Identify two IT areas for migration to a shared service approach by December 31, 2012.”
- **August 2012:** “Submit an Enterprise Roadmap to OMB that includes the agency’s Commodity IT Consolidation Plan (IT Asset inventory is optional in 2012) and LOB Service Plan.”
- **August 2012:** For Line of Business (LOB) agencies, “LOB Managing Partners will prepare a ‘LOB Service Plan’ that includes an assessment of each associated IT shared service area and a plan to improve quality and increase uptake in each area by the end of FY 2013.”
- **December 2012:** “Agencies complete two OMB-approved IT shared service initiatives in 2012 and report status to OMB.”
- **April 2013, then annually:** “Submit an updated Enterprise Roadmap to OMB.”

Shared Services Strategy Observations:

Shared services represent a critical component of reusability. In this paper we recommend that agencies should look for shared services to reuse when contemplating a new system. When building or acquiring a new solution, agencies should ensure that reusability is “baked in” from the beginning; in effect, creating a new shared service. OMB should provide more resources to help agencies make use of shared services as well as other reuse options. The Shared Services Strategy, therefore, should be a seminal document leading to a wave of agency reuse. The picture is somewhat murkier.

In its Shared Services Strategy document, OMB provided clear targets for agencies (migrate two areas to shared services by the end of December 2012). Although presumably OMB has tracked agency compliance with this mandate, we could not find any public information regarding whether agencies have moved services as required, nor are agency Roadmaps or LOB Service Plans publicly available. GAO has also not reported specifically on progress toward the targets. We found only one report that even mentioned the Strategy document by name. However, GAO has written extensively on the need to reduce duplication of technology spending. In a June 2013 report, GAO wrote:

In September 2011, we reported that, although OMB’s guidance to federal agencies on how to

---

27 [http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/common_approach_to_federal_ea.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/egov_docs/common_approach_to_federal_ea.pdf)
28 This deadline was changed in the 2013 update to PortfolioStat; the new date was May 15, 2013.
categorize IT investments allowed for analysis of investments with similar functions, it did not go far enough to allow identification of potentially duplicative investments. Specifically, since the fiscal year 2004 budget cycle, OMB had required agencies to categorize their IT investments according to primary function and subfunction. In their fiscal year 2011 submissions, agencies reported the greatest number of IT investments in Information and Technology Management (1,536 investments), followed by Supply Chain Management (777 investments), and Human Resource Management (622 investments). Similarly, planned expenditures on investments were greatest in Information and Technology Management, at about $35.5 billion. 30

In September 2013, GAO issued another report31 targeting 12 investments at three specific agencies in order to provide clear examples of what it thought were duplicative projects. Those 12 investments represented $321 million in spending between 2008 and 2013. GAO wrote several other reports in earlier years performing similar analyses32.

Despite the mandate that such investigations provide, it is not clear whether sufficient emphasis is placed on shared services, nor how OMB is evaluating duplicative investments. In this paper we recommend specific ways to influence agency use of shared services as well as additional resources that could be provided to agencies that would make their transition simpler33.

Two developments related to the Shared Services Strategy are important to highlight. The first is resurgence in interest regarding enterprise architecture. This term does not appear in the 25 Point Plan. In the Shared Services Strategy document, however, Federal EA takes center stage. Agencies are required to submit Enterprise Roadmaps that conform to the new Federal EA reference models. The Exhibit 53s and 300s were also changed to match the new models. One addition to the EA framework was the creation of a “Performance Reference Model (PRM)”. As a result of the 2010 Government Performance and Results Act (GPRA) modernization, the PRM was created to capture the strategic plans and performance goals of an organization and put them in context with the rest of the agency’s EA elements. The changes brought on by the Federal EA are sensible, but also represent a shift that agencies must accommodate as they comply with various OMB mandates. For agencies with robust baseline and segment architectures, considerable work was required to make them conform to the new schema. As stated earlier, no agency Enterprise Roadmaps are available publicly, and we could find no information regarding progress toward new Federal EA conformance.

The second development is the creation of PortfolioStat. First introduced in March 201234, PortfolioStat began as a program under the newly designated Chief Operating Officer (COO)35.

---

33 Note that the Digital Government Strategy provides mandates for GSA and others to create new resources to facilitate the use of shared services primarily in the areas of content management and mobile devices.
34 “Implementing PortfolioStat.” OMB Memorandum M-12-10, http://www.whitehouse.gov/sites/default/files/omb/memoranda/2012/m-12-10_1.pdf
35 The COO role was in place at many agencies prior to the 2010 modernization of GPRA, but the Act was the first time the position was formalized with specific responsibilities and authorities; among these is the lead role in tracking agency performance against goals.
The COO was required to run PortfolioStat sessions, looking across the entire agency’s IT portfolio to find opportunities for more efficient spending. The CIO, Chief Acquisition Officer (CAO) and Chief Financial Officer (CFO) played supporting roles in these sessions. In 2013 the program changed: each agency would now appear before OMB in PortfolioStat sessions, with the agenda set by the Federal CIO and session outcomes tracked by OMB analysts. This shift may be a response to criticism that the first iteration of PortfolioStat may have disempowered agency CIOs by putting the COO in the lead role of evaluating agency technology investments. 

PortfolioStat appears designed to coalesce several initiatives. As the original memorandum stated:

PortfolioStat will help implement the Shared First initiative and the requirements set forth in the Executive Order 13589 (Promoting Efficient Spending) that targets employee IT devices as a primary area for eliminating waste and duplication. This effort should also assist agencies in meeting the targets and requirements under other initiatives, such as Federal Data Center Consolidation Initiative (FDCCI), the Cloud Computing Initiative, and the draft IT Shared Services Strategy.

In its 2013 PortfolioStat update, OMB also consolidated some reporting that agencies had to conduct. In the 2013 memo, OMB stated:

OMB has established an Integrated Data Collection channel for agencies to report structured information. Agencies will use this channel to report agency progress in meeting IT strategic goals, objectives and metrics as well as cost savings and avoidances resulting from IT management actions. This data includes information previously reported by agencies as well as data that agencies shall report by May 15, 2013 and then update every three months thereafter...

This Integrated Data Collection will draw on information previously reported under PortfolioStat, the FDCCI, the Federal Digital Government Strategy, quarterly Federal Information Security Management Act metrics, the Federal IT Dashboard, and selected human resource, financial management, and procurement information requested by OMB.

GAO has been critical of PortfolioStat, particularly regarding how it integrates with the FDCCI. In testimony delivered in July 2013, GAO stated:

OMB’s March 2013 memorandum stated that, to more effectively measure the efficiency of an agency’s data center assets, agencies would also be measured by the extent to

---

37 “Implementing PortfolioStat,” page 2. The IT Shared Services Strategy is mentioned as a draft because it was not published until May 2012, two months after this memorandum.
which their data centers are optimized for total cost of ownership by incorporating
metrics for data center energy, facility, labor, and storage, among other things. Although
OMB had indicated which performance measures it planned to use going forward, it
had not documented the specific metrics for agencies to report against. OMB’s March
2013 memorandum indicates that these would be developed by the Data Center
Consolidation Task Force, but did not provide a time frame for when this will be
completed.

Further, our report noted that OMB’s integration of FDCCI with PortfolioStat also included
a modification to the previous data center consolidation goal of closing approximately
40 percent of the total number of agency data centers. Specifically, OMB stated an
agency’s data center population will now be placed into one of two categories—core
and non-core data centers—but for which the memorandum did not provide specific
definitions. OMB further stated that its new goal is to close 40 percent of non-core data
centers but, as noted, the definitions of core and non-core data centers were not
provided. Therefore, the total number of data centers to be closed under OMB’s revised
goal could not be determined.

We also reported that, although OMB had previously stated that PortfolioStat was
expected to result in savings of approximately $2.5 billion through 2015, its March 2013
memorandum did not establish a new cost savings goal that reflected the integration of
FDCCI. Instead, OMB stated that all cost savings goals previously associated with FDCCI
would be integrated into broader agency efforts to reshape their IT portfolios, but did not
provide a revised savings estimate. We concluded that the lack of a new cost savings
goal would limit OMB’s ability to determine whether or not the new combined initiative is
on course toward achieving its planned objectives. As a result, we recommended that
OMB track and annually report on key data center consolidation performance
measures, such as the size of data centers being closed and cost savings to date. OMB
agreed with our recommendation.

GAO has indicated that it is conducting an ongoing analysis of the PortfolioStat program. We
expect further reports to be issued on this topic.

Modular Development Guidelines

The 25 Point Plan included a section called “Align the Acquisition Process with the Technology
Cycle.” In that section the Plan tasked OFPP “to develop guidance on contracting for modular
development.” This was in recognition of the fact that:

The acquisition process can require program managers to specify the government’s
requirements up front, which can be years in advance of program initiation. Given the
pace of technology change, the lag between when the government defines its
requirements and when the contractor begins to deliver is enough time for the
technology to fundamentally change, which means that the program may be outdated
Although the focus of Reform Item #15 was on modular contracting, the resulting document included a section on modular development. The document barely used the word “agile,” preferring “modular” and “iterative,” but the same principles apply. Our paper also recommends an agile approach to development and acquisition in order to facilitate reuse.

**Modular Development Agency Mandates:**

- No current mandates. OMB has referred to “recommendations” and “guidance” but no agency deliverables.

**Modular Development Resources for Agencies:**

- The Guidance document itself represents the most cohesive resource provided to agencies by OMB so far.
- GAO released a report in July 2012 that provides a good deal of information and best practices as well as agency case studies.

**Overall 25 Point Plan Observations:**

In reviewing the Administration’s memoranda and other documents over the last two to three years, our impression is that the focus has shifted from internal IT reform to providing “digital services” to citizens. Both goals are important, but from an agency’s perspective this shift in focus represents countless hours of work rebalancing IT resources needed just to comply with OMB mandates. GAO has also commented on shifting priorities; in an April 2012 report, GAO stated:

OMB reported greater progress than GAO determined, stating that 7 of the 10 action items were completed and that 3 were partially completed. While OMB officials acknowledge that there is more to do in each of the topic areas, they consider the key action items to be completed because the IT Reform Plan has served its purpose as a catalyst for a set of broader initiatives. They explained that work will continue on all of the initiatives even after OMB declares that the related action items are completed under the IT Reform Plan. We disagree with this approach. In prematurely declaring the action items to be completed, OMB risks losing momentum on the progress it has made to date. Until OMB and the agencies complete the action items, the benefits of the reform initiatives—including increased operational efficiencies and more effective management of large-scale IT programs—will likely be delayed.

---

40 25-Point Plan, page 17.
As we’ve indicated above, a lack of clear goals and shifts in priorities make it difficult for agencies to “do the right thing” when it comes to the types of best practices outlined in the 25-Point Plan.

**Digital Government Strategy**

The Digital Government Strategy (DGS) appears to be a return to the first principles outlined by President Obama shortly after he took office in his Memorandum on Transparency and Open Government. This Memorandum led to the creation of the Open Government Directive that required agencies to develop open government plans and post them on agency websites. The Directive included a fair number of other mandates for agencies as well as OMB.

The Digital Government Strategy is an extension of this Directive as it outlines how government can use technology to deliver “digital services” to U.S. citizens, particularly in the areas of open data and mobility. Several key initiatives were launched with this strategy and, unlike the 25-Point Plan, a good deal of information regarding progress toward its goals is available online.

Of particular relevance to our paper are the following Digital Government Strategy initiatives:

- Strategy Items #1&2: Web APIs
- Strategy Item #3: Digital Services Innovation Center and Advisory Group
- Strategy Item #5: Enterprise-Wide Asset Model

**Web APIs**

The notion of data as opposed to content (or, to put it another way, content should also be data) pervades the document. Data should be open and easily shareable in standard formats anyone can consume using free or low-cost tools. The concept of Web APIs fits this model, becoming the “connective tissue” that allows disparate systems to exchange data and provide functionality. In a way, Web APIs are the other side of the reuse coin from shared services: if shared services are discrete things that can be reused wholesale (such as a Line of Business), Web APIs are a generic mechanism for one service to allow for reuse of some or all functionality (and/or data) by another service.

As the introduction to this paper states, reusability applies to more than just whole systems. Data reuse is also an important concept, and these digital strategy items recognize its value. Although the focus of the Digital Government Strategy is on the U.S. citizen as a customer, other agencies are equally valid customers.

---

45 [http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-06.pdf](http://www.whitehouse.gov/sites/default/files/omb/assets/memoranda_2010/m10-06.pdf)
46 The concept of open data has been important throughout President Obama’s terms in office. As an example, Data.gov was one of the first government websites launched during his presidency; in many ways however, the first formal description of the Administration’s open data strategy was the May 2013 Open Data Policy memo. [http://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf](http://www.whitehouse.gov/sites/default/files/omb/memoranda/2013/m-13-13.pdf)
47 OMB created a single web page to facilitate reporting on milestone progress: [http://www.whitehouse.gov/digitalgov/strategy-milestones](http://www.whitehouse.gov/digitalgov/strategy-milestones).
Web APIs Agency Mandates (quotes from Strategy document):

- August 2012: “Engage with customers to identify at least two existing major customer-facing services that contain high-value data or content as first-move candidates to make compliant with new open data, content, and web API policy.”

- May 2013: “Ensure all new IT systems follow the open data, content, and web API policy and operationalize agency.gov/developer pages.”

- May 2013: “Make high-value data and content in at least two existing major customer-facing systems available through web APIs, apply metadata tagging and publish a plan to transition additional high-value systems.”

- May 2013 (GSA only): “Expand Data.gov to include a web API catalog that centrally aggregates web APIs posted on agencies’/developer pages.”

Web APIs Resources for Agencies:

- Each federal agency was required to set up a www.[agency].gov/digitalstrategy page on its website, with links to APIs it provides so that any entity can make use of them. According to the strategy milestones site, most if not all agencies have complied with this requirement.\(^48\)

- GSA was tasked to set up a web API catalog on Data.gov to aggregate all agency APIs.\(^49\)

- GSA and OMB have set up code repositories on the public tool GitHub for use by agencies and the general public.\(^50\)

- Project Open Data has a site on github.io with links to a variety of resources and case studies.\(^51\)

- HowTo.gov has a useful page on APIs.\(^52\)

Web APIs Observations:

As this paper indicates, APIs are an important tool for agencies to use both when creating new services as well as seeking services to consume. APIs provide simple ways for disparate systems to interact and, as such, provide a useful mechanism for reuse. In the past, federal agencies have been loath to provide or consume APIs for a variety of reasons: concerns about security, lack of understanding of how APIs work, technical capacity, and so forth. OMB’s promotion of

---

\(^48\) At the time of this writing the federal government was shut down, and many websites were not available for us to view or validate.

\(^49\) Unavailable due to government shutdown.

\(^50\) See for example: [https://github.com/project-open-data](https://github.com/project-open-data) and [https://github.com/GSA/digital-strategy](https://github.com/GSA/digital-strategy).

\(^51\) [http://project-open-data.github.io/](http://project-open-data.github.io/)

APIs as “the new default” is an important step forward.

OMB should be careful as it tries to move government in this direction. Pushing for too much, too fast risks the creation of ill-considered solutions. Also, some of the guidance put forward to date has been subjective to the point of potentially alienating technical teams at the agency level.⁵³

Digital Services Groups

The Digital Government Strategy tasked GSA with standing up two resources for agencies in order to help with implementing the Strategy: the Digital Services Innovation Center (DSIC), and the Digital Services Advisory Group (DSAG). The DSIC is a small organization run out of GSA’s Office of Citizen Services and Innovative Technologies that builds solutions government agencies can reuse and also serves as a consultant for agencies on technologies championed in the Digital Government Strategy. The DSAG is a body comprised of CIO Council members, with the U.S. CIO serving as Chair, and is tasked with some of the mandates in the Strategy.⁵⁴

The DSIC has developed a number of online agency resources. Three of these speak directly to the reuse message of this paper:

- **Digital Analytics Program**: Offers advanced, easy Web analytics to federal agencies.
- **Sites.USA.gov**: Lets federal agencies build websites using a self-service content management platform.
- **Mobile Application Development Program**: Helps agencies plan, develop, test and launch anytime, anywhere, any device mobile products and services for the public.⁵⁵

Each of these services provides tangible, useful tools that agencies can implement right away. This kind of direct benefit is exactly what this paper recommends regarding removing barriers to reusability: one of the most difficult barriers is simply the lack of practical tools. Much of what has been available in the past is guidance, advice, best practices and so on. By providing working software and coupling it with knowledgeable federal employees the DSIC is a great example of a Center of Excellence that this paper calls for. More is needed.

The DSAG is more along the lines of a thought leader, providing templates and whitepapers that CIOs can use (see earlier footnote for some examples). OMB describes it as follows:

> … the Digital Services Advisory Group advises the Federal CIO on implementation of the strategy and pursues a threefold mission: (1) helps prioritize shared services needs for the

---

⁵³ See for example the discussion of the relative merits of REST vs. SOAP and JSON vs. XML: [http://www.howto.gov/mobile/apis-in-government/api-basics#common-technical-choices](http://www.howto.gov/mobile/apis-in-government/api-basics#common-technical-choices). For agencies with considerable investments in SOAP and XML, the language here would probably be a little off-putting.


Digital Services Innovation Center, (2) fosters the sharing of existing policies and best practices, and (3) identifies and recommends changes to help close gaps in policy and standards.56

The DSAG is creating practical guides to implementing innovative technology programs. A good example is the “Bring Your Own Device (BYOD) Toolkit.” The Toolkit is a 43-page guidebook that includes three case studies and five sample policy documents along with an overview of how to implement a BYOD program at a federal agency. Its language is approachable and helpful, and makes clear that BYOD is not a mandate but a good practice. The DSAG materials to date are a refreshing addition to what is available to agencies as they build or acquire IT solutions.

**Digital Services Groups Agency Mandates:**

- No mandates to date.

**Digital Services Groups Resources for Agencies:**

- Many have been described above.

**Digital Services Groups Observations:**

As noted above, the creation of the DSIC and DSAG are welcome additions and provide practical, useful tools for agencies. It will be interesting to see whether and how much their services are taken up without specific agency mandates to do so.

While probably helpful, the approach sounds like a swing toward hardline oversight and potentially away from value-added services like the DSIC. Perhaps it is intended to create the balance mentioned above. In any case, a collaborative approach between agencies and OMB is the most likely to succeed.

**Enterprise-Wide Asset Model**

Consistent with the Shared Services Strategy, the Enterprise-Wide Asset Model calls for GSA to develop and agencies to adopt government-wide contract vehicles for mobile devices and wireless services.

**Enterprise-Wide Asset Model Mandates for Agencies (quotes from Strategy document):**

- November 2012: “Develop an enterprise-wide inventory of mobile devices and wireless service contracts.”

- November 2012 (GSA only): “Establish government-wide contract vehicle for mobile devices and wireless service.”

---

May 2013: “Evaluate the government-wide contract vehicles in the alternatives analysis for all new mobile-related procurements.”

May 2013 (GSA only): “Set up a government-wide mobile device management platform.”

**Enterprise-Wide Asset Model Resources for Agencies:**

- Contract vehicle for mobile devices and service[^57]
- Mobile device management contract vehicle[^58]

**Overall Digital Government Strategy Observations:**

Although it provides practical tools and guidance and furthers an important goal in delivering better digital services to U.S. citizens, the Digital Government Strategy lacks clear mandates for agencies (other than those related to Web APIs) and does not discuss cost savings or efficiency goals. In addition, it shifts focus away from some of the IT reforms put forward in the 25-Point Plan many of which had ambitious, though clear, goals including ones related to saving the government money. One could argue that OMB has moved from merely setting targets and measuring progress to providing tangible value; that has merit.

For the purposes of this paper, there are ideas and resources to draw from related to government solutions through reusability. A balanced approach including both practical resources and agency mandates must be followed in order to move the government toward more efficient spending of public dollars. Federal IT budget growth has slowed in the last four years, but an estimated $82 billion will be spent on information technology in FY14. Some of that spending is duplicative and as a result wasteful; OMB and agencies need to do more to ensure that every dollar is spent in the most efficient manner possible.

Recent Congressional testimony by the Federal CIO indicates that a group called the Center for IT Management (CITM)[^59] was created by OMB to help find wasteful spending.

[^57]: [http://www.gsa.gov/portal/category/100931](http://www.gsa.gov/portal/category/100931)
[^58]: [http://www.gsa.gov/portal/content/159903](http://www.gsa.gov/portal/content/159903)
Project Team

Team Co-Chairs:

Paul Anninos, REI Systems
Sonny Hashmi, GSA
Tim Young, Deloitte Consulting LLP

Steering Committee:

Jeff Gallimore, Excella Consulting
Richard Garrison, Department of Veterans Affairs Acquisition Academy
Chris Knepper, CSC
John Kreger, The MITRE Corporation
Dale Luddeke
Howard Spira, Office of Financial Stability, Department of the Treasury
Mark Schwartz, Citizen and Immigration Service, Department of Homeland Security
Chris Willey, Consumer Finance Protection Bureau

Team Members:

Kimberly Bolen, Department of Homeland Security
Anthony Burley, Office of Justice Programs, Department of Justice
Herschel Chandler, Information Unlimited, Inc.
Janet Clement, ASI Government
Nydia Clayton, Deloitte Consulting LLP
John DiLuna
Juli Dixon, Booz | Allen | Hamilton
Betsy Draper, US Department of Agriculture
Hugh Goodwin, The MITRE Corporation
Ira Harley, National Archives and Records Administration
Judith Jackson, US Environmental Protection Agency
Dave Mayo, Everware - CBDI
Bob Menna, Topside Consulting
Sophia Moshasha, Whitney, Bradley & Brown
Emily Pearsons, Dynamics Research Corporation
Easton Rhodd, Commonwealth of Virginia, Information Technologies Agency
David Rubens, Booz | Allen | Hamilton
Michelle Scheuerman, Dev Technology Group, Inc.
Donnelly Tabiere, Eye Street Solutions
Rick Tucker, The MITRE Corporation
Carla Von Bernewitz, Microsoft Corporation
Peter Wilson, ICF International
Amit Yadav, REI Systems, Inc.
Established in 2011, the ACT-IAC Institute for Innovation was chartered to promote innovation in the delivery of government services and operations. It develops and delivers high-quality strategic advice that reflects cross-industry recommendations based on the consensus of experts from ACT-IAC’s member companies and government liaisons. Through ethical collaborative discussion, the Institute recommends approaches to key issues affecting government where information technology can be or is a factor and a broad spectrum of perspectives is required.

The Institute commissioned the 2012 Quadrennial Government Technology Review to develop a series of reports and executive briefings for consideration by the next administration. Each report focuses on the use of information technology to address a national challenge. These papers, and additional information on the Institute, can be found on: www.actgov.org/quadrennial.

- Empowering Citizen-Driven Government through Collaboration and Service Delivery
- Educating our Workforce for Today’s Jobs in Science and Technology
- Improving Population Wellness and Reducing Growth in Healthcare Costs
- Enhancing National Security Through Responsible Information Sharing and Identity Management
- Unleashing the Power of Information Technology to Reduce the Budget Deficit
- Delivering Mission Results by Aligning Business and Information Technology
- Tackling the Nation’s Biggest Challenges by Investing in Information Technology Solutions

In 2013, the Institute for Innovation was challenged to develop recommendations to “Transform the Way Government Builds Solutions”. The paper proposes changes for OMB’s consideration that span acquisition strategy and risk mitigation, acquisition policy, accelerated implementation and information sharing. In addition, the Institute launched an innovation showcase and award program that will culminate in a February 2014 event.

The work of the Institute is made possible through the support of partners from non-profit organizations and for-profit companies. Thought leaders from these partners, and representatives of the ACT-IAC leadership team, guide and govern the Institute, but do not influence project recommendations in keeping with ACT-IAC’s commitment to maintaining a non-partisan, vendor-neutral, collaborative environment. Members of the Institute for Innovation are as follows:

- Lisa Akers, ASI Govt. (IAC Executive Committee Liaison)
- Doug Barbee, Evolver (Member)
- George Kamis, TrustedCS (Member)
- Dan Chenok, IBM (IAC Executive Committee Liaison)
- Casey Coleman (Government Liaison)
- Jim Cook, The MITRE Corporation (Research Partner)
- Margie Graves (Government Liaison)
- Rick Holgate (ACT Executive Liaison)
- Mike Howell (ACT Executive Committee Liaison)
- Lou Kerestesy, the Ambit Group (Member)
- Dave McClure (Government Liaison)
- Andy Robinson, ICFi (Chair)
- Jim Williams (IAC Executive Committee Liaison)

Thank you to these organizations for their commitment and leadership in government innovation by supporting the ACT-IAC Institute for Innovation, Sara K. DeCarlo, Director.