

PMIAA: STRENGTHENING THE GOVERNMENT DELIVERY FOUNDATION

Executive Summary

Charged with improving government project and program management capabilities and performance, program management improvement officers (PMIOs) have significant opportunities. U.S. federal government agencies have strategic objectives and responsibilities to deliver complex and diverse streams of benefits to citizens—from disaster relief to Social Security payments to investments in medical research, new technologies, and state-of-the-art defense systems. Research from the Government Accountability Office (GAO), Project Management Institute (PMI), and other organizations all show that application of strong project and program management capabilities and practices can improve outcomes. Government needs to invest in building robust project and program management capabilities—skilled professionals, best practices, continuous improvement, and the right organizational climate. The Program Management Improvement Accountability Act (PMIAA) has made that investment a priority.

The U.S. federal government is not alone in seeking to improve its capabilities. Government leaders in Australia, Canada, the European Union, India, New Zealand, and the United Kingdom, to name a few, are on the same journey. In the United Kingdom, for example, the Infrastructure and Projects Authority (IPA) publishes an annual report on its progress in delivering the government's most strategic projects and programs. While highlighting its successes, IPA readily acknowledges that capability improvement is a continuous journey. Signs of progress are a cause for celebration and for doubling down on further strengthening performance. Private corporations and nonprofit organizations also invest in building their project, program, and portfolio management capabilities. From building organizational project management frameworks to focusing on talent development, all organizations around the world share a common focus on improving their strategy-delivery capabilities.

With multiple responsibilities and competing demands on their time, PMIOs should leverage resources and partners inside and outside of government to help accelerate, validate, and accomplish their missions. Within this report, there are multiple examples of agencies' leading project and program management practices:

- Department of Energy's Energy Information Agency PMO
- Department of Veterans Affairs' New Orleans Medical Center
- Federal Emergency Management Administration Disaster Response Program
- Transportation Security Administration Program Management
- Federal Transit Administration Program for Grant Oversight
- U.S. Navy Presidential Helicopter Project

For example, in its review of Transportation Security Administration (TSA) program management improvements, GAO found that TSA had implemented 51 of GAO's improvement recommendations. As a result, TSA realized US\$1.7 billion in financial benefits that it was able to invest in other programs and projects.ⁱ

ⁱ Government Accountability Office. "Transportation Security: Status of GAO Recommendations on TSA's Security-Related Technology Acquisitions, GAO-16-176," February 2016.

This case, and other examples in this report, highlights the project and program management capabilities that already exist within the U.S. federal government. PMIOs should leverage the lessons learned from these cases, engage with the agency leaders who are building these capabilities, and collaborate across government to share and learn. For example, the Federal Project and Program Management Community of Practice (FedPM CoP) can provide access to capability resources, like electronic versions of PMI standards. PMIOs can also explore agreements with government learning academies and agencies that have internal staff-development capabilities to support workforce development. So, within government, PMIOs can leverage multiple support systems to advance their objectives.

PMIOs can also turn to organizations outside of government with resources and expertise to support accelerated capability development. Organizations like PMI, for example, have an array of offerings focused on key aspects of capability development:

- American National Standards Institute (ANSI)-recognized standards in project, program, and portfolio management
- Professional certifications in project, program, and portfolio management developed in alignment with ANSI quality criteria
- Research on leading practices for effective strategy execution
- A global community of subject matter experts who readily share their knowledge through live and virtual training programs, contributions to standards, and peer networking and mentoring

Several government agencies already strongly align their project and program management capabilities with PMI frameworks. At least 83 percent of Chief Financial Officers (CFO) Act agencies display alignment with PMI standards on their websites (see Appendix A for a list of agencies). Defense Acquisition University and the Federal Acquisition Institute have established equivalencies between their certification programs and PMI's credentials. And, as highlighted in some of the case studies, government agencies use PMI standards and frameworks to benchmark internal practices and capabilities for their improvement efforts. Such strong alignment across the vast majority of government agencies represents a key lever for PMIOs to pull for external support in their capability-building efforts.

Introduction

Implementing the Program Management Improvement and Accountability Act (PMIAA) is underway by federal agencies covered by the CFO Act. These agencies are focused on building needed project and program management capabilities. This report supports that effort with practical guidance to help agencies develop and sustain meaningful capabilities for driving their missions forward.

The federal government's mission to serve and protect its citizens requires effective delivery and sound investment. Effective investment and delivery capabilities require strong portfolio, program, and project management structured for the mission of the agency. Proper project, program, and portfolio management, enabled through a strong organizational project management framework (see Figure 1), ensures effective oversight and enables transparency concerning the expenditure of taxpayer funds. Whereas corporations operate under the tension of a profit margin, government agencies operate under the watch of the U.S. Congress and the media. Most importantly, the imperative for governmental organizational project management is highlighted in a 2013 article by Accenture titled, "Coup d'état: Radically Rethinking Public Services".ⁱⁱ "The United States alone could save as much as \$995 billion by 2025 by increasing public sector efficiency by just 1%." Therefore, it is essential that government agencies implement and execute project, program, and portfolio management effectively and efficiently.

All strategic change happens through project and program management, and project, program, and portfolio management are critical value-delivery capabilities for any organization, including government agencies. These capabilities must be essential elements of the organization's DNA, not a layering of additional bureaucracy. Government projects and programs take a variety of forms—acquisition programs, grants, research and development, and sustained programs like Social Security. In this environment, each agency needs to develop delivery approaches and capabilities tailored to its mission and the unique requirements of its projects and programs. As case examples in this report highlight, agency leaders in the Social Security Administration, Department of Transportation, Department of Energy, Veterans Affairs, NASA, and others continue to build and sustain portfolio, program, and project management capabilities that fit the individual agency's needs. Congress recognized more attention and effort was needed based on performance of major programs on the Government Accountability Office's (GAO) High-Risk List. Congress also understood the need for investments to strengthen

Value-Delivery Terminology

Organizational Project

Management: A framework in which portfolio, program, and project management, along with organizational enablers such as culture, technology, and structure, are integrated to achieve strategic objectives.

Project: A temporary endeavor undertaken to create a unique product, service, or result.

Program: A group of related projects, program activities, and operational activities managed in a coordinated way to obtain benefits not available from managing them individually.

Portfolio: A group of projects, programs, and operational activities managed collectively to achieve strategic objectives.

Figure 1. Key value-delivery definitions.

ⁱⁱ Accenture Outlook. Available at <https://www.accenture.com/gb-en/outlook-home>.

the project and program management workforce. Led by the House Government Efficiency Caucus, Congress passed PMIAA which was signed into law in December 2016. PMIAA (Public Law 114-264) outlines specific requirements related to:

- A five-year strategic plan for developing and improving project and program management capabilities
- Adoption and use of best practices in project and program management, including application of standards, policies, and guidelines for program and project management within federal agencies
- A job series for project and program management practitioners within the U.S. federal government
- Establishment of a Program Management Policy Council (PMPC) and designation of program management improvement officers (PMIOs)

The Office of Management and Budget (OMB) has promulgated implementation guidance to help agencies enact the law's provisions within the context of each affected agency's four-year strategic plans.ⁱⁱⁱ The multiyear scheme is to dovetail with the President's Management Agenda (PMA) and enable a portfolio management approach to value-delivery components including, but not limited to, realization of benefits. The essence of the guidance is two-fold: Avoid reinventing the wheel since PMIAA aligns well with other existing requirements, and focus on activities that will drive the PMA. It is envisioned that the five-year strategic plans for improving project and program management capabilities are supportive of the agency-wide four year strategic plans already in place. Project and program management are the ways in which each agency is able to deliver on its mission and overall strategy.

Commissioned and supported with research from PMI, MIT's Consortium for Engineering Program Management, and others, this report distills how many government agencies have been leading (and continue to lead) efforts to build and sustain good practices in portfolio, program, and project management. These activities align with PMIAA's focus on the use of standards, improved career pathing for talent management, actively engaged executive sponsorship, cross-agency knowledge, and capability/capacity building, etc.

The case studies included as part of this report can help agency leaders responsible for PMIAA implementation by providing relevant examples from the U.S. federal government and other government agencies that reflect sound, constantly evolving practices being used. These examples also highlight important lessons learned from the agencies' experiences and provide contacts in the agencies for further follow-up and support. This information serves as a useful benchmark for agency leaders.

PMI provides an array of enablers to help PMIOs and agency project and program leaders with improvement activities. As one example, PMI has an extensive library of project, program, and portfolio management standards and guides (see Appendix B) with which many agencies currently align their capabilities. These standards and guides are readily available at no charge to government employees via government platforms. GAO also references PMI standards as reflecting good practices that are fundamental and globally applicable. So PMIOs should leverage the full array of support from PMI and others in their PMIAA-implementation efforts.

ⁱⁱⁱ Office of Management & Budget. "Memorandum M-18-19: Improving the Management of Federal Programs and Projects through Implementing the Program Management Improvement Accountability Act," 2018. Available at <https://www.whitehouse.gov/wp-content/uploads/2018/06/M-18-19.pdf>.

Government Project and Program Delivery Capabilities

Multiple presidential administrations over the past 50 years have focused on transforming and improving government operations. These calls envision a future state that requires substantial changes in various aspects of government operations. Numerous laws and policies have evolved to mandate and/or enable this transformation. Important documents guide the focus on government capabilities aligned with these laws. Most recently:

- **OMB Circular A-11, Section 270: Program and Project Management**^{iv} discusses the relationship of management competencies across various levels of each agency from COO to portfolios, programs, and projects. It also expands the definition of PMIO functions.
- **OMB Circular A-11, Section 230: Agency Strategic Planning**^v requires each federal agency to develop a four-year strategic plan coinciding with the start of a new presidential administration. Each agency's plan must not only describe its objectives over the four-year period but also "appraises the agency's capabilities" to deliver those objectives.
- **OMB Circular A-119**^{vi} establishes policies on federal use and development of voluntary consensus standards in accordance with The National Technology Transfer and Advancement Act of 1995 (P.L. 104-113).^{vii} The Circular directs agencies to use voluntary consensus standards in lieu of government-unique standards except where said standards are inconsistent with laws or are otherwise impractical. The law's requirement is for agencies to utilize voluntary consensus standards as a "means to carry out policy objectives or activities determined by the agencies and departments," and requires each agency head to notify OMB when non-voluntary consensus standards are utilized, with a subsequent report to Congress by OMB summarizing these exceptions for the year.
- **Capital Programming Guide, Planning, Budgeting and Acquisition of Capital Assets, Supplement to OMB Circular A-11**^{viii} "addresses project prioritization between new assets and maintenance of existing assets, risk management and cost estimating to improve the accuracy of cost, schedule and performance [data] provided to management, and the other difficult challenges proposed by asset management and acquisition." The Capital Programming Guide also instructs that: "In general, agencies should establish and manage portfolios of programs, projects and other work in accordance with

^{iv} Office of Management & Budget. "Circular No. A-11, Section 270: Project and Program Management," 2018. Available at <https://www.whitehouse.gov/wp-content/uploads/2018/06/s270.pdf>.

^v Office of Management & Budget. "Circular No. A-11, Section 230: Agency Strategic Planning," 2016. Available at https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/assets/a11_current_year/s230.pdf.

^{vi} Office of Management & Budget. "Circular A-119," 2017. Available at <https://www.whitehouse.gov/wp-content/uploads/2017/11/Circular-119-1.pdf>.

^{vii} Office of Management & Budget. "Circular No. A-119, Revised," February 10, 1998. Available at <https://www.whitehouse.gov/wp-content/uploads/2017/11/Circular-119-1.pdf>.

^{viii} Office of Management & Budget. "Capital Programming Guide, Planning, Budgeting and Acquisition of Capital Assets, Supplement to OMB Circular A-11," 2017. Available at https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/assets/a11_current_year/a11_2017/capital_programming_guide.pdf.

federal policy and widely accepted standards. The coordinated management of the items in a portfolio should enhance executive decision making and help ensure programs and projects contribute to an agency's ability to achieve strategic goals and objectives."

- **GPRA Modernization Act of 2010 (Public Law 111-352)** modernized the government's performance management framework. It requires that agency leaders "set clear, ambitious goals for a limited number of outcome-focused and management priorities; measure, analyze, and communicate performance information to identify successful practices to spread and problematic practices to prevent or correct; and frequently conduct in-depth performance reviews to drive progress on their priorities. The Act emphasizes the use of goals and measures to improve outcomes . . . and requires agencies to report performance against those goals . . ."ix
- **The Federal Information Technology Acquisition Reform Act (FITARA, Public Law 113-291)**x has various capability-building components. It more clearly established the roles and responsibilities of chief information officers (CIOs) within agencies along with accountability for the agency's IT cost, schedule, performance, and security. It required establishment of management practices aligning IT resources with agency missions, goals, programmatic priorities, and statutory requirements. It mandated an inclusive governance process for enabling effective planning, programming, budgeting, and execution for IT resources. It standardized terms and requirements related to the new law. A FITARA scorecard is issued to Congress every year that grades how agencies are complying with the law.
- **The President's Management Agenda (PMA)**xi released in March 2018 recognizes that the way in which the federal government delivers value to citizens must incorporate adaptability and resilience in order for government to truly transform. The PMA specifically calls out the need for effective portfolio, program, and project management in two of its Cross-Agency Priority Goals (CAP Goals). "CAP Goal 8: Results-Oriented Accountability for Grants" requires agencies to apply a risk-based, data-driven framework that places greater emphasis on achieving and reporting program results than on compliance. To support this goal, agencies must implement a maturity model aimed at better balancing program results, financial management, and oversight. "CAP Goal 11: Improvement of Major Acquisitions" requires most federal agencies to build capabilities to successfully deliver transformational program goals. It includes the piloting of a program management dashboard across government.

In this mix, PMIAA could easily be mistaken for just another requirement that agencies need to meet. However, PMIAA actually represents the missing foundation that ensures all of the laws and guidance above have the capabilities needed to deliver the desired benefits. PMIAA does not add new requirements, but rather focuses on strengthening and adapting each agency's project and program execution capabilities as complexity, ambiguity, and change continue to make execution and realizing intended benefits much more challenging.

ix Office of Management & Budget. "Memorandum M-11-17: Delivering on the Accountable Government Initiative and Implementing the GPRA Modernization Act of 2010," April 14, 2011. Available at <https://obamawhitehouse.archives.gov/sites/default/files/omb/memoranda/2011/m11-17.pdf>.

x Office of Management & Budget. "Memorandum M-15-14: Management and Oversight of Federal Information Technology," June 10, 2015. Available at <https://management.cio.gov/implementation/#OMB-Memorandum-M-15-14>.

xi Office of Management & Budget. "The President's Management Agenda," March 20, 2018. Available at <https://www.whitehouse.gov/wp-content/uploads/2018/03/Presidents-Management-Agenda.pdf>.

Capability	Requirements	Law/Regulation
Alignment of initiatives with agency strategic objectives	Strategic planning policy that includes strategic objectives; goals which drive improvements in capital assets; assessments of the existing portfolio; performance gaps and capability necessary to bridge it; and justification for new acquisitions proposed for funding	OMB's Circular No. A-11
Executive-enabled portfolio management	Annual reviews of federal IT portfolios by agency CIOs	OMB Memorandum M-12-10 based on requirements in the GPRA Modernization Act of 2010, Public Law 111-352
Aligned portfolio, program, and project management	Application of portfolio and program management practices, particularly executive oversight and risk management, with regard to federal IT acquisition	OMB Memorandum M-12-10 based on requirements in the Federal Information Technology Acquisition Reform Act (FITARA), Title VIII, Subtitle D of the National Defense Authorization Act (NOAA) for Fiscal Year 2015, Public Law 113-291
Program/project capabilities	Use of integrated program and project teams for delivery of capital initiatives and assets	Appendix 2 of the Capital Planning Guide, Supplement to OMB A-11
Performance management capabilities	Requirements for performance management tasks such as setting strategic goals, measuring results, reporting progress, and conducting gap analyses	Government Performance and Results Act (GPRA) and the GPRA Modernization Act of 2010
Use of industry standards	Policies encouraging use of voluntary consensus standards versus government-unique standards	OMB Circular A-119

Table 1. Legally mandated mission-delivery capabilities and requirements.

PMIAA may be one of the more recently enacted reforms for federal management, but the skills and competencies are not new to government. PMIAA elevates policies that are successful and establishes a consistent framework of expectations and human capital priorities. In most enterprise applications, reforms encompassed in PMIAA are typically the foundation of an organization's transformation and performance management strategy. However, in this case, other policies were established and codified first.

OMB's PMIAA implementation guidance aims to integrate the laws into a more comprehensive mission-delivery system as illustrated in Table 1. That system links policies, guidance, and requirements tied to improving government performance management.

OMB guidance implementing PMIAA further builds on these requirements by ensuring there is a senior responsible official who must ensure each agency meets its PMIAA obligations as highlighted in Table 2.

Capability	Responsible Party
Adoption of program and project management across agencies to drive improvements in program performance and efficiency	Program Management Policy Council (PMPC)
Program and project management competencies connected to a job series/identifier	Office of Personnel Management, Office of Management and Budget, PMPC
Implementation plan to ensure agency has documented strategy for enhancing agency program and project management policies	Program management improvement officer (PMIO) designated by each agency
Improved view of major agency acquisitions with clear links to strategic objectives	PMIO
Methodology for non-IT major agency acquisition reviews with OMB (expansion of FITARA to non-IT programs/projects)	PMIO
Core program and project management capabilities for each agency with alignment to external standards where appropriate	PMIO

Table 2. PMIAA roles and requirements.

With these enhancements, each government agency can now better enable:

- A mission-delivery system tailored to its needs and aligned with best practices
- Programs and projects clearly aligned to the agency's strategic objectives
- Activities and investments continually prioritized to advance the agency's objectives
- Strongly integrated program and project teams
- Regular program and project performance reporting with periodic reviews and adjustments
- Staff accountable for results at all levels—including executives

Building the Organizational Project Management Capability System

This section aims to help agency PMIOs envision how an effective organizational project management capability system functions. This “desired future state” vision will help PMIOs ensure their agencies design the right plan for the specific capabilities their agencies need. Using a building as a metaphor, this section highlights the good practices, key considerations, and rules that should shape each agency’s organizational project management-capability system plan. This vision also highlights the influencers of a solid capability system plan.

This vision emphasizes the need for clear traceability from the agency’s defined strategies all the way down to its operational activities. Appendix C provides greater detail on the key activities and connection points among strategy, portfolios, programs, projects, operations, and performance management.

Building Code

Under the leadership of OMB, U.S. government agencies utilize the strategy and planning system outlined in Table 1. The enhanced strategy and planning system establishes stronger linkages between existing laws and OMB requirements for agencies instead of creating additional bureaucracy and administrative burdens. These stronger linkages ensure that agency strategy is clearly defined; intended outcomes provide public value; and strategy links with forecast budget needs. The strategies and forecasts provide a long-term investment view to help congressional and administration staff allocate funds to ongoing activities while ensuring that funding is available for emergent issues and opportunities.

Foundation

PMIAA envisions that each government agency has a clearly articulated strategy to drive its mission and related strategic goals, objectives, and performance outcomes. The agency’s strategic goals and objectives initiate one or more portfolios, each of which has specific business value objectives and performance outcomes it is designated to achieve. Each year, agency leaders review the agency’s portfolio for progress and relevance against current strategic objectives.

Floor Plans

The needed organizational project management capabilities are different for each agency. Still, each agency uses a similar assessment approach for identifying and building needed capabilities. Agencies that have mature value-delivery methods have used organizational project management to integrate portfolio, program, and project management to achieve strategic objectives. Organizational project management supports the appropriate balance of knowledge, processes, people, and supportive tools across all functional areas of the organization.^{xii}

^{xii} Project Management Institute. *The Standard for Organizational Project Management (OPM)*, Newtown Square, PA: Author, 2018.

Agency Portfolio Management

What bridges the gap between strategy/strategic initiatives and program/project execution is portfolio management. Portfolio management establishes related programs, projects, and other related work to drive specific strategic business objectives. In the government context, a portfolio could represent new weapons systems capabilities for the U.S. Army; or improvements in application intake, review, and adjudication systems and processes along with interpersonal skills training within the Social Security Administration. Portfolio management provides the necessary business view for agency executives to ensure that the programs and projects being executed align with the agency's current strategy. Portfolio management enables senior leaders to make the most informed decisions for prioritization, alignment, overall risk, and resourcing of key initiatives.

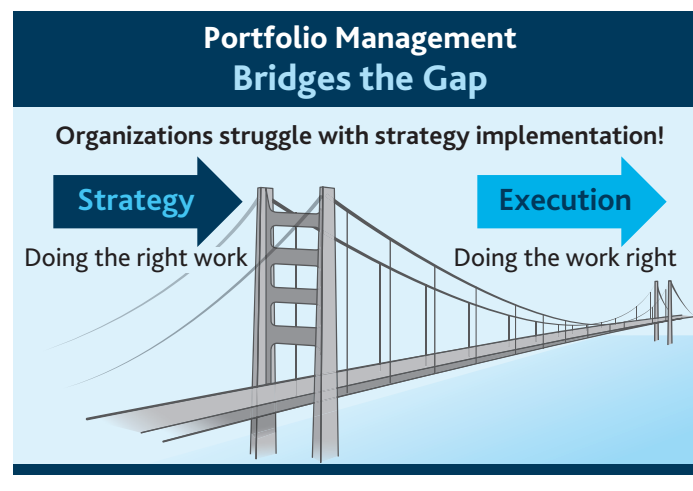


Figure 2. Portfolio management bridges strategy and execution.

Agencies govern their portfolio management activities based on core principles, such as:

1. **Objectives clearly align with advancing the agency mission** – Each agency's portfolio has clear links to the agency's strategic objectives with solid measures that show how well the agency is advancing those objectives through the investment of its budgeted funds.
2. **Clear leadership commitment and accountability** – Each agency's strategic portfolio has an executive who is accountable for the success of that portfolio. Portfolio outcomes align with agency and executive performance goals to ensure senior management commitment and accountability and linkage to delivery team objectives.
3. **Right-sized governance and oversight** – Agencies establish governance and oversight of portfolios and their component programs and projects with explicit roles and processes. Those roles and processes are defined up front and focus on delivery of full value within defined timelines.
4. **Transparency on what matters** – Agencies establish systems to ensure consistent monitoring and tracking with standardized, exception-based reporting. This activity provides early identification and mitigation of risk related to portfolio performance targets and helps to ensure that the most urgent risks cascade upward for senior management attention and timely resolution.
5. **Forward-looking course corrections and change management** – Leadership has real-time insight into initiative performance with indications of success or challenges. This foresight enables leaders to reallocate resources and support as needed to prevent problems, rather than waiting for problems to surface and then fixing them.

Several agencies with large portfolios or mission-critical initiatives have established structures, such as an Enterprise Portfolio Management Office (EPMO), to ensure high-level oversight of their strategic portfolios and engagement with executive leadership to realize strategic objectives. These EPMOs provide oversight and support by, for example:

- Establishing systems to ensure the portfolio is delivering the intended value and aligns with strategy;
- Ensuring responses to emerging administration and congressional direction, forces, or dynamics;
- Supporting the integration of related activities across the agency;
- Defining priorities and reviewing agency work capacity and skills to effectively deliver desired outcomes;
- Monitoring risks and variances to schedule, cost, and results so needed course corrections are made; and
- Regularly facilitating discussions on the status, issues, risks, and opportunities related to initiatives with the agency's executive leadership.

In Actual Practice: Developing a Project Management Office in the Department of Energy, Energy Information Administration

The U.S. Energy Information Administration (EIA) is a federal statistical agency within the Department of Energy that collects, analyzes, and disseminates independent and impartial energy information to promote sound policymaking, efficient markets, and public understanding of energy and its interaction with the economy and the environment.

A major reorganization in 2010 created new teams around functions and divisions of the energy sector within EIA. The reorganization also uncovered the need for increased matrixed project coordination. EIA's leadership considered establishing a project management office (PMO) to develop, implement, and enforce a more rigorous project management governance framework to bring discipline and performance consistency to EIA projects and programs. Although this initial attempt to find the right solution did not achieve sustained success, this effort revealed that change management was also critical in developing project management maturity.

In 2015, an internal review identified shortfalls in IT project planning and performance. Large projects often exceeded budgets and were not being managed in a structured manner. Part of EIA's management response was to establish a PMO. This finding drove the impetus for change, resulting in a formal charter to create the PMO. EIA staff faced a significant challenge with identifying a suitable PMO framework that would fit the organization's strategic need. Recognizing the path forward as an evolutionary journey rather than a one-step implementation, EIA staff needed a pathway that defined the implementation steps and quantified the sustainment of transformational change. Such a framework would also help with:

1. Setting goals;
2. Managing stakeholder expectations regarding the amount of change; and
3. Quantifying the progress made.

EIA staff also understood they needed to tailor the approach to EIA's needs and objectives. Authorized in April 2016, EIA's PMO provides project governance, resources, and communication processes. These processes help EIA senior leadership manage key IT and strategic projects and institutionalize a project management culture. The PMO establishes portfolio governance processes based on industry best practices and federal government/DOE standards. It supports EIA project managers by developing tools and templates for managing all phases of a project's life cycle. It provides comprehensive training and development capabilities. Most importantly, it monitors and reports on the most strategic projects for EIA senior leadership.

EIA PMO focuses on three pillars of service delivery:

- Portfolio governance;
- Training and development; and
- Guidance and resources.

Portfolio governance provides oversight and control of the organization's project and program governance framework. Some key services include:

- Ongoing portfolio reviews of strategic projects for EIA senior leadership;
- Increased visibility of project performance to raise situational awareness and strengthen decision making;
- Improved business line support for project teams;
- Support for the EIA IT Governance Board;
- Standard processes to support successful project outcomes; and
- Alignment with Department of Energy and federal mandates.

The PMO's training and development activities provide an in-house resource offering developmental support to EIA project managers. This pillar delivers an effective mixture of training-delivery methods to address the diverse learning needs and levels of competency across the organization. Some of the PMO training and development activities include:

- Hosting the EIA Project Management Community of Practice (CoP) for collaboration and networking;
- Promoting training, new methodologies, and industry best practices to achieve optimal project performance;
- Serving as a resource for candidates for the Federal Acquisition Certification (FAC-P/PM) and PMI Project Management Professional (PMP)® certification;
- Mentoring and coaching; and
- Supporting project management career paths and competency development within EIA.

Aligned with the guidance and resources pillar, the PMO provides templates and tools required for managing the organization's projects and programs. It also provides subject matter expertise regarding project management topics, such as project performance baseline management and risk management.

From its outset, the PMO established metrics to track value delivery. In FY 2016, the PMO established a baseline of seven metrics to monitor growth in project management practices and skill sets. The PMO tabulated the results of these quantitative metrics each quarter in FY 2017 and FY 2018. It also added new metrics along the way.

Although only a few projects have been completed since the PMO was established, EIA is experiencing a more effective portfolio-selection process with a more realistic understanding of its capabilities. One noticeable difference is that EIA projects are applying more rigor to project management to improve the quality of project outputs and reduce post-project rework. Furthermore, following a recent portfolio review, the PMO is adding program management capabilities to its responsibilities and scope, and is implementing a process for standard stage gate reviews along the project life cycle.

See the more in-depth case study on *Developing a Project Management Office in the Department of Energy, Energy Information Administration: Supplement to the Report, PMIAA: Strengthening the Government Delivery Foundation*.

Agency Program and Project Management

Portfolios charter specific programs to deliver agency outcomes so that there is a direct linkage with strategy, investment, and outcomes. Programs effectively realize and sustain intended benefits, such as maintaining military superiority, reducing administrative costs, or producing shorter response times following natural disasters. Benefits link to desired strategic outcomes within the chartering portfolio. Each outcome has defined performance measures that are regularly monitored, reported, reviewed, and refined over the program's life cycle. Realization of the program benefits, in turn, contributes to value realization at the portfolio level through specific measures linked to advancing the agency's mission. Benefits also have to be realized by their stakeholders. Success and delivery metrics are important—and achieving a cost or schedule outcome is a laudable outcome—but success must also align with the program's statutory objectives and with the agency's strategic plan and performance goals.

Government programs often have factors that create ambiguity, uncertainty, and/or complexity, such as development of new technologies, a complex web of stakeholders with competing interests, and teams comprised of government staff and staff from contracted third parties. While each agency has standardized elements of its program management practices, program managers and their teams have authority to tailor their approaches to the unique characteristics of the program. So large programs with multiple contributors, a large number of interfaces, unstable technologies or requirements, etc., can design the best approach for delivering the desired solution. Further, programs often exist over a sustained period of time and must continue to meet changing stakeholder demands throughout the program life cycle.

GAO-Recognized Leading Practices: Effective Management Is Essential for Successful Major Acquisitions^{xiii}

In October 2011, GAO released a study showing critical factors common to seven successful, major IT-acquisition programs. These programs achieved their respective cost, schedule, scope, and performance goals. GAO found nine common success factors among these programs that reflect capabilities associated with effective program management, including:

- Senior department and agency executives supported the programs.
- Program officials were actively engaged with stakeholders.
- Program staff had the necessary knowledge and skills.
- End users and other stakeholders were involved in the development of requirements.
- End users participated in testing of system functionality prior to formal end-user acceptance testing.
- Government and contractor staff were stable and consistent.
- Program staff prioritized requirements.
- Program officials maintained regular communication with the prime contractor.
- Programs received sufficient funding.

Programs charter component projects that deliver specific outputs, benefits, or results required by the program. In the case of an aircraft-acquisition initiative, for example, individual projects deliver the aircraft parts—wings, fuselage, tail, etc.—that are then assembled into a functioning aircraft at the program level. Each project chartered by a program has its own clearly identified milestones, interdependencies, risks, and traceable linkages to outcome performance impacts and indicators.

Project teams tailor their approaches for delivering results to the unique characteristics of the specific project. Some project teams use more traditional/waterfall project management practices, particularly when project requirements are fairly stable and risks are known and manageable. Where requirements are likely to change, or the customer cannot define detailed requirements up front, teams may use agile/iterative approaches to work with the customer to develop a prototype. Once approved, the prototype shifts into a traditional/waterfall process for final development. Teams use a range of agile approaches for delivering projects and programs requiring continuous development and delivery, particularly those related to new technologies or software. Regardless of the management approach used, agency culture and practices are more flexible in supporting multiple approaches. Agencies apply tailoring tools to help teams customize the project approach coupled with core business principles within which teams must adhere. These more flexible approaches ensure that rigor and controls apply appropriately where needed while giving teams greater adaptability and agility. This approach also allows for faster adoption and use of new and emerging approaches for project delivery based on the project's characteristics and needs.

^{xiii} Government Accountability Office. "Information Technology: Critical Factors Underlying Successful Major Acquisitions, GAO-12-7," October 2011.

Agencies govern their program and project management activities based on a set of core principles, such as:

1. **Highly engaged executive leadership** – Executive leaders are the vital link between the organization's strategy and the program. As such, they are accountable for successful project and program delivery as reflected in their individual performance objectives. Executive sponsors of programs must embed a culture that is focused on adding value. This encourages innovative approaches to achieve greater benefits and cost leverage. Additionally, executive sponsors must effectively lead transformational change and ensure the definition, delivery, adoption, and quality of an enabling and sustainable future state.
2. **Clear vision and objectives** – Executive and program/project leadership ensure their teams are guided by a clear vision that defines the desired operational outcomes, strategic objectives, and benefits. The vision defines why the program exists and becomes the foundation for requirements development of the enabling projects that build the future state.
3. **Clearly defined roles, responsibilities, and authority** – Programs and projects can include a broad range of roles from various disciplines. Team member roles are clearly defined, and this information is shared across the program organization. Project and program leadership establish team structures in which decision making is pushed to the lowest-possible level, along with the requisite authority, expertise, and accountability.
4. **Integrated planning and execution** – Government requirements reflect the critical importance of early and integrated planning, and project and program teams have the resources and expertise necessary for effective planning from the outset. Executive leadership certifies that their team's planning effort was comprehensive, duly diligent, and incorporated required expertise that includes both the technical as well as operational or user aspects of the solution. The operational expertise is highly valuable in validating requirements as well as planning the transition, adoption, and sustainment of the new capabilities, outcomes, and benefits.
5. **Tailored approach** – Program and project teams have guidelines and support for tailoring their management approaches to the unique characteristics of the program/project. Governance applies oversight and process rigor in a commensurate manner.
6. **Transparency and access to information and communication channels** – In support of every team member understanding the project/program vision and objectives, all team members have access to information and communication channels. This approach eliminates blind spots; enables trade-offs and problem solving; and supports more real-time conversation and decisions.

In Actual Practice: Department of Veterans Affairs Realizes Benefits through Improved Healthcare for Veterans¹

Hurricane Katrina decimated thousands of buildings in New Orleans, Louisiana, USA, in 2005, including a U.S. Department of Veterans Affairs (VA) medical facility that served approximately 40,000 military families. The hospital, also where world-class research was conducted and more than 500 medical students were training to become physicians, suffered so much damage that it had to be replaced.

In 2006, the U.S. Congress authorized funding for a new 1.6-million-square-foot (148,645-squaremeter) regional referral center. Dubbed “Project Legacy,” the 10-year, US\$1 billion project delivered an eight-building, 30-acre (12.1-hectare) campus in the heart of New Orleans. In a city submerged and beleaguered by a deadly storm, rebuilding a critical healthcare center became a symbol of recovery.

But the pressure to complete a sprawling, state-of-the-art healthcare institution on schedule and on budget was immense. A wary government sponsor allowed no margin for error. The Government Accountability Office (GAO) demanded strict requirements designed to ensure the project team remained careful stewards of taxpayer funds. And a weary community—including healthcare facility patients and staff—needed assurances that the project would expand services and improve access to care. That meant the team had to maintain a sharp focus on managing risk, scope, and stakeholders.

For instance, changes to the scope could be made only if they were necessary to deliver better patient care. The strict change controls were part of a broader risk management approach that was integrated throughout project coordination. Following the GAO’s feedback, project managers identified initial project risks based on lessons learned from previous projects, as well as the VA’s national activation office lessons-learned database. Among the key risks the team identified were the need to align hiring and training of new staff with project completion, a lack of effective procurement strategies for materials and equipment, and poor stakeholder communication and responsiveness. The team brought planning specialists into the process from the outset of the design phase. Better planning up front ensured the team set realistic timeline goals and helped foster a culture committed to good communication and problem solving.

Patient and staff feedback drove many practical design changes, such as placing mirrors at levels that were easier to access for patients in wheelchairs and adding bathrooms in the parking garage. Staff feedback led the team to design all patient rooms with identical features—such as placement of staff sinks—to make operations more uniform and efficient. The team also sought feedback on aesthetic decisions, including paint color, furniture, and curtain patterns. For example, the team learned to avoid using curtains that were the same color as sand or had patterns similar to barbed wire, because patients might negatively associate those elements with their service in the Gulf War in the early 1990s that was waged primarily in desert areas.

¹This case study is based on the article, “2018 PMI® PROJECT OF THE YEAR WINNER, Full Recovery: A team rebuilt a hospital for military veterans—restoring healthcare and order for a battered city” by Sarah Fister Gale and published in the November 2018 *PM Network*® magazine. The Veterans Affairs Administration is now partnering with the United States Army Corps of Engineers (USACE) on building construction projects since such projects are within USACE’s core competencies.

Although the team couldn't prevent future disasters, it was focused on mitigating the impact of hurricanes—and considered those risks with every design decision. From the outset, the project team leveraged lessons learned from Katrina and other storms to meet one goal: Make the hospital one of the most hurricane-resistant medical facilities in the nation.

Proactive resource management was necessary to help prepare for a seamless transition to operations—and mitigate the risk of potential staffing gaps when the hospital opened. With many positions in high demand in the healthcare industry, the hospital wanted to ensure hiring efforts aligned with project progress.

The project managers assisted the staffing team with making sure that the team realized what deadlines were coming up. And if issues arose that might delay their ability to begin training or onboarding, the project team kept the hospital hiring team in the loop. The project team's input on hiring triggered timelines for other critical elements, including acquisition and delivery of equipment, and creating and approving policies that would govern talent once the facilities were opened.

Despite significant obstacles, the three phases of the project were delivered on time between December 2016 and August 2018, and the entire project came in roughly 14 percent under budget. The hospital now offers more than 65 clinical, ancillary, administrative, and support services 24 hours a day, seven days a week. In its first 18 months, the facility completed more than 500,000 outpatient appointments and more than 1,000 surgical procedures and delivered roughly 10,000 days of inpatient care.

See the more-in-depth case study on the *Department of Veterans Affairs Realizes Benefits through Improved Healthcare for Veterans: Supplement to the Report, PMIAA: Strengthening the Government Delivery Foundation*.

Leaders in Change

Across government, agency leaders should realize that achieving strategy does not just happen. This is why PMIAA established a Program Management Policy Council (PMPC) and program management improvement officers (PMIOs). The PMPC and PMIOs must hold themselves accountable for building and sustaining the agency's management of portfolios of programs and projects and enabling good practice through organizational supporting mechanisms. Each agency PMIO is in a position to ensure the agency's senior leaders create an environment that aligns individual performance with strategic objectives. There is a need to ensure leaders of an agency, department, portfolio, or program engage as champions to drive strategy. The PMPC is in place to support PMIOs in becoming more effective as sponsors, decision makers, and leaders so they can confront the challenges impacting agency initiatives. To improve executive visibility and engagement, PMIOs should participate in regular performance reviews of key initiatives so they better understand the risks, issues, and challenges that their teams experience in delivering the initiatives. The reviews highlight organizational issues, expedite executive-level decisions, and serve as a mechanism for early interventions to remove or mitigate risks and roadblocks. For example, within the Department of Defense, leaders have made some key changes, including pushing decision-making authority to portfolio leaders to enable the same attributes—highlighting organizational issues; expediting executive-level decisions; and serving as a mechanism for early interventions to remove or mitigate risks and roadblocks.

Agency leaders also recognize that they must help to cultivate and support recruitment, retention, and development of staff with program and project management skills. These efforts align with project and program management job classifications and competencies established by the Office of Personnel Management, OMB, and the PMPC. Within their agencies, leaders establish and oversee such activities as project management training for emerging leaders and adoption and promulgation of best practices and standards, such as PMI standards and certifications, etc. In addition to government staff, agency leaders also augment their project and program capabilities using contracted resources with proven experience. In several instances during the capability-building phase, contractors support development and start-up with a hand-off to agency personnel to ensure effective transition of new project management capabilities into the agency. This approach contributes to a more timely realization of the execution of projects while developing a sustainable project management capability within the agencies for future projects.

As it gathers twice a year, the PMPC members see the diversity in program and project management approaches across agencies. The meetings enable PMIOs to network and share vital experiences across all federal agencies. Evidence of culture change will be highly visible across the federal government when:

- Congressional appropriators more clearly see connections between budget requests and agency strategic initiatives
- Political appointees and senior executive service-level staff have performance objectives linked to execution of agency strategies, portfolio performance, and program/project delivery
- Job roles and career paths for program and project managers more closely mirror those in the private sector and agencies have greatly reduced their dependence on contracted program and project management services
- Agencies have publicly accessible portfolio dashboards showing performance of agency projects and programs and direct linkages to agency mission and strategy
- The Federal Program and Project Management Community of Practice has funding and executive support from the PMPC. This support better enables the community's mission to advance organizational project management best practices across government; to be the cross-agency collaborative catalyst for a silo-busting shift in culture; and to demonstrate the organic demand for program management workforce planning, career pathing, and development.

In Actual Practice: Federal Project and Program Management Community of Practice (FedPM CoP) — How Sharing Best Practices Can Lead to Success

In 2013, Scott Hine and Christie Rewey, both from the Project Management Coordination Office for the Department of Energy's Office of Energy Efficiency and Renewable Energy, identified the need for a government-wide project management community of practice (CoP) that might help their agency and others share experiences, practices, and data from the wealth of knowledge that exists across government. In a parallel initiative (and unknown by Hine and Rewey), Fawn Freeman, at the Environmental Protection Agency (EPA), was developing a community of practice designed to accomplish many of the same goals. In 2015, Hine, Rewey, and Freeman joined efforts to advance the Federal Project Management Community of Practice (FedPM CoP). These leaders significantly expanded upon the original infrastructure and mission—including the widening of the CoP's scope to include program management as well—while carrying on the core principles that originally led to the community's founding.

The CoP's founding principle reflects that program and project managers all work for taxpayer-funded organizations with a common goal—the improvement of society and continuity of services. To do this, project and program managers need an avenue for sharing information with each other across organizational boundaries to avoid having to recreate existing materials and relearn the lessons of others.

The FedPM CoP did not form as part of a directive and it does not have sponsorship funding or even a budget. Rather, the FedPM CoP formed (and continues to grow) organically, with staff performing all tasks as duties collateral to their federal jobs. There is no specific executive-level direction pointing toward a desired future state. So the FedPM CoP leadership needs to establish a vision that describes the targeted future state of the CoP, as well as what they expected to accomplish when they got there.

In implementing the CoP, the first task was to attract and engage enough members to generate meaningful outputs. Prospective members needed a reason to join, and, to accomplish this, the FedPM CoP leadership conducted surveys to identify knowledge areas of relevance and interest to the community. Once identified, topics were grouped into common areas of knowledge. Working groups then formed and aligned their efforts to activities targeted toward knowledge sharing, solutions, and recommendations for addressing problem areas identified by community members. The leaders hoped that the working groups' outputs would not only serve the CoP members' interests, but also improve project and program performance across the government.

Experts from within and outside of government have spoken and participated in FedPM CoP gatherings. These experts lend their knowledge and real-world experiences to further develop the topic areas and assist the working groups. Collaboration with the FAI and external organizations, such as Project Management Institute, leveraged the knowledge, experience, and resources of these important partners. The ongoing development of the CoP website on the OMB MAX.gov platform supports information sharing and serves as a resource repository. To facilitate communication and sharing of practices, the CoP leadership set up quarterly CoP-wide meetings, monthly working group meetings, periodic in-person networking events, online discussion boards, and a speaker series.

Interest in the community has grown rapidly, expanding outreach and attaining 200 members from 35 organizations in 2015. Today, nearly 900 members from over 80 organizations actively engage and participate.

The foresight and thought leadership of the FedPM CoP was recently affirmed as providing a valuable resource to the federal project management community. OMB's PMIAA implementation guidance not only provides support for a federal project/program management community of practice, it establishes a mandate and includes the chair of the FedPM CoP on the new interagency Program Management Policy Council.

See the more-in-depth case study *Federal Project and Program Management Community of Practice (FedPM CoP) — How Sharing Best Practices Can Lead to Success: Supplement to the Report, PMIAA: Strengthening the Government Delivery Foundation*.

Constructing and Sustaining the Organizational Project Management Capability System

For many federal agencies, building and sustaining organizational project management capabilities are not new endeavors prompted by PMIAA. Across government, there are extensive examples of new capability-building, capability-improvement, and capability-maturity efforts as demonstrated by some of the case studies in the previous section. In some instances, such as the Department of Energy EIA case, building, improvement, and maturity efforts are very deliberately planned and structured. That approach needs to be consistent across all federal agencies.

This section of the report provides a roadmap for building and improving organizational project management capabilities within federal agencies. The roadmap is based on a “start-where-you-are” framework in which each agency assesses and prioritizes the capabilities needed to drive performance of its projects and programs. As each agency operationalizes and sustains new capabilities, the roadmap iterates to focus on building the next level of capabilities. Building and sustaining capabilities is a lifelong organizational process just as learning new skills is a lifelong process for the workforce.

The Organizational Project Management Capability-Building Roadmap

The Organizational Project Management Capability-Building Roadmap in Figure 3 incorporates guidance from PMI on building organizational project management capabilities applied within the context of PMIAA. Agency leaders should start the improvement effort by identifying internal subject matter experts who can support the assessment and improvement efforts. This team identifies the agency’s current portfolio of programs and projects (see Table 3).

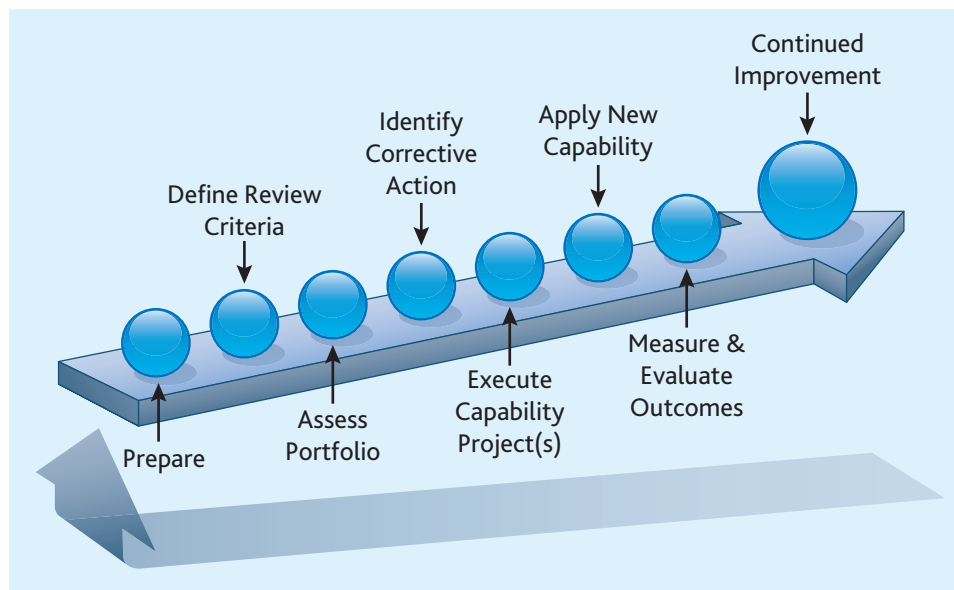


Figure 3. Organizational project management capability-building roadmap.

Prepare

Intent: Develop the improvement team and approach for assessing the portfolio. Identify subject matter experts in project, program, and portfolio management. Assess the organizational structure. Identify the agency's portfolio of programs and projects. Decide the scope of review for the portfolio.

Inputs: Internal experts. Information about the agency's portfolio of programs and projects.

Outputs: Identification of experts and plan for conducting the portfolio review.

Table 3. Organizational project management capability-building roadmap: Prepare.

Since PMIAA mandates that agencies examine the capabilities needed to deliver the agency's portfolio, the roadmap journey begins with an assessment. The assessment takes into account the range of programs and projects within the agency's strategic portfolio to determine which capabilities will help the agency effectively deliver its programs and projects. Agency leaders start by determining how to conduct the review as highlighted in Table 4, seeking to answer questions such as:

- Will the agency limit its portfolio review to its highest-risk initiatives?
- Will the agency look for core capabilities that are needed across the portfolio?

These questions help the leadership focus its initial evaluation. In 2008, OMB issued guidance for conducting acquisition assessments (see the OBM memorandum at https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/circulars/A123/a123_guidelines.pdf). The guidance provides a framework that may represent a useful starting point for PMIOs since many of the questions and capabilities are also relevant to PMIAA implementation. PMIOs can also use tools such as PMI's *The Standard for Organizational Project Management* to identify practices and behaviors that indicate level of process or capability maturity. The outcome of this first step is an agency-specific, fit-for-purpose framework to help leaders identify needed capabilities.

Define Portfolio Review Criteria

Intent: Develop a shared approach for reviewing and evaluating the agency portfolio, specifically exploring the project and program management capabilities necessary to effectively realize the portfolio value.

Inputs: Agency strategic plan, OMB A-11 Circular, GAO project/program audits, organizational policies, external standards for project/program management. The Federal Project/Program Community of Practice may have helpful tools and resources.

Outputs: Agency framework for its portfolio review incorporating an evaluation of project/program management capabilities.

Table 4. Organizational project management capability-building roadmap: Define portfolio review criteria.

Assess Portfolio

Intent: Use the agency framework to evaluate the portfolio with specific focus on projects/programs deemed high risk (e.g., on the GAO High-Risk List or considered high risk internally). The intent is to identify where agency-delivery capabilities may be stronger or weaker.

Inputs: Agency framework; targeted benefits and deliverables from project/program business cases; project/program status reports for performance data related to budget, schedule, changes, risks, stakeholders, benefits, etc.

Outputs: Assessment of each project/program in the portfolio; an overall understanding of the performance of each in core areas; and identification of capability weaknesses or gaps.

Table 5. Organizational project management capability-building roadmap: Assess portfolio.

With a framework for conducting the review, agency leaders shift to evaluating the performance of specific projects and programs in the portfolio as outlined in Table 5. This evaluation should yield insight into common issues or challenges. Key questions or issues that could be assessed include:

- Are projects showing cost or schedule slippage?
- Do executive sponsors appear to be disengaged from providing oversight and timely decisions?
- Are there multiple change orders expanding or contracting scope?

The assessment should use qualitative and quantitative data to help leaders identify capabilities that are missing or weak. It is also important to pay close attention to stakeholders who are individuals impacted by or have an interest in the outcome of the portfolio of programs and projects. Stakeholders could include agency staff, Congress, state officials, the media, etc.

Output from the assessment identifies gaps or weaknesses in the agency's capabilities. Agency leaders can use this information to determine where to prioritize efforts to build or strengthen capabilities as illustrated in Table 6. Key questions or issues that could be assessed include:

- Are there specific weaknesses that span multiple projects and programs?
- Which weaknesses indicate the most significant impact on performance?
- What insights might external sources provide to help prioritize improvements?
- Which internal roles can support prioritization?

This exercise should produce a list of specific capability priorities that represent the most critical gaps or weaknesses to be addressed.

Agencies could also consider additional quality control steps before data reaches agency leadership. For example, it may be useful to have a business analyst or process specialist analyze the data to identify trends indicating performance gaps. This additional assessment should cull key information from the analysis and present it in a business form to help agency leaders make decisions. The assessment can include

Identify Program/Project Performance Gaps

Intent: Identify common performance gaps across projects/programs as indicators of the need for new/improved capabilities, such as better risk management, stronger stakeholder engagement, improved cost estimating, etc. Consider staff skills and capabilities in line with job requirements, descriptions, and agency competencies.

Inputs: Portfolio assessment; best practice benchmarks from external standards and other sources; GAO audit recommendations. Consider engaging an internal business analyst/process specialist to support gap analysis.

Outputs: Defined and prioritized list of capabilities for development and/or improvement. For example, "The agency must improve use of proactive, iterative risk management through the project life cycle to reduce the number of issues that occur. This improvement entails. . . and evidence of improvement should show . . ."

Table 6. Organizational project management capability-building roadmap: Identify performance gaps.

initial recommendations on priority areas of focus as well as suggestions on how to approach building or enhancing the desired capability.

Armed with data from its internal review, agency leaders can start to have more informed conversations about capability, skills, and process challenges impacting performance across the agency's projects and programs. Leaders can use additional data from internal audits and GAO performance recommendations to further validate its internal review and to identify other performance needs that were not captured during that internal review. The data and discussions can support agency leaders' identification and prioritization of new capabilities or improvements needed by the agency as identified in Table 7.

Identify Corrective Action

Intent: Define requirements associated with the processes/capabilities needed to improve project/program performance, including staff skills and capabilities. Identify baseline metrics to be used to evaluate improvement over time.

Inputs: Highest priority list of new/improved capabilities; standards/principles to support establishment of baseline metrics; and evaluation of staff skills.

Outputs: Charter; scope and budget for capability-building project(s), which could include such activities as developing/improving processes, staff training and development, establishment of a project/program management office, etc.

Table 7. Organizational project management capability-building roadmap: Identify corrective action.

Execute Capability Project(s)

Intent: Execute chartered project to develop/improve prioritized capabilities.

Inputs: Project charter, scope and budget; staff and other resources necessary to successfully deliver the project; engaged executive sponsor or business owner to provide guidance and oversight.

Outputs: Processes, tools, templates, training and other resources necessary to incorporate the new/improved capability into project/program practices. Also a transition plan for implementing the new capability within the agency.

Table 8. Organizational project management capability-building roadmap: Execute capability project(s).

Knowing the gaps and having prioritized where to focus, agency leaders can charter staff teams to plan and execute actions to address the performance gaps as highlighted in Table 8. The charter should identify the scope of the undertaking with as much specificity as possible so that the team focuses on the most impactful range of activity improvements. Team deliverables might include such things as processes, training programs, software, or other tools and clarification of roles/responsibilities. However, the charter may be much more effective if it emphasizes outcomes versus deliverables. Deliverables, in and of themselves, have no value. Only when those deliverables are effectively applied is impact on the performance gaps demonstrated. That impact represents the outcome—“improved planning as demonstrated by . . .,” “better compliance with core project management practices through . . .,” etc. Focusing on the outcomes emphasizes that embedding the capability in everyday practice to impact performance is the key objective.

Charters should include two other key components. First, each team should have an executive sponsor to help guide them, make timely decisions, and be the champion for embedding the capability into business as usual. Without executive support, teams may successfully produce deliverables but not be in a position to ensure compliance to realize the outcomes. Second, charters convey authority, financial, and other resources to help teams achieve their goals.

Consistent with “start where you are” for the assessment, the principle of “don’t reinvent the wheel” should apply to building needed capabilities. Staff teams can tap into a broad range of existing support to accelerate their improvement efforts. The FedPM CoP and OMBMax lportal has several PMI consensus-based standards accessible by all staff with a .gov or .mil email address. Currently, at least 83 percent of CFO Act agencies are required to comply with PMIAA list information publicly on their websites displaying alignment to PMI standards in varying forms. These standards can help agencies enhance their capabilities in several ways (see Figure 4 for benefits associated with use of standards). First, agencies can use standards to evaluate alignment with good practices and use the standards to fill in any process-related gaps in practices or policies. Second, agencies can use standards to help identify skills or training that can help improve staff performance. Third, standards serve as a quality check to ensure the agency is doing the right things the right way to effectively deliver projects and programs. Finally, using standards will enable consistency and transparency.

What does that look like in action? As agencies and Congress continue to seek agility in government operations, standards serve as an excellent reference of good practice to help determine which policies

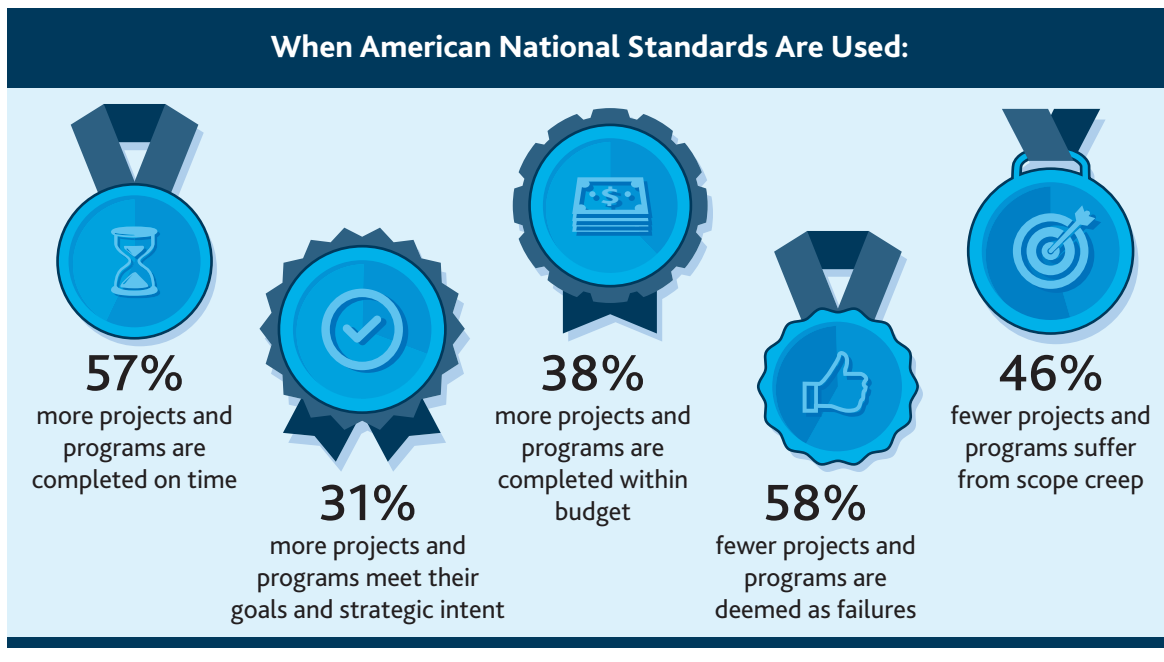


Figure 4. Benefits from use of standards. Adapted from the 2017 PMI *Pulse of the Profession*[®] report.²

and regulations may have aged out of alignment with current leading practice. Standards may also act as a guiding light of where to start a policy audit and improvement. They also play a key role in establishing a common framework and language that is recognized by both government and industry. Requirements, contracts, and integration of industry and government only improve when all parties have a common framework for planning, delivering, and executing.

The FedPM CoP, Federal Acquisition Institute, and other federal government support communities have tools, templates, guidelines, and other resources that can be readily tapped by agencies. Those communities also include subject matter experts who can share their capability-building experiences, lessons learned, and key risks to watch and manage. To the extent that staff teams can use existing resources or a knowledgeable network to accelerate their work, the teams should take full advantage of these easily accessible resources.

If projects entail more complex endeavors, such as standing up a new PMO, other federal agencies likely have models and subject matter experts that teams can tap for guidance. This report provides two case examples: Department of Energy and Department of Veterans Affairs. Many of the institutions identified previously also have models and frameworks that agency teams can adapt to meet their needs.

Once projects have delivered their results, those results can be applied to realize the desired capabilities as highlighted in Table 9. Embedding new ways of working requires processes, training, coaching, and other support to build skills, ensure proper application, and enable sustainment of the new capability. Thus, organizations

² Available at <https://www.pmi.org/learning/thought-leadership/pulse/pulse-of-the-profession-2017>.

Apply New Capability

Intent: Effectively implement and sustain the new capability utilizing effective change management approaches so the capability becomes a part of the agency's ways of working. Consider using pilots to release, evaluate, and adapt implementation to support successful transition.

Inputs: Plan for transitioning the capability into the operations of the agency with designated roles to support change management (e.g., change agents, practice integrators, etc.).

Outputs: Lessons learned from pilots; continuous improvement as capabilities become the way of working.

Table 9. Organizational project management capability-building roadmap: Apply new capability.

can benefit from a highly engaging change management process to help people transition from the current state to a future state. Change management also helps to ensure that once in the future state of performance, individuals do not go back to the "old ways of working." For example, as some project teams include agile practices and methods in their toolkits, the teams need training in how to use the tools properly, coaching to ensure that team behaviors align with agile values, and practice in using the methods until those methods become a part of how they operate. And with adoption of agile approaches, organizations often start adoption by piloting the use of new techniques with one or two teams before attempting to scale the practices across an entire unit or department. These pilots can provide learning and experience to help facilitate the spread of the new capabilities in a smooth fashion.

It is also important to baseline performance before starting to build the new capabilities and design metrics to track how performance changes over time as indicated in Table 10. Having reliable measures that show performance before and after new or enhanced capabilities are enabled will help the agency determine whether desired improvements are being realized and to take appropriate corrective action if needed. Designed properly, the measures can also be linked to quantifiable impacts on benefits and performance, such as reduced time to delivery, greater productivity, cost savings, and similar results.

Measure and Evaluate Outcomes

Intent: Demonstrate measurable improvements in project/program performance as a result of the new/improved capability by measuring and evaluating progress toward planned outcomes.

Inputs: Initial performance baseline metrics; from the capability project, planned outcomes associated with effective utilization of the new/improved capability.

Outputs: Performance targets; measuring and reporting systems; periodic review/evaluation/improvement sessions to ensure progress toward desired outcomes and to initiate corrective actions as needed to deliver the outcomes.

Table 10. Organizational project management capability-building roadmap: Measure and evaluate outcomes.

Continued Improvement

Intent: Ensure that new/improved capabilities are being sustained while going back to the Identify Corrective Action step with the next set of prioritized capabilities.

Inputs: Capability priority list; lessons learned from previous capability development/integration activities.

Outputs: None.

Table 11. Organizational project management capability-building roadmap: Continued improvement.

Improving performance is an iterative process as emphasized in Table 11. There is no final state of being done because once one specific capability improves, there are other capabilities that need to be developed or enhanced. It is also critical that continuous improvement remains part of the new ways of working because it can be extremely challenging to restart a mind-set oriented toward change if improvement occurs in fits and starts or does not stick as standard practice going forward.

GAO-Recognized Leading Practice: FEMA Utilized Effective Program Management to Improve Disaster Response^{xiv}

As part of its compliance with the Post-Katrina Act, the Federal Emergency Management Agency (FEMA) reviewed several of its programs and undertook efforts to improve its capabilities. In February 2016, GAO reviewed select FEMA initiatives to evaluate the impact of the agency's efforts and found FEMA had made significant progress toward improving its program management capabilities. Specifically, the GAO called out several areas where FEMA demonstrated alignment with best practices, such as:

- **Alignment between the program's goals and the program's mission:** FEMA outlined goals to achieve the mission with specific objectives, strategies, and performance measures to achieve the goals.
- **Communication and risk management:** For one program, FEMA established a senior-level advisory group to help teams troubleshoot issues and address risks. The group has enhanced communication, supported identification of risks and uncertainties, and helped to address issues before they negatively impact program performance.
- **Program execution:** To ensure consistent operations across its response task forces, FEMA developed an operations manual for task force activation, field operations, and demobilization. According to GAO, "This uniformity in management of the task forces promotes interoperability and reliability . . ."
- **Assessing performance:** FEMA utilized a variety of mechanisms for evaluating and improving performance, including readiness evaluations, after action reports, and large-scale training exercises.

At the time of the report, FEMA was continuing to improve program performance by developing approaches for replacement of critical equipment; developing workforce plans; and ensuring compliance with assessment-reporting requirements.

^{xiv} Government Accountability Office. "Disaster Response: FEMA Has Made Progress Implementing Key Programs, But Opportunities for Improvement Exists, GAO-16-87," February 2016.

Six Key Considerations for Constructing and Sustaining Capabilities

In addition to the Organizational Project Management Capability-Building Roadmap, there are six key considerations for building, improving, and maturing an agency's organizational project management capabilities. These considerations are vitally important in helping to identify needed capabilities; build and incorporate them into operations; sustain and mature the capabilities; and ensure that the capabilities produce the desired outcomes. They include:

- Leadership
- Organizational change management and culture
- Staff skills and development
- An adaptive framework for value delivery
- Knowledge transfer
- Focus on outcomes and benefits

Leadership: At the December 2018 FITARA Scorecard hearing, *FEDSCOOP* reported that Acting Health & Human Services CIO Ed Simcox emphasized that simply complying with the actions required by law or regulation is insufficient to build and sustain capabilities. Agency culture must embrace change and new ways of working. Mr. Simcox reportedly said, "FITARA is both a law and a lifestyle . . . it was our ability to institutionalize the FITARA framework inside of HHS and instill it in the culture at HHS and change the DNA—not only within our IT staff . . . but also in our leadership, getting a common dialogue and a common set of terminology that's understood."^{xv} This important lesson learned from FITARA's implementation may be useful to PMIOs and other agency leaders as they focus on PMIAA implementation. PMI's foundational concepts for OPM align with and support Mr. Simcox's approach.

In the 1992 book *Managing at the Speed of Change*, Daryl Conner listed six characteristics that are important to strong executive leadership:

- **Vision:** A clear definition of what change must occur
- **Public role:** The ability and willingness to demonstrate the public support necessary to convey strong organizational commitment to the change
- **Private role:** The ability and willingness to meet privately with key individuals or groups to convey strong personal support for the change
- **Leverage:** The capability to engage and commit others to the change
- **Power:** The organizational power to legitimize the change with recipients
- **Sense of urgency:** The ability to continuously stress the need for change^{xvi}

PMIOs and agency executives need to be change leaders for PMIAA implementation and not managers. While managers focus on planning and short-term horizons, devise processes and structures, and solve problems, leaders establish direction for the future, communicate through vision, and forge aligned, high-performing teams. Leaders drive change while others enable or support change implementation.

^{xv} Mitchell, Billy. "4 Takeaways from the Latest FITARA Scorecard Hearing." *FEDSCOOP*, December 12, 2018. Available at <https://www.fedscoop.com/fitara-scorecard-hearing-four-takeaways/>.

^{xvi} Conner, Daryl R. *Managing at the Speed of Change: How Resilient Managers Succeed and Prosper Where Others Fail*. New York: Random House Publishing Group, 2006.

Leadership	Team
<ul style="list-style-type: none"> • Vision • Innovation • Power • Style • Risk taking 	<ul style="list-style-type: none"> • Values • Knowledge • Skills • Commitment • Motivation
Structure	Process
<ul style="list-style-type: none"> • Roles • Relationships • Systems • Enablers 	<ul style="list-style-type: none"> • Values • Principles • Adaptability • Controls • Constraints

Figure 5. Influence systems.

Leaders who understand their roles in driving change as well as how to leverage influence systems can more effectively build capacity and create a culture that is ready for change. Influence systems affect the degree to which change can be initiated and successfully sustained. Figure 5 shows how the four influence systems relate to four change management dimensions, all of which are highly interactive and interdependent. Changes made to any single influence system will often cause changes to occur in another.^{xvii}

- **Leadership influences systems.** When the change vision is clear, it helps ensure stability and build capacity. By bringing new problem-solving and idea-creation possibilities forward, leadership enables value-adding ideas. As all change involves confrontations with uncertainty, leaders who take prudent risks are better able to lead the change and mitigate threats or leverage opportunities with the highest potential impact.
- **Structure influences systems.** Leaders add, protect, enhance, or expand value to the organization. Interpersonal relationships can help expand capacity by leveraging formal and informal networks with common interests, shared values, and goals.
- **Process influences systems.** Planning is required to determine which factors are needed to achieve organizational goals before activity takes place. This involves making choices among strategic, production, and operational alternatives, along with preparation for action. Poor planning negates other capacity-building strategies; ideally, capacity is greatly enhanced when all plans are consistent, strongly integrated, well synchronized, and contribute to the successful attainment of collective goals, thereby increasing synergy within the portfolio of projects and the organization.
- **Team influences systems.** Leaders need to consider the values of individuals and groups within the organization. The collective skills, abilities, and performance of individuals and groups can be multiplied by technology, expanding organizational capacity, development, and motivation. Leaders' active concern for behaviors leads to greater commitment, improved perception, and reduced resistance to change.

^{xvii} Harrington, H. James. *Organizational Capacity for Change: Increasing Change Capacity and Avoiding Change Overload*. Newtown Square, PA: Project Management Institute, 2014.

How is all of this relevant to PMIAA implementation? Back in the early 1990s, Congress cancelled the A-12 fighter jet program with a major admonishment for the Department of Defense's poor acquisition management of the program. Soon after, the Super Hornet FA-18 E/F program kicked off, and Navy officials knew they had to deliver on this new program or jeopardize future funding. Navy leadership knew that their fundamental acquisition challenges were not based on processes, tools, or practices. The fundamental challenge was the human systems—leadership, team, and culture. For the FA-18 E/F program to succeed, the Navy changed its human systems.^{xviii} Applying the influence model to the FA-18 E/F program (see Figure 6) shows how change management applied to the human systems impacted program delivery.

NASA experienced similar fundamental changes following the Challenger and Columbia shuttle explosions. Post-disaster analyses demonstrated that NASA's siloed culture underpinned many of the contributing reasons for the disasters. Only after NASA undertook major cultural change did the agency experience a significant turnaround in its strategy-delivery capabilities.^{xix}

Leadership	Team
<ul style="list-style-type: none"> • The chief executives from industry and government joined forces to set up the right program culture. • Executives exhibited and demanded trust and openness from all program participants. • Executives chose team leads who had proven relationship-building skills. • Leaders were highly visible, accessible, and engaged. 	<ul style="list-style-type: none"> • Integrated program teams had accountability and authority to make decisions and trade-offs. • To combat early resistance to the change to functional power structures, change agents engaged their colleagues to help them adapt. • The entire team, not just the leadership, enforced the "one team" philosophy and ways of working.
Structure	Process
<ul style="list-style-type: none"> • Government engineering and management team members were colocated to improve communication and teaming. • Each government staff member had a contractor partner with whom they were assigned to collaborate, creating a true "one team" structure. • Integrated program teams created matrixed, multidisciplinary teams that better enabled problem resolution and decision making. 	<ul style="list-style-type: none"> • Integrated program teams aligned with the product architecture, focusing team efforts on results rather than functions. • Team members lived early risk identification and disclosure so problems could be resolved early. • Communication systems ensured everyone had access to real-time information and enabled direct communication across all program levels.

Figure 6. Influence systems reflected in the U.S. Navy's FA-18 E/F Super Hornet Jet program.

^{xviii} Rebentisch, Eric. (ed.). *Integrating Program Management and Systems Engineering: Methods, Tools, and Organizational Systems for Improving Performance*. Hoboken, NJ: Wiley, 2017.

^{xix} Ibid.

Organizational Change Management and Culture: *Managing Change in Organizations: A Practice Guide* defines change management in the organizational context:

Change management is a comprehensive, cyclic, and structured approach for transitioning individuals, groups, and organizations from a current state to a future state with intended business benefits. It helps organizations to integrate and align people, processes, structures, culture, and strategy. Successful organizations do not evolve randomly, but through purposeful and dynamic strategies that anticipate, influence, and respond effectively to emergent and shifting external trends, patterns, and events.^{xx}

Change originates from external sources through technological advances, demographic changes, and socioeconomic pressures. Change also originates from inside the organization, possibly as a management response to issues such as changing stakeholder needs, costs, human resources, or performance issues. Change may affect one area or the entire organization. Nevertheless, all change involves adopting new mind-sets, processes, policies, practices, and behavior. To manage a change successfully requires a structured approach as well as the ability to deal with emergent situations.

Organizational change affects and is affected by organizational culture. Culture is often defined as, “the way we do things around here.” Culture involves an explicit way of working (the formal systems and processes in place and how they operate) and a tacit level of operation (the informal and semiformal networks and other activities people employ to get things done and bypass, subvert, or seek to influence the more formal processes). Culture is the frame of reference that helps distinguish one group of people from another and establishes a unique set of formal and informal ground rules for opinions and behavior.

PMIAA implementation within each agency will require some level of both cultural and organizational change. In implementing FITARA, Acting Health & Human Services CIO Ed Simcox emphasized this point when he said HHS had to “institutionalize the FITARA framework inside of HHS and instill it in the culture at HHS.”^{xxi}

To be effective, PMIOs should consider adapting a similar playbook to Mr. Simcox’s approach. PMIOs can actively influence the culture to support change by:

- Assessing stakeholder support and/or resistance for the change and actively addressing any gaps,
- Ensuring clarity of vision and values among stakeholders about the change initiative,
- Creating understanding among the various stakeholder groups about their individual and inter-dependent roles in attaining the goal(s) of the change initiative, and
- Building strong alignment between stakeholder attitudes and strategic goals and objectives.

^{xx} Project Management Institute. *Managing Change in Organizations: A Practice Guide*. Newtown Square, PA: Author, 2013.

^{xxi} Mitchell, Billy. “4 Takeaways from the Latest FITARA Scorecard Hearing.” *FEDSCOOP*, December 12, 2018. Available at <https://www.fedscoop.com/fitara-scorecard-hearing-four-takeaways/>.

There is a broad range of change management models that PMIOs can reference to help them plan and manage change. All of the models have some elements in common:

- Identifying a process in which organizational leaders establish a reason and need for the change
- Incorporating the development of a vision or desired business result and movement from the current state to a future state
- Addressing the concept of changing or creating organizational processes to deliver change
- Emphasizing incremental progress by reinforcing and creating small improvements to encourage additional change
- Highlighting the importance of communications in order to gain support for the change and to encourage buy-in^{xxii}

Workforce Development: Effective delivery of projects and programs requires individuals with a broad range of skills and experiences in those domains. It also requires that organizations invest in acquiring, developing, and retaining strong project and program leaders.

Research by Project Management Institute and others have identified three critical skill sets needed for success: technical project management skills, leadership capabilities, and strategic and business management expertise.

- Technical project management skills include knowledge, skills, and behaviors related to specific domains of project, program, and portfolio management.
- Leadership capabilities encompass the knowledge, skills, and behaviors needed to guide, motivate, and/or direct others to achieve a goal.
- Business and strategic management expertise incorporate knowledge of and expertise in the industry/organization.

Skills and competencies are not static capabilities, particularly with technologies evolving to assume routine tasks, organizations restructuring how teams collaborate, and similar factors. Thus, individuals need to commit to lifelong learning, and organizations that want the best-performing teams—including government organizations—need to support ongoing staff training and development.

To effectively execute strategy, research indicates that the following activities are among the most effective for attracting, retaining, and making the best use of talent in the project and program management domains.^{xxiii}

- Supporting talent management from the executive level
- Creating a culture that encourages professional and personal development, including training, certifications, coaching/mentoring, etc.
- Classifying projects/programs and identifying the competencies, skills, and behaviors necessary for success
- Instituting lessons learned
- Having a defined career path for project and program management practitioners

^{xxii} Project Management Institute. *Managing Change in Organizations: A Practice Guide*. Newtown Square, PA: Author, 2013.

^{xxiii} Project Management Institute. "Spotlight on Success: Developing Talent for Strategic Impact." Available at <https://www.pmi.org/learning/thought-leadership/series/talent-management/develop-talent-strategic-impact>.

An Adaptive Framework for Value Delivery: Each federal agency has a unique mission with diverse strategies and a vision for mission accomplishment. However, there exists a core foundation of proven competencies and capabilities required to recognize how to tailor and adapt these skills being developed to align to the mission priorities accordingly. PMIAA recognizes that each federal agency must develop program and project management capabilities suited to the mission and objectives of the agency because the characteristics of each agency's programs and projects can be markedly different. Because each agency's mission, strategy, portfolios, programs, and projects can be markedly different, the way each agency organizes to implement organizational project management could be different as well. In general, government programs fall into one of four overall groupings based on key characteristics:

1. **Acquisition programs:** Government acquisition programs purchase capabilities from a third party for their use. Those capabilities may represent commodities, such as commercially available goods and services requiring little or no modification or system integration, to major, pioneering systems that provide new strategic capabilities in the national interest. For example, military weapons systems are procured through acquisition programs.
2. **Sustained programs:** These programs represent multifaceted and long-term initiatives designed to accomplish statutory objectives that impact the lives of citizens and the functioning of government. For example, the Social Security program comprises several interconnected subprograms that deliver retirement income, disability income, Medicare and Medicaid, and death and survivorship benefits.
3. **Block and other grant programs:** These programs administer financial aid to qualified applicants related to general areas of social welfare. These programs generally require review to ensure applicants meet established criteria for funding and then oversight to ensure funds are used for authorized purposes. There are block and other grant programs for healthcare services, transportation infrastructure, art programs, education, and many other social service areas.
4. **Research and development programs:** These programs undertake extensive exploration and evaluation to obtain new knowledge that might lead to the creation of new technology, products, services, or systems. For example, the National Institutes of Health and the National Science Foundation fund exploratory research related to better understanding and treating diseases or to explore development of new technologies.

Within each of these types of programs, evaluation of contextual factors specific to each agency's projects and programs may point toward specific capabilities that will vary from agency to agency as identified in Table 12.

Program Type	Imperative	Level of Innovation	Complexity	Decision Making	Risk
Acquisition Program	Integration and/or innovation	Limited to highly experimental	Medium to high complexity	Simple to chaotic	Limited to extremely high risk
Sustained Program	Change	Generally incremental	Low to medium complexity	Simple to complicated	Low to medium risk
Block and Other Grant Programs	Administration	Generally incremental	Low to medium complexity	Simple to complicated	Low to medium risk
Research & Development Program	Innovation	Highly experimental	Medium to high complexity	Simple to chaotic	Medium to extremely high risk

Table 12. Classification of government program types.

GAO-Recognized Leading Practice: Transportation Security Administration (TSA) Realized US\$1.7 Billion in Benefits through Enhanced Program Management Capabilities^{xxiv}

Over a 12-year period, GAO reviewed the performance of several TSA acquisition programs and provided 58 specific recommendations during that timeframe aimed at improving TSA acquisition program management capabilities. In 2015, GAO reviewed TSA's efforts to implement the recommendations and issued its findings in February 2016. GAO found that 51 recommendations had been implemented and that, as a result, the Administration realized US\$1.7 billion in financial benefits that it was able to invest in other programs and projects. Key capability enhancements included:

- Use of best practices for estimating program costs for the Electronic Baggage Screening Program that delivered better cost estimates and improved resource planning
- Incorporation of a risk-informed method for acquiring and deploying new technologies into the Administration's 2009 strategic plan
- Improved stakeholder communications planning, particularly with suppliers, which helped the Administration avoid delays and procurement cost overruns for its Explosives Detection System
- Elevation of the Office of Acquisition to report to the Deputy Administrator of TSA, which positioned the Office to proactively provide acquisition expertise to program offices in each area of the acquisition life cycle

Organizations around the world use PMI standards to enable their strategy-delivery capabilities since those standards can be adapted to fit the agency's projects and programs, its culture, or its level of project and program management maturity. A fit-for-purpose, tailored approach evolves from where each agency is now regarding its capabilities, workforce skills, and related considerations.

Tailoring is the process of developing a framework or methodology to guide project and program delivery. Tailoring uses framework documents, standards, and other relevant sources to identify elements that provide processes, tools, and techniques that are suitable for the organization. It also includes modifying existing processes currently in use by the organization. General examples of tailoring include the trend for IT projects to use agile-based approaches, while construction projects more often use a predictive approach. Organizational culture is another dimension influencing tailoring. An organization with a low tolerance for risk may have many processes and procedures to guide projects and programs throughout their life cycles, with many decision gates to determine whether and how to continue the investment. For example, in American Productivity & Quality Council's "Effective Project Management Offices" study, Dell Services, a business unit of Dell, Inc., reported using a four-level ranking system to categorize project complexity.^{xxv} At the highest level, projects use a high degree of rigor. As the level of complexity decreases, so too does the level of rigor and level of monitoring (see Figure 7).

^{xxiv} Government Accountability Office. "Transportation Security: Status of GAO Recommendations on TSA's Security-Related Technology Acquisitions, GAO-16-176," February 2016.

^{xxv} Whitaker, Sean. *The Benefits of Tailoring: Making a Project Management Methodology Fit*. Newtown Square, PA: Project Management Institute, 2014.

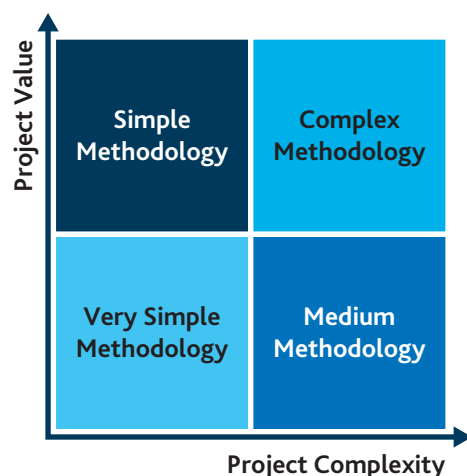


Figure 7. Project management methodology selection matrix.^{xxvi}

Within the Department of Defense, administration and congressional leadership alike have acknowledged the need for acquisition reform. In December 2018, Under Secretary of Defense for Acquisition and Sustainment Ellen Lord committed to tackling the issue head-on by enabling tailored approaches to value delivery: “We have, right now, this huge, complicated acquisition process that we encourage our acquisition professionals to tailor to their needs,” Ms. Lord explained. “We are going to invert that approach and take a clean sheet of paper and write the absolute bare minimum to be compliant in 5000.02, and encourage program managers and contracting officers to add to that as they need for specific programs.”^{xxvii}

Governance can also be tailored to the unique conditions of the project or program. Governance consists of structured processes and roles that guide, direct, and make decisions related to the activities of programs and projects to ensure projects and programs deliver value to the organization. Like methodologies for delivering projects and programs, governance can be tailored and structured to provide the right level of oversight and support for project and program teams.

^{xxvi} Ibid.

^{xxvii} McLeary, Paul. “Amidst Turmoil, Pentagon Persists On Acquisition Reform: Ellen Lord, Breaking Defense,” *Breaking Defense*, December 31, 2018. Available at <https://breakingdefense.com/2018/12/amidst-turmoil-pentagon-persists-on-acquisition-reform-ellen-lord/>.

GAO-Recognized Leading Practice: Federal Transit Administration's (FTA) Enhancement of Project Management Oversight in New Starts Grant Program^{xxviii}

The U.S. federal government contributes funds to several major mass transit projects each year through the New Starts grant program. Many of these projects require "large federal investments, take years to construct, and can be complex because of unique design and construction elements." To improve management and monitoring of major federal investments, Congress authorized FTA to establish a program for project management oversight. FTA's program procures contractors to provide project management oversight services, and those contractors are managed by project management officials in FTA regional and headquarters offices. Project Management Oversight Contractors (PMOCs) conduct an initial evaluation of a proposed project's risk, scope, cost, schedule, project management plan, and sponsor's technical capacity and capability before FTA recommends a project for a full-funding grant agreement. Once the project agreement is in place, PMOCs then conduct monthly and quarterly oversight reviews throughout a project's life cycle. PMOCs use Project Management Oversight Guidelines provided by FTA in their work. FTA tailors the level of oversight provided to the unique characteristics of each project.

Project sponsors who receive New Starts grants have credited FTA's oversight program with improving overall project management. GAO's evaluation found the oversight program improved project sponsors' controls over costs, schedules, quality, and safety. It also credited the program with knowledge transfer from PMOCs to project sponsors through information and training in project management and project analysis practices. One project sponsor credited the PMOC with improving project management plan documents and cost estimates. Another noted that PMOC's risk review identified risks that might have affected the project's budget. FTA has benefitted from better understanding issues with complex construction projects that can affect cost and schedule.

In anticipation of a larger number of complex capital projects that involve technology, design, and/or construction challenges, FTA started taking steps in 2009 to address the impact. It developed plans to ensure it had the specialized expertise and staff to oversee such projects. It started assigning PMOCs to some projects earlier in the project development process.

With so many stakeholders involved in the oversight process, FTA, project sponsors, and PMOCs acknowledged some challenges that impact timely communications and engagement. As part of the overall improvement process, all parties continue to apply lessons learned to improve the oversight program.

GAO credited the project management oversight program with the following benefits:

- Grantees have improved their controls over project cost, schedule, quality, and safety. "Even when problems on projects have been encountered, their detection at an early stage by the PMO contractors has helped FTA and the grantees to mitigate their impact."
- FTA has established a lessons-learned database for major projects, capturing information on improved management practices, methods for resolving complex construction problems, and improving designs.

^{xxviii} Government Accountability Office. "Public Transportation: Use of Contractors is Generally Enhancing Transit Project Oversight, and FTA Is Taking Actions to Address Some Stakeholder Concerns, GAO-10-909," September 2010. "Government Accountability Office. Mass Transit, Project Management Oversight Benefits and Future Funding Requirements, GAO/RCED-00-221," September 2000.

Knowledge Transfer: Knowledge transfer represents a critical but undervalued organizational competence.

A 2011 study by the Economist Intelligence Unit, “A silver opportunity? Rising longevity and its implications for business,”^{xxix} found that one-fourth (26 percent) of organizational leaders felt their organizations were not effective at transferring knowledge from retiring staff to younger staff. As senior managers and long-term staff consider leaving their organizations, they will take years of their organization’s knowledge and experience with them. Without effective knowledge management practices in place, this “brain drain” could have a moderate to major negative impact on an organization’s productivity. This situation is particularly critical for the U.S. federal government. “Nearly 1.5 in ten federal employees are eligible to retire today, according to data maintained by the government’s human resources office, though in five years that number will spike to three in 10.”^{xxx}

Knowledge transfer is also important in the context of building and improving organizational capabilities. As teams begin to apply new ways of working, knowledge transfer enables them to share their experiences and adapt processes and procedures into more effective workplace behaviors designed to get things done within the organization’s context. As behavior changes, the new ways of working becoming embedded in the organizational culture in more lasting ways.

Effective knowledge transfer includes the following steps:

1. Identifying knowledge that is relevant and valuable
2. Capturing and retaining that knowledge
3. Sharing that knowledge with others
4. Applying transferred knowledge
5. Assessing the value or benefits of specific knowledge^{xxxi}

GAO-Recognized Leading Practice: Presidential Helicopter Acquisition – Lessons Learned from Failure Yielded Stronger Successor Program^{xxxii}

Following the September 2001 terrorist attack, the Navy realized its fleet of 19 helicopters used to transport the president needed upgrading. In 2002, the Navy began development of a replacement helicopter identified as the VH-71 program. By 2009, performance issues, schedule delays, and significant cost overruns resulted in the program’s cancellation. In 2012, the Navy authorized a replacement program—VH-92A—to deliver the new

^{xxix} Economist Intelligence Unit. “A Silver Opportunity? Rising Longevity and Its Implications for Business.” Available at http://viewswire.eiu.com/report_dl.asp?mode=fi&fi=1877919572.PDF

^{xxx} Katz, Eric. “The Federal Agencies Where the Most Employees Are Eligible to Retire,” *Government Executive*, 18 June 2018. Available at <https://www.govexec.com/pay-benefits/2018/06/federal-agencies-where-most-employees-are-eligible-retire/149091/>.

^{xxxi} Project Management Institute. “Capturing the Value of Project Management through Knowledge Transfer,” *PMI Pulse of the Profession*®, 2015. Available at <https://www.pmi.org/learning/thought-leadership/pulse/capture-value-knowledge-transfer>.

^{xxxii} Government Accountability Office. “Presidential Helicopter Acquisition: Program Established Knowledge-Based Business Case and Entered System Development with Plans for Managing Challenges, GAO-15-392R,” April 14, 2015. “Government Accountability Office, Presidential Helicopter: Program Progressing Largely as Planned, GAO-16-395,” April 14, 2016.

helicopter fleet. Using some key lessons learned from the failed VH-71 program, the Navy made the following enhancements to its program management approach:

- Development and maintenance of a knowledge-based business case – According to GAO, “a knowledge-based approach to product development . . . demonstrates high levels of knowledge before significant commitments are made. This approach involves achieving the right knowledge at the right time—enabling leadership to make informed decisions about when and how best to move forward.”
- Use of mature commercial and military technologies
- Application of acquisition best practices associated with cost, schedule, requirements management, risk management, and change management

In its April 2015 report on the VH-92A program’s performance, GAO found the program being managed in alignment with acquisition best practice. Its report cited that the program still faced several challenges and that the Navy “has plans in place and has undertaken actions to meet those challenges.” In a follow-up report in 2016, GAO noted that the program remained on track and continued to utilize best practices.

Focus on Outcomes and Benefits: Benefits realization management (BRM) is a powerful approach for aligning projects, programs, and portfolios to the organization’s overarching mission. As illustrated in Table 13, projects and programs both deliver specific outputs. In and of themselves, those outputs may not produce anything of value alone. It is only when those outputs are applied and used that they yield capabilities. Over time, those capabilities start to produce measurable results or outcomes. And outcomes realize benefits that link to the mission the organization seeks to accomplish.

Outputs - Desired results produced by project and other program components	New processes, content for training, roles/responsibilities, technology
Capabilities - Application of outputs to effectively perform or achieve certain actions	Implementation of training and development in use of technology and application of processes, roles, etc.
Outcomes - Desired effects produced by the capabilities that applied the outputs	Improved staff skill levels, faster resolution of customer issues, better analysis of customer engagement data with appropriate responses
Benefits - Contributions to business objectives realized from outcomes produced by the capabilities that applied the outputs	Increased revenue (tangible), improved customer satisfaction (intangible), reduced operating costs through efficient customer engagement (tangible)

Table 13. The road from outputs to benefits realization.

Effective BRM practices:

- Better inform executive leaders of progress against benefits and strategic goals
- Establish benchmarks for acceptable levels of performance
- Capture and disseminate the right data
- Focus on key outcome indicators

Effective BRM practices require a formal approach. It begins with the business case which should include specific outcomes that the project or program being initiated should deliver. Having defined outcomes at the outset helps the project or program team guide ongoing resource allocation, risk management, and other decisions to ensure that the desired outcomes and their related benefits are realized. BRM also requires tools and processes to identify benefits, manage them during execution, transfer them to the business, and track achievements against the business plan. Having prescribed processes, standardized documentation, and routine reporting requirements are critical components of effective BRM capabilities.^{xxxiii}

^{xxxiii} Project Management Institute. "Establishing Benefits Ownership and Accountability," 2016. Available at <http://www.pmi.org/-/media/pmi/documents/public/pdf/learning/thought-leadership/establish-benefits-ownership-accountability.pdf>.

A World of Improvement Efforts

Enhancing government strategy-delivery capabilities is not limited to the United States. Around the globe, government leaders realize that project, program, and portfolio management are critical capabilities that define how well government serves its citizens. Over the 10-year window of 2017–2027, it is estimated that organizations globally, both public and private sector, will require roughly 87.7 million additional people working in project-delivery roles. Moreover, PMI’s “Project Management Job Growth and Talent Gap 2017–2027”^{xxxiv} report finds that U.S. employers will need 2.1 million more individuals working in project management roles in the United States by 2027. However, organizational leaders today report difficulty with finding individuals with the skills and capabilities to drive strategy through projects and programs. As competition for skilled talent grows, this talent gap places an estimated US\$208 billion of GDP at risk across the 11 countries analyzed in PMI’s *Job Growth and Talent Gap*.

The evolution of the United Kingdom’s Infrastructure & Projects Authority (IPA) serves as a highly relevant example for PMIAA implementation. Over its eight years, IPA has continuously impacted government delivery and assurance of major projects and programs by:

- Creating visibility to their performance;
- Intervening to help put troubled projects and programs on track or to propose termination; and
- Developing senior project and program leadership and team member capabilities.

Leaders of the United Kingdom’s Infrastructure & Projects Authority (IPA) realize that building capabilities requires clear goals, sustained focus, and ongoing investment. Since its establishment almost 10 years ago, IPA continues to make steady progress in improving its delivery capabilities.

Originally formed within the Prime Minister’s Cabinet Office as the Major Projects Authority (MPA) in 2011, MPA had a mandate to oversee the Government Major Projects Portfolio (GMPP). The GMPP comprises the most complex and strategically significant projects and programs across government. GMPP projects are typically those where approval is required from HM Treasury, either because the budget exceeds a department’s delegated authority level or because the project is novel, contentious, or requires primary legislation. In 2018, the GMPP included a broad and diverse range of projects—133 projects delivered by 16 departments and other bodies with a Whole Life Cost of £423 billion.^{xxxv} In 2016, MPA merged with Infrastructure UK, part of HM Treasury, to form the IPA. IPA reports to senior executives within both HM Treasury and the Cabinet Office.

IPA has developed three core capabilities for driving project and program improvement:

- **Bringing transparency across the portfolio of the largest public sector projects with measures tracking the likelihood of project success and life cycle project cost estimates** – The measures result in assignment of a Delivery Confidence Assessment (DCA) rating for each project and program by the IPA. Figures 8 and 9 provide two different views of the IPA DCA ratings dashboard for major projects

^{xxxiv} Project Management Institute. “Project Management Job Growth and Talent Gap 2017–2027” 2017. Available at <https://www.pmi.org/-/media/pmi/documents/public/pdf/learning/job-growth-report.pdf>.

^{xxxv} Infrastructure and Projects Authority. “Annual Report on Major Projects 2017–18.” Available at <https://www.gov.uk/government/publications/infrastructure-and-projects-authority-annual-report-2018>.

and programs in the portfolio. Figure 8 illustrates the portfolio status from 2013 to 2018 (note that the portfolio is a snapshot in time view, and that projects and programs may join or be removed from the portfolio each year). Figure 9 highlights the portfolio classified by project/program category.^{xxxvi}

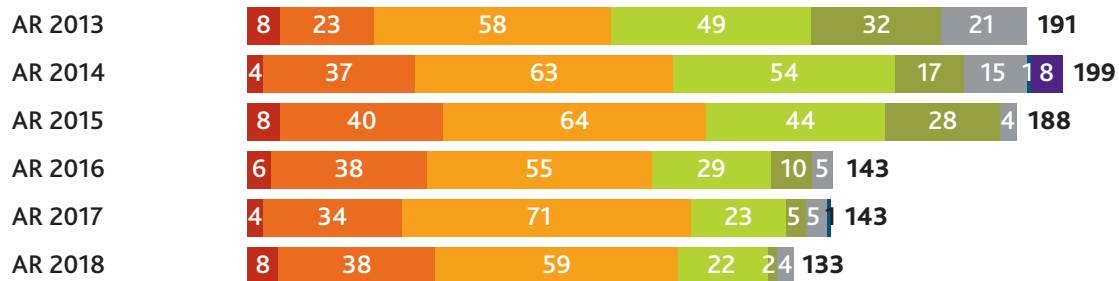


Figure 8. DCA ratings for IPA's GMPP by year, 2013–2018. Data from Infrastructure and Projects Authority's "Annual Report on Major Projects 2017–2018."³

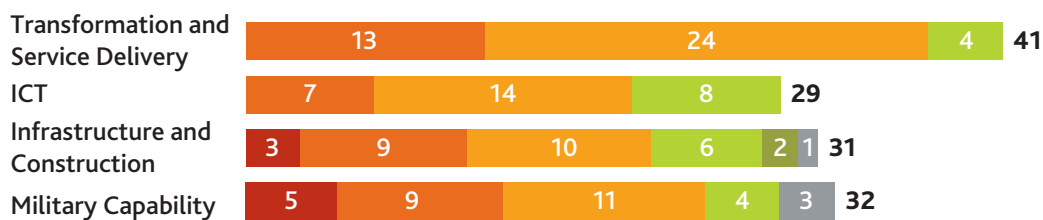


Figure 9. DCA ratings for IPA's GMPP by project category. Data from Infrastructure and Projects Authority's "Annual Report on Major Projects 2017–2018."

- **Reviewing and intervening to help projects and programs move to higher confidence levels of success or to propose cancellation of troubled initiatives with low likelihood of success** – In 2016, the IPA created an Early Development Pool with effective and tailored support at initiation stage to support projects and programs at very early stages of development, ensuring they are set up for success.
- **Advancing government organizational project management capabilities and expertise, including the assignment and development of major project business owners (senior responsible officers)** – The Project Delivery Capability Framework, developed by the IPA and the profession, was launched in 2017/18 and is now being used by all major departments to help drive up professionalism. It outlines a common language for the profession and defined career paths to help manage careers.^{xxxvii}

^{xxxvi} Ibid.

³ In the IPA Figures, Red indicates successful delivery of the project appears unachievable; Amber/Red indicates successful delivery is in doubt with major risks/issues in several key areas; Amber indicates successful delivery appears feasible but significant issues exist; Amber/Green indicates successful delivery appears probable; Green indicates successful delivery; Grey indicates a project/program that is exempt from publication; Blue indicates a significant change to the project baseline that requires a business case refresh; and Purple indicates no DCA.

^{xxxvii} Infrastructure and Projects Authority. "Project Delivery Capability Framework: Infrastructure and Projects Authority," May 11, 2017. Available at <https://www.gov.uk/government/publications/project-delivery-capability-framework-for-civil-servants>.

In its most recent annual report, IPA leadership acknowledges that there are still challenges in effective project and program delivery. The report highlights that the number of red-rated projects increased by four with a total of eight projects rated red. Infrastructure and military acquisition projects and programs comprise most red projects. "Publishing this data reinforces the commitment to transparency in government data. This honest reflection of where challenges lie focuses the IPA and departments on where resource and support is most needed."^{xxxviii} So IPA realizes that building its strategy-delivery capabilities is not a one-time initiative, but rather requires continuous change and improvement.

Despite the fact that challenges remain, the IPA report also identifies successes that have impacted United Kingdom citizens, businesses, and the economy. "We have successfully delivered 26 major government projects over the past year, all of which will help citizens and improve essential public services. They range from ICT and transformation programmes, which are modernising the civil service and fundamentally changing the way citizens interact with the state, to major infrastructure projects and military capability programmes—together these are vital for growing our economy and defending the nation."^{xxxix}

IPA also realizes the agency must bring in external expertise and resources to support its improvement activities. For example, as part of its Project X initiative, IPA has partnered with Project Management Institute, a team of academic researchers from renowned universities, and other societies to use IPA's GMPP data to study specific delivery capabilities, such as benefits realization management, and to recommend areas for improvement.

A World of Project and Program Management Improvement

- **Australia:** The Australian federal government has identified the need for substantial reforms in its program and project management capabilities, particularly related to infrastructure and defense. In 2008, the government authorized Infrastructure Australia to better plan and oversee the portfolio of national and state infrastructure projects and to recommend areas for performance improvement. Within the defense department, improving program delivery became a mandate with the appointment of an assistant secretary for program management. Charged with better integrating acquisition projects and programs across service branches and for strengthening program performance, this stronger focus on building program and project competencies comes at a time when the Australian government is making substantial investments in its defense capabilities.
- **Canada:** To help the Canadian federal government better deliver complex programs and transformational initiatives, the Canada School of Public Service is enhancing its Leadership and Transformation program curriculum. The school conducted extensive global assessments of program/project leadership training academies and learning and development trends to develop and deliver state-of-the-art training. This effort aligns with a major transformation with the Canadian CIO's office to implement digital government through enhanced value-delivery capabilities. This transformation is embedding completely different ways of working, greater accountability for results, and more transparent reporting on project/program performance.

^{xxxviii} Infrastructure and Projects Authority. "Annual Report on Major Projects 2017–18," 2018. Available at <https://www.gov.uk/government/publications/infrastructure-and-projects-authority-annual-report-2018>.

^{xxxix} Ibid.

- **European Union (EU):** In 2013, the European Parliament adopted the “Common Provisions Regulation on EU Cohesion and Structural Funds,”^{xl} which incorporated provisions requiring Member States to develop and utilize effective program/project management practices to receive EU funds for development initiatives. For Member States that had weak systems for managing development programs and projects, this funding requirement has pushed those Member States to focus on building their planning, execution, risk management, and governance capabilities as a means of standardizing improved investment management/execution evenly across the EU.
- **India:** The National Institution for Transforming India (NITI Aayog), the premier policy “think tank” of the Government of India, has formed a Task Force on Project Management to explore approaches for building program and project management capabilities within Indian government ministries and within state governments. NITI Aayog designs strategic and long-term policies and programs for the Government of India and also provides relevant technical advice to the central government and the states. Given India’s need for stronger infrastructure and development, the task force’s work represents a major effort to design India’s project/program capabilities.
- **New Zealand:** New Zealand’s Treasury Department has initiated efforts to strengthen alignment of government investments at the portfolio, program, and project levels. At the portfolio level, the focus is on better understanding where government is investing its resources and the intended value those investments are expected to deliver. At the program and project levels, the focus is to ensure that government agencies have undertaken effective project/program planning and performance controls before releasing funds. Together, these approaches are intended to improve alignment of investment with national objectives and stronger delivery performance that produces better results for citizens.

^{xl} European Commission. “Common Provisions Regulation on EU Cohesion and Structural Funds.” Available at https://ec.europa.eu/regional_policy/en/information/legislation/regulations/.

Conclusion

The Program Management Policy Council (PMPC) and program management improvement officers (PMIOs) can most effectively support their agencies in building organizational project management capabilities by focusing on three key activities:

1. Start where the agency is with regard to its organizational project management maturity by assessing capabilities.
2. Conduct capability-building activities; measure and evaluate improvements; and make changes as needed.
3. Instill a mindset of continuous evaluation and improvement within the agency culture at all levels.

PMIOs also have an array of resources to help them effectively implement PMIAA (see Figure 10). Within government, there are myriad examples of good project and program management practices, regardless of the type (i.e., grant, acquisition, research and development, or sustained program). The Energy Information Agency within the Department of Energy has a strong maturity model for establishing and evolving a PMO. The Department of Veterans Affairs' New Orleans Medical Center project team embedded effective program management techniques in its delivery approach. The FedPM Community of Practice provides an easily accessible platform for project and program management practitioners sharing and learning across agencies.



Figure 10. Resources to help PMIOs accelerate implementation of PMIAA guidelines.

Organizations like Project Management Institute can further support these efforts through engagement and resources reflecting global government improvement efforts and industry best practices. All of these resources can help PMIOs accelerate building their agencies' project and program management capabilities.

To be effective, practices, tools, and techniques require a skilled and knowledgeable workforce capable of applying them. Several government agencies have internal academies and training programs to build internal capabilities. The Federal Acquisition Institute (FAI), Veterans Affairs Acquisition Academy, NASA's Academy of Program/Project & Engineering Leadership (APPEL), and Defense Acquisition University (DAU) offer government-sponsored certification programs in project and program management. Recognizing the need to build internal talent while also facilitating recruitment of external talent, FAI and DAU have established equivalencies with industry-accepted certifications like PMI's Project Management Professional (PMP®) certification.

PMIOs can also look outside of government for support in strengthening the project and program management workforce. Nonprofit organizations like PMI, the Partnership for Public Service, and academia conduct and share research on leading practices in effective project and program management. These organizations have large communities with extensive subject matter expertise in specific aspects of project and program management that they share through training events, contributing to standards development, and other activities. In addition, their networks with practitioners across the country allow them to deliver insights to government leaders across federal agencies and help peers network with each other to share and exchange learning and leading practices.

As PMIOs implement PMIAA, they should know that success is possible. Resources are abundant to overcome the myriad of challenges the capability-building journey may surface. By focusing on leadership, organizational change management and culture, staff skills and development, an adaptive framework for value delivery, knowledge transfer, and a focus on outcomes and benefits realization, PMIOs will be responsible for great successes.

Appendix A: Agency Alignment to ANSI Standards

USAID – Office of the CIO

"USAID's IT Project Governance framework incorporates project management guidelines for initiation, planning, execution and control, and closing of an IT project, in accordance with the Project Management Institute's Project Management Body of Knowledge (PMBOK)."

DoED – Office of Federal Student Aid

"Additionally, PMOG employees provide consulting services to FSA project managers for all project management key process areas, maintaining a library of templates and trainings aligned with international and U.S. government's standards program and project management (Government Accountability Office, Office of Management and Budget, and Project Management Institute)."

DHS – Office of the CIO, National Protection and Programs Directorate

"Offering an in-house opportunity for certified project management professionals to meet continuing education requirements through the OCIO, as the Project Management Institute (PMI) approved the DHS OCIO as a registered education provider for government-led project management training."

HUD – Office of the CIO, Project Planning and Management

"PPM V2.0 incorporates many principles from the Project Management Body of Knowledge (PMBOK), a best practices project management methodology which presents a set of standard terminology and guidelines for managing projects."

DOI – Bureau of Reclamation

"While the FAI has established the training, experience, and competencies required for certification, it does not provide detailed project management process guidance. To define project management processes, the PM framework integrates concepts set forth by the Project Management Institute in its publication, *A Guide to the Project Management Body of Knowledge*, fourth edition, 2008, along with the requirements set forth in Government wide, DOI, and Reclamation policies."

DOJ – Office of the CIO

"The Project Management Institute is the global de facto standard for project management standards. Their Project Management Body of Knowledge (PMBOK) methodology defines ten supporting knowledge areas, which map to five project management process groups that serve as the basis for DOJ's Project Management Process Overview . . ."

CFO ACT AGENCIES

83%* list information publicly on their websites displaying alignment to ANSI standards.

*4 of the 24 CFO Act agencies do not have information with respect to standards utilization publicly listed on their website

DOT – Federal Aviation Administration

"The Mike Monroney Aeronautical Center (Center) is committed to managing projects using standards and best practices as defined by the Project Management Institute (PMI), the acknowledged world leader in project management standards."

OPM – Office of the CIO

"The Project Management Institute (PMI) is a world-wide organization which has been recognized as the expert in project management standards."

Appendix B: PMI Resources Applied to the Office of Management and Budget's Circular A-11

Section 270-8 "Table of Standard/Principle"

The table below, in the two left-hand columns, extracts information from the Office of Management and Budget's (OMB) Circular A-11, Section 270. Section 270 was inserted in the June 2018 version of Circular A-11. This new section incorporates guidance established by OMB Memorandum M-18-19 for strengthening program and project management across the federal government in implementing the Program Management Improvement Accountability Act (PMIAA). The PMIAA became Public Law 114-264. Quoting from Circular A-11:

"OMB, in conjunction with agencies and stakeholders, has developed a set of common, principle-based government-wide program management standards that agencies can apply to programs to ensure they produce their desired outcomes and effectively contribute towards the achievement of agency mission and strategic goals and objectives, as required by the PMIAA. These principle-based standards have been developed with consideration given to the variation among programs implemented by agencies. OMB's approach to these principle-based standards is to continue to develop and refine them over time by the PMPC in collaboration with private industry and stakeholders with expertise in P/PM."

The third column has been added and cites voluntary consensus standards and other resources developed by Project Management Institute (PMI). PMI's global standards provide guidelines, rules, and characteristics for project, program, and portfolio management. These standards are widely accepted. When consistently applied, they help practitioners and their organizations achieve professional excellence. They provide robust frameworks that are meant to be tailored to each organization. PMI is an accredited standards development body by the American National Standards Institute (ANSI). PMI has published ANSI standards for the domains of project management; program management; portfolio management; business analysis; organizational project management; and risk management.

PMI standards support the capabilities of practitioners by identifying, defining, documenting, and championing project, program, portfolio, and organizational practices. They establish a common lexicon.

Federal Agencies are enabled to embrace the use of PMI's standards as it is directed by OMB Circular A-119. Circular A-119 establishes policies on federal use and development of voluntary consensus standards in accordance with The National Technology Transfer and Advancement Act of 1995 (P.L. 104-113). The Circular directs agencies to use voluntary consensus standards in lieu of government-unique standards except where inconsistent with law or otherwise impractical. The law's requirement is for agencies to utilize voluntary consensus standards as a "means to carry out policy objectives or activities determined by the agencies and departments" and requires each agency head to notify OMB when nonvoluntary consensus standards are utilized, with a subsequent report to Congress by OMB summarizing these exceptions for the year.

Below, PMI has modified the table from OMB Circular A-11, Section 270 to show where PMI standards linked with key project and program management capabilities identified by OMB.

Areas	Standard/Principle	Resource from Project Management Institute
Change Management	Development of methods for recording changes to established baselines and requirements within a program life cycle on a procedural, operational, or organizational level	<ul style="list-style-type: none"> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i> • <i>Requirements Management: A Practice Guide</i> • <i>Practice Standard for Project Configuration Management</i>
Communications Planning, Stakeholder Engagement, and Coalition Building⁴	Building coalitions internally and with other federal agencies, state and local governments, or nonprofit and private sector organizations to achieve program goals; includes aspects of: <ul style="list-style-type: none"> • Partnering and team building – Developing networks, building teams and alliances, and collaborating across boundaries to build strategic relationships to achieve program goals • Understanding the human factor – Identifying internal and external relationships that may impact the program • Influencing/negotiating – Persuading others, building consensus, and gaining cooperation to achieve program goals 	<ul style="list-style-type: none"> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i> • <i>The Standard for Program Management</i> • <i>The Standard for Portfolio Management</i> • <i>The PMI Guide to Business Analysis</i> • <i>Managing Change in Organizations: A Practice Guide</i> • <i>Construction Extension to the PMBOK® Guide</i> • <i>Software Extension to the PMBOK® Guide</i>
Contracting and Acquisition Management⁵	Development of statements of objectives, statements of work, concept of operations, cost, schedule, scope, earned value management, and supporting documents to best plan and track the procurement of program requirements and projects	<ul style="list-style-type: none"> • <i>The PMI Guide to Business Analysis</i> • <i>Requirements Management: A Practice Guide</i>
Customer Service	Delivering customer satisfaction by employing effective time management skills, clear communication, product/service knowledge, and goal-oriented focus in program implementation	

Table A1. OMB Circular A-11, Section 270 table showing where PMI standards link with project and program management capabilities identified by OBM.

⁴ Each PMI standard has important sections on stakeholder management, communication planning, and execution.

⁵ A contract is similar to defining the charter of a project or program to be executed. See information about project charter to aid contract development in *A Guide to the Project Management Body of Knowledge (PMBOK® Guide)*.

Areas	Standard/Principle	Resource from Project Management Institute
Evaluation	Systematically assessing how well an entire program, or a specific strategy or an aspect of a program, is working to achieve intended result or outcomes	<ul style="list-style-type: none"> • <i>The Standard for Program Management</i> • <i>The Standard for Portfolio Management</i> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i> • <i>Benefits Realization Management: A Practice Guide</i>
Financial Management	Applying budget, accounting, financial controls, and audit principles to ensure the stewardship of taxpayer resources throughout program execution	<ul style="list-style-type: none"> • <i>The PMI Guide to Business Analysis</i> • <i>Practice Standard for Earned Value Management</i> [currently in revision and will become an ANSI standard] • <i>Practice Standard for Project Estimating</i> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i>, Cost Knowledge Area • <i>Construction Extension to the PMBOK® Guide</i>, Chapter 15
Human Capital Management	Building and managing the program's workforce requirements based on organizational and program goals, budget considerations, and staffing needs; includes strategies and actions for ensuring employees are appropriately recruited, selected, appraised, and rewarded, and action taken to address performance problems	<ul style="list-style-type: none"> • <i>Project (and program and portfolio) Manager Competency Development Framework</i> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i>, Resource Management Knowledge Area
Information Management	Activities related to the planning, budgeting, manipulating, and controlling of information throughout the program's life cycle, encompassing both information itself and the related resources, such as personnel, equipment, funds, and information technology that support the program	<ul style="list-style-type: none"> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i> • <i>The Standard for Program Management</i> • <i>The Standard for Portfolio Management</i> • <i>The PMI Guide to Business Analysis</i>
Performance Management	Use of goals, measurement, evaluation, analysis, and data-driven reviews to improve program results	<ul style="list-style-type: none"> • <i>The Standard for Program Management</i> • <i>The Standard for Portfolio Management</i> • <i>Practice Standard for Earned Value Management</i> • <i>Benefits Realization Management: A Practice Guide</i>

Table A1. OMB Circular A-11, Section 270 table showing where PMI standards link with project and program management capabilities identified by OBM.
(continued)

Areas	Standard/Principle	Resource from Project Management Institute
Portfolio Management	Defining a set of programs, projects, contracts, and other work that support strategic goals	<ul style="list-style-type: none"> • <i>The Standard for Portfolio Management</i> • <i>Governance of Portfolios, Programs, and Projects: A Practice Guide</i> • <i>The Standard for Organizational Project Management (OPM)</i> • <i>Benefits Realization Management: A Practice Guide</i>
Process Improvement	Employing a systematic application of disciplined problem-solving techniques to impact the operations of systems or programs. Uses continuous process improvement (CPI) models to leverage strategy and performance management data to identify and eliminate waste, reduce variation, and satisfy the needs of customers	<ul style="list-style-type: none"> • <i>The Standard for Organizational Project Management (OPM)</i> • <i>The Guide to Lead Enablers for Managing Engineering Programs</i>⁶
Project Management	Applying general and specialized knowledge, skills, expertise, and practices to a temporary endeavor with a defined scope, cost, and completion date; a project may be part of a larger program or portfolio	<ul style="list-style-type: none"> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i> • <i>Construction Extension to the PMBOK® Guide</i> • <i>Software Extension to the PMBOK® Guide</i> • <i>Project Manager Competency Development Framework</i> • <i>Agile Practice Guide</i> • <i>Practice Standard for Project Configuration Management</i> • <i>Practice Standard for Work Breakdown Structures</i> • <i>Practice Standard for Scheduling</i> • <i>Practice Standard for Project Estimating</i> • <i>Benefits Realization Management: A Practice Guide</i> • <i>Governance of Portfolios, Programs, and Projects: A Practice Guide</i> • <i>Requirements Management: A Practice Guide</i> • <i>Managing Change in Organizations: A Practice Guide</i> • <i>Navigating Complexity: A Practice Guide</i> • <i>The PMI Guide to Business Analysis</i> • <i>The Standard for Risk Management in Portfolios, Programs, and Projects</i>

Table A1. OMB Circular A-11, Section 270 table showing where PMI standards link with project and program management capabilities identified by OBM. (continued)

⁶ *The Guide to Lean Enablers for Managing Engineering Programs* is a joint publication from PMI, MIT's Lean Advancement Initiative, and the International Council on Systems Engineering (INCOSE).

Areas	Standard/Principle	Resource from Project Management Institute
Requirements Development and Management	Identifying program needs and matching identified needs to the organization's mission and goals; developing preliminary and subsequent capital planning, budget formulation, cost/benefit analysis, and investment decision documentation for evaluation and justification of program costs	<ul style="list-style-type: none"> • <i>Requirements Management: A Practice Guide</i> • <i>The PMI Guide to Business Analysis</i> • <i>Business Analysis for Practitioners: A Practice Guide</i> • <i>The Standard for Organizational Project Management (OPM)</i>
Risk Management	Coordinated activities to direct and control challenges or threats to achieving a program's goals and objectives; includes developing risk-mitigation plans to overcome potential barriers to program performance	<ul style="list-style-type: none"> • <i>The Standard for Risk Management in Portfolios, Programs, and Projects</i> • <i>Navigating Complexity: A Practice Guide</i> • <i>A Guide to the Project Management Body of Knowledge (PMBOK® Guide)</i> • <i>Construction Extension to the PMBOK® Guide</i> • <i>Software Extension to the PMBOK® Guide.</i> • <i>The Standard for Program Management</i> • <i>The Standard for Portfolio Management</i> • <i>The PMI Guide to Business Analysis</i>
Strategic Planning	Planning activity to present the long-term objectives the program hopes to accomplish, what actions the agency will take to realize those goals, and how the agency will deal with the challenges likely to arise as barriers to achieving the desired outcomes	<ul style="list-style-type: none"> • <i>The Standard for Portfolio Management</i> • See Brightline™ Initiative⁷ materials on strategy at https://www.brightline.org/

Table A1. OMB Circular A-11, Section 270 table showing where PMI standards link with project and program management capabilities identified by OBM.
(continued)

⁷ The Brightline™ Initiative is a coalition led by the Project Management Institute together with leading global organizations dedicated to helping executives bridge the expensive and unproductive gap between strategy design and delivery.

The following is a list of PMI's standards and a brief description.

PMI Global Foundational Standards/PMI American National Standards Overview

A Guide to the Project Management Body of Knowledge (PMBOK® Guide) – Sixth Edition. Includes guidance on applying good project management practices across most projects, including traditional and agile approaches to project delivery.

The Standard for Program Management – Fourth Edition. Provides guidance on effective program management practices.

The Standard for Portfolio Management – Fourth Edition. Describes portfolio management and its relationship to organizational project management as well as organizational strategy and its relationship to program and project management.

The PMI Guide to Business Analysis (includes The Standard for Business Analysis). This standard and guide provide a foundation for enhancing business analysis practices across the continuum of project delivery methods.

The Standard for Organizational Project Management (OPM). In an organizational environment, projects, programs, or portfolios should be managed in alignment with organizational business strategy and objectives in a manner that will provide the most benefit to the organization. Organizational project management (OPM) is the framework used to align project, program, and portfolio management practices with organizational strategy and objectives, and customizing or fitting these practices within the organization's context, situation, or structure. *The Standard for Organizational Project Management (OPM)* provides guidance to organizational management, PMO staff, and practitioners on these topics.

The Standard for Risk Management in Portfolios, Programs, and Projects. This is an update and expansion upon PMI's popular reference, *The Practice Standard for Project Risk Management*. Risk management addresses the fact that certain events or conditions—whether expected or unforeseeable during the planning process—may occur with impacts on portfolio, program, and project objectives. These impacts can be positive or negative and may cause deviation from the intended objectives. Risk management processes allow for proactively planning to capture opportunities and limit threats. This standard: identifies the core principles for risk management; describes the fundamentals of risk management and the environment within which it is carried out; and applies risk management principles to the portfolio, program, and project domains within the context of an enterprise risk management approach.

PMI Global Practice Standards

Practice Standard for Earned Value Management – Second Edition. This expands on the earned value information in the *PMBOK® Guide*. This practice standard also expands the available resources on the use of earned value for medium and smaller projects, while still being relevant for larger projects. It provides insight and detailed explanations of the basic elements and processes of EVM, and demonstrates how to scale EVM to fit varying project sizes and situations.

Practice Standard for Scheduling – Third Edition. This is a systematic guide to constructing a sound and effective schedule model. This practice standard provides an actionable and objective measurement process for project schedule models and project schedules.

Practice Standard for Project Configuration Management. This provides information on the concepts and benefits of configuration management; various configuration management implementation techniques; successful practices of configuration management; and a common lexicon for applying configuration management across projects.

Practice Standard for Work Breakdown Structures. This serves as a guide for defining work as it relates to specific project objectives, presenting a standard application of the WBS as a project management tool.

Practice Standard for Project Estimating. Defines the aspects of project estimating that are recognized as good practice on most projects.

PMI Global Application Area Extensions

Construction Extension to the PMBOK® Guide. Provides construction-specific guidance for project management practitioners.

Software Extension to the PMBOK® Guide. Draws upon the expert knowledge of software developers and project managers to provide guidance for the management of software development projects. This *PMBOK® Guide* extension was developed jointly by PMI and the IEEE Computer Society.

PMI Practice Guides

Agile Practice Guide.⁸ Provides tools, situational guidelines, and an understanding of various iterative and adaptive approaches to project delivery. This practice guide supplements and expands upon agile information found in the *PMBOK® Guide – Sixth Edition*.

Business Analysis for Practitioners: A Practice Guide. Describes the work of business analysis, identifies the tasks that are performed, and covers the essential knowledge and skills needed to effectively perform business analysis on programs and projects. The concepts and skills covered in this practice guide are applicable to all programs and projects.

Governance of Projects, Programs, and Portfolios: A Practice Guide. Provides guidance to organizations and practitioners on how to implement or enhance governance on portfolios, programs, and projects. This practice guide provides definitions for governance in an effort to distinguish the different levels of governance and to identify their common elements.

Managing Change in Organizations: A Practice Guide. Equips practitioners with useful techniques for successfully designing, creating, implementing, and sustaining initiations to drive and support organizational change.

⁸ This practice guide was jointly funded with the Agile Alliance® and was developed in collaboration with members of the Agile Alliance. Agile Alliance does not endorse any agile methodology or certification.

Navigating Complexity: A Practice Guide. Provides a relevant, applicable, and useful resource to help practitioners anticipate and comprehend complexity, and apply appropriate tools and techniques for their organizations.

Requirements Management: A Practice Guide. Provides practical discussion of requirements work, defines the work of requirements (the tasks, knowledge, and skills), and discusses why the work is important and provides descriptions of the activities performed.

PMI Standards Adjunct Products

Project Manager Competency Development Framework – Third Edition. Presents a framework for the definition, assessment, and development of portfolio, program, and project manager competence to help guide practitioners in their continued professional development.

PMI Lexicon of Project Management Terms (online resource). Presents a set of frequently used project, program, and portfolio management terms with clear and concise definitions.

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