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Approaches to Increase Awareness, Adoption, and Adaptation of Innovation in the Federal Government

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Preface

In March 2016, the Office of Science and Technology Policy (OSTP) requested that the IDA Science and Technology Policy Institute (STPI) describe a set of approaches to improve innovation in and the effectiveness of the Federal Government. The innovative approaches identified create new processes, products, services, and methods of delivery; have been implemented or are in the initial stages of implementation; and have led to improvements in outcomes, efficiency, effectiveness, or quality related to Federal Government activities.

The objective of this project was to describe the lessons learned from the implementation of innovative approaches and identify opportunities for how to support the scaling up of these approaches throughout the Federal Government. The *Approaches to Increase Awareness, Adoption, and Adaptation of Innovation in the Federal Government* report provides a background describing what innovation in the Federal Government means in practice, including elements of the innovation process and how innovation practices could be institutionalized within organizations.

Prior to its publication online in 2019, this report was an internal Federal resource for Federal Government employees. It was published online to help benefit Federal and non-Federal communities alike. Because this report was written 3 years prior to its 2019 online publication, some of the URLs referenced may no longer be valid.

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Innovations arise when people are given a problem to solve instead of being told to implement a known solution.

—"Innovation is a Contract Sport," Partnership for Public Service[1]

Innovation in government is not alien to the American tradition. It is the American tradition. [Everyday Americans] deserve a way of thinking that empowers rather than divides, that confronts challenges rather than creating them, that solicits all types of expertise rather than espousing tired approaches. […] Open innovation is about handshakes and handoffs: the handshakes between powerful, enabling entities that allow for the handoffs to those with the hope, ambition, inspiration, and ideas to make our country better, in every conceivable way.

—Aneesh Chopra, former U.S. Chief Technology Officer[2]

A. Overview

This report provides an overview of innovation in the Federal Government and highlights ways to broadly foster innovation through awareness, adoption, and adaptation of approaches. The information is derived from academic journals, news reports, and interviews with former and current Federal Government innovators and leaders. In addition, this report provides resources on how Federal Government innovative approaches could be used, and introduces the innovation process to Federal employees at all levels. Appendix A contains examples to use institutional levers and align incentive to promote innovation, Appendix B, supporting policies, and Appendix C, additional resources for readers interested in learning more about the application of innovative approaches at their agencies.

B. Introduction

Innovation in the Federal Government involves encouraging a problem-solving mindset and inspiring a collective culture of experimentation that empowers employees to seek new and more effective ways of working. This report serves as a resource for Federal innovators at all levels of

[1] Partnership for Public Service, "Innovation is a Contract Sport," February 6, 2016.

[2] A. Chopra, *Innovative State: How New Technologies Can Transform Government*, Grove Press, 2016, p. 26.

government, from program staff, to senior leaders seeking new technologies, methods, approaches, or best practices to improve their agency's effectiveness.

The approaches featured in this report describe how Federal employees can introduce, test, and scale innovative projects and programs in their agencies. This report also illustrates examples of how Federal employees have deployed innovative approaches to achieve greater impact, with key insights to help readers consider how to adopt or adapt these practices within their own agencies.

1. Why

This report is intended to serve as more than just a static repository of knowledge resources; innovation is not one-size-fits-all and new methods for promoting innovation are constantly being explored. The primary goal is to effectively capture the vast experience and insights of Federal employees engaging in innovative activities. This report provides practical guidance, best practices, and resources on how to implement these activities.

This report also aims to provide a platform for Federal employees and others to share knowledge on a set of approaches used to solve problems and to improve the core processes of government, such as:

- reducing government costs by increasing efficiency and reducing administrative burdens;
- achieving high-quality government activities and services;
- enhancing transparency by increasing public access to information and by seeking citizen input;
- simplifying policies and facilitating compliance with new policies, laws, and regulations; and
- building public support and trust and encouraging public engagement to improve government activities and services.

2. How

There are five elements that describe the process for implementing innovation within the Federal Government:[3]

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[3] G. Mulgan and D. Albury. Innovation in the Public Sector. United Kingdom: Cabinet Office, 2003; Walker, Richard M. "Evidence on the Management of Public Services Innovation." *Public Money & Management* no. 23 (2, 2003):93–102.; D. Albury, "Fostering Innovation in Public Services." *Public Money & Management* no. 25 (1, 2005):51–56; Hartley, Jean. "Innovation in Governance and Public Services: Past and Present." *Public Money & Management* no. 25 (1, 2005):27–34; G. Moore, *Crossing the Chasm and Dealing with Darwin: How Great Companies Innovate at Every Phrase of the Evolution*, Penguin, 2005; Design Council. Design for Public Good. United Kingdom: Design Council, 2008; Eggers, and S. K. Singh. "The Public Innovator's Playbook:

- Generating possibilities and new ideas: Creating an environment and culture that welcomes potentially disruptive ideas may require instituting systematic mechanisms for the generation of those ideas, such as information collection platforms and techniques.
- Selection of an idea for incubation: Not all innovative ideas are good ideas. As such, the selection of viable innovative ideas requires the development of processes and criteria for selection and incubation, including plans for development, likelihood of success, and anticipated outcome of ideas.
- Prototyping and implementing promising ideas: Innovations in the Federal Government require safe spaces and risk management processes to test and incubate ideas.
- Replicating, scaling-up, and diffusing ideas that work: Prototypes that are successful may be diffused and applied at a larger scale within and across the Federal Government.
- Analyzing implementation and learning: Throughout the innovation process, both informal and formal evaluations help inform the success, outcomes, and feasibility for replicating or diffusing an idea.

Federal employees could also consider implementing crosscutting initiatives to create an environment that rewards taking risks, both at the individual and organizational performance levels. Examples of crosscutting initiatives at the institutional level include creating policy guidance, centers of excellence, and senior-level forums on innovation.[4] Such initiatives are essential, as only 37 percent of Federal employees feel creativity and innovation are rewarded by their agencies, according to the Office of Personnel Management (OPM) 2015 Federal Employee Viewpoint Survey.[5] Joshua Marcuse, Executive Director of the Defense Innovation Board at the Department of Defense observes, "You have to make it comfortable and safe for your change agents and provide a support system, or one of two things will happen: They will be co-opted by the forces of inertia, or they will leave your department and go somewhere where they can make bigger differences faster. Recognize the psychological and professional costs that the system imposes on the change agent, and figure out how to protect and reward innovators for risk-taking."

Nurturing Bold Ideas in Government," Deloitte Research, 2009; and OECD. Innovating the Public Sector: From Ideas to Impact, Building Organizational Capacity for Public Sector Innovation. Paris, FR: OECD, 2014.

4 For further on public sector barriers to innovation see E. D. Glor. 2002. Innovation Traps: Risks and Challenges in Thinking About Innovation. In *Workshop on Public Sector Innovation*; D. Albury, "Fostering Innovation in Public Services." Public Money & Management no. 25 (1, 2005):51–56; T. Halvorsen, J. Hauknes, I. Miles, and R. Røste. 2005. *On the Differences Between Public and Private Sector Innovation*. Norway: Nordic Institute for Studies in Innovation, Research and Education; and W. D. Eggers, and S. K. Singh. "The Public Innovator's Playbook: Nurturing Bold Ideas in Government," Deloitte Research, 2009.

5 Office of Personnel Management (OPM), "Federal Employee Viewpoint Survey Results: Employees Influencing Change," Government Management Report, 2015, http://www.fedview.opm.gov/2015FILES/2015_FEVS_Gwide_Final_Report.PDF.

C. Background on Innovation

1. What Is Innovation in the Federal Government?

There is no singular understanding of innovation across the Federal Government. For instance, the approaches identified span multiple, overlapping communities, tasked with tackling different problems through a multitude of skill sets, time horizons, and contexts.

The academic literature has outlined several attributes of public sector innovation, but has not reached consensus on a single definition. Still, the following common attributes are often used to characterize innovation in the literature:

- creation of new processes, products, services, and methods of delivery;
- ideas that have been implemented or are in the initial stages of implementation; and
- improvements in outcomes, efficiency, effectiveness, or quality.

These characteristics strongly align with the Organisation for Economic Co-operation and Development (OECD) notion of public sector innovation, which includes novelty, implementation, and impact (Resource Box 1).

Resource Box 1. OECD's Characteristics of Public Sector Innovation

The OECD's Observatory of Public Sector Innovation collects public sector innovation practices from around the world. These are featured in country profiles and national governments can update the content displayed on the website.*

The Observatory suggested the following criterion for the collection of public sector innovation practices:

- Novelty: Though a practice might have been developed by other national governments, novelty includes all practices that are novel in the national context.
- Implementation: Ideas that have been implemented, or are in the process of being implemented.
- Impact: Includes service quality, cost efficiency, and user satisfaction; notably, requires the analysis of impacts and documentation to effectively inform policies, programs, and projects.
- * Currently the United States does not have a specific country profile; however, the observatory's website features descriptions of several U.S.-based public sector innovations.

Sources: OECD, *An Exploratory Look at Public Sector Innovation in GCC Countries*, Paris, France: OECD, 2014; and OECD, Observatory of Public Sector Innovation, "Country Profiles," https://www.oecd.org/governance/observatory-public-sector-innovation/countryprofiles.

A variety of other attributes are used to define and categorize public sector innovation:

- *Organizational:* a new method that improves organizational or administrative practices or ways of organizing or managing activities in the workplace.
- *Communication or marketing*: a new method of promoting the organization or its services and goods, new ways of influencing individual behavior.

- *Policy:* new policy directions and initiatives, innovations in the policy-making process, and policies to foster innovation and its scale-up or diffusion.
- *Governance:* changes to networks of organizations in which public and private actors participate and interact to solve societal problems, influencing decisions regarding resources and authority.
- *Systemic or system interaction:* fundamental changes to an existing system, such as through new organizations or improved ways of interacting with other organizations and knowledge bases.
- *Strategic or conceptual*: introduction of new missions, world views, visions, strategies, and concepts into an organization.
- *Cultural:* the shift of values and world views of employees in an organization

For the purposes of this report, innovation in the Federal Government is described as:

> *The creation and implementation of new processes, products, services, and methods of delivery that result in significant improvements in outcomes efficiency, effectiveness, or quality.*

2. How Does Innovation in the Federal Government Differ from Innovation in the Private Sector?

Private sector innovation has been studied for several decades. A commonly agreed-upon definition of private sector innovation is[6]

> *The implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization, or external relations.*

The definitions of innovation in the public and private sectors are not very dissimilar. However, innovation in the Federal Government is "mission-driven" (versus market-driven) and emphasizes collective choice and the need for resources, openness, and accountability to the public. Generally, the Federal Government can also manage innovations in different ways than the private sector, such as, at times, the ability to mobilize significant resources into projects or programs.

D. Considerations for Use

Considerations for use of the innovative approaches featured are specific to an organization and depend on context, goals, and resources, among other factors. Additionally, the strategies for innovation and scope of the approaches can also vary. For example, some agencies may benefit most from small, incremental changes, while others may be in need of larger scale innovative measures.

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[6] OECD, *Oslo Manual: Guidelines for Collecting and Interpreting Innovation Data*. Paris, France: OECD, 2005.

1. Thinking Strategically about Innovation

Federal agencies may wish to consider how varied approaches can be tied together through an overarching strategy to avoid innovation efforts becoming a "grab bag of much-touted best practices."[7] An overarching strategy would involve understanding and articulating how a coherent set of approaches raises the overall capacity of the organization and its workforce to be more innovative, which may be more challenging than implementing each individual approach. This process may entail thinking about how the effective implementation of innovative approaches may depend on changes occurring in other parts of the organization, e.g., functional offices—human resources, contracting, etc.—technical expertise, and culture.[8] In addition, agencies may consider using one or a combination of several approaches to support their innovation strategy (Resource Box 2).

[7] G. P. Pisano, "You Need an Innovation Strategy," Harvard Business Review, 2015, https://hbr.org/2015/06/you-need-an-innovation-strategy.

[8] Ibid.

Resource Box 2. Approaches for Innovative Strategies

Approaches to implementing innovation strategies include top-down, middle-out, and bottom-up approaches, as well as combinations thereof.

Top-Down Approach: High-level leadership support and buy-in within organizations is a critical component of innovative activities. However, relying only on direction from senior-most leaders is rarely sufficient to drive lasting change. Marcuse cautioned against pursuing only a top-down approach: "Top-down strategies often require significant time to implement, very strong leadership support—meaning political capital—in the face of opposition, and its own funding allocation dedicated to implementation."

Bottom-Up Approach: "Agency leaders can encourage and support a flourishing culture of innovation, but organizations may be limited in implementing innovative approaches if front-line employees are not encouraged and enabled to be innovative," shared Carol Lundquist of the National Security Agency (NSA). She says "a culture of innovation should allow for a diversity of execution approaches so organizations can choose the approach most likely to achieve their desired outcome based on their particular situation at that time." Lundquist recommends structuring centralized support at the lowest level that can effectively task and allocate funding and personnel resources but with distributed and grassroots decision making for assessment, selection, and execution.

Middle-Out (or Bottom-Out) Approach: This implementation strategy emphasizes peer-to-peer mentoring and support that can effectively spread new practices. Todd Park, formerly at the Department of Health and Human Services (HHS) and former U.S. Chief Technology Officer (CTO), recommends taking a team approach, stating that when he had a new idea to drive innovation, he'd go to three to five people who previously had the idea and enlist them for help. Virginia Hamilton, Regional Administrator at the Department of Labor, organically grew support for innovative approaches over time from the bottom-out by reaching out to regional staff and cultivating peer champions. "People who learn the process are your biggest advocates for the approach," she notes. "The more they used the methods, the more interest it sparked. People are naturally curious and want to be part of something; they'll begin to ask questions and want to do what their peers are doing." To encourage change through bottom-out approaches, Hamilton views the following as important considerations:

- Identifying people who are trained and experienced in the innovation you want to introduce. Someone with credibility and experience can help you communicate the ideas.
- Finding allies that will give you cover and support and allowing them to help.
- Not underestimating the microstructures; the little things matter the most. For instance, knowing how to effectively run a meeting can be instrumental.
- Seeking buy-in to understand how approaches impact the work and to foster culture change.
- Using mentors to encourage accountability, help bring people along in the process, and develop a community that increases engagement and shares ideas.

All-of-the-Above Approach: "You have to understand how to balance your portfolio of change strategies," says Marcuse, "and it's usually the case that you're doing a blend of several in a portfolio of change management initiatives." It's rarely an either/or dichotomy; top-down and bottom-up strategies may happen simultaneously on different projects. For different audiences, "pick your internal or external tone and carefully calibrate the dial," advises Michael Edson, former Director of Web and New Media Strategy at the Smithsonian. Avoid using language that antagonizes skeptics or backs them into a corner.

Sources: S. Rich, "U.S. CTO Todd Park: 3 Ingredients for a Private-Sector Mentality In Government," Government Technology, October 4, 2012; J. Marcuse, phone interview, December 21, 2016; M. Edson, phone interview, July 2016; V. Hamilton, phone interview, December 2, 2016; and C. Lundquist, email communication, February 2016.

2. Building on Incremental Innovations

While innovation can sometimes be implemented via a radical transformation, starting small and building upon incremental improvements can also lead to significant progress within the Federal Government (Resource Box 3). These incremental improvements provide an opportunity to continually refine the solution and can lay the groundwork for additional innovative measures in the future.

Resource Box 3. Moon Landing: Transformation Through Incremental Learning at the National Aeronautics and Space Administration (NASA)

"The analogy I like to use is the moon landing," says Chris Gerdes, former Chief Innovation Officer in the U.S. Department of Transportation. "That was huge. In fact, it's become shorthand notation for everything innovative: 'I'm doing a moon shot'."

"But if you look at the distance between any two [NASA] missions, it's pretty small. What they do is pick one point on the horizon, but keep moving forward and learning. And so as opposed to trying to say, "How do I get the moon?" What you need to say is, "What's the next Mercury mission? What is Gemini?"

"For the original moon landing, transformative accomplishment came from incremental, additive progress. At multiple stages, new knowledge was generated and additional resources were added to continue progressing to achieve NASA's milestones. The perspective from NASA employees was never 'Something I'm doing,' it was 'Something that we're doing'," Gerdes observes.

President Kennedy had publicly set a clear mission and time frame for putting a man on the moon. "The temptation, then, is to say, 'The President says we need to get to the moon! What do we need to build to go to the moon?' [NASA] had the discipline to say, 'It's too early to build something to go to the moon. We need to build an entire series of missions that have no hope of getting to the moon, but will make us smart.'…There's a fear of failure that holds would-be innovators back," Gerdes argues, "but if the purpose of the prototype is to learn, it's only failure if learning fails to occur."

Source: C. Gerdes, phone interview, July 1, 2016.

E. Implementation Guidelines

Innovations in the Federal Government may require implementation of crosscutting activities, including creating safe spaces and risk management processes to test and incubate ideas. For this to be successful, the Federal Government must foster a supportive environment that incentivizes and rewards innovative thinking and experimentation. Once a culture of innovation is established, the innovation process can occur. This process can be viewed as consisting of five elements: (1) generation of ideas, (2) selecting ideas for incubation, (3) prototyping and implementation, (4) replication and diffusion, and (5) analyzing implementation and learning.[9]

[9] G. Mulgan and D. Albury. Innovation in the Public Sector. United Kingdom: Cabinet Office, 2003; Walker, Richard M. "Evidence on the Management of Public Services Innovation." *Public Money & Management* no. 23 (2, 2003):93–102.; D. Albury, "Fostering Innovation in Public Services." *Public Money & Management* no. 25

1. Elements of the Innovation Process

a. Generating Possibilities and New Ideas

The process of generating new ideas can be learned and institutionalized. As Jennifer Pahlka, CEO of Code for America, observed: "User-centered, iterative, data-driven practices are not something young people in jeans do. They are not a gift bestowed on people from a certain place who look a certain way or speak a certain way or who come from certain companies. They are simply skills one learns, a bit like French or programming or origami. Government happens to need more of these skills in order to serve the public better, but the best way to spread those skills is to see them as ordinary"[10] (Resource Box 4).

Resource Box 4. Considerations for Creative Thinking

Tina Seelig, professor at the Department of Management Science and Engineering at Stanford University, and her Inventure Cycle is one of many ways to think about teaching and representing learning about innovation to others. Seelig's Inventure Cycle is a four-step process that represents the life cycle of an innovative idea:

1. Imagination—envisioning things that do not exist
2. Creativity—applying imagination to address a challenge
3. Innovation—applying creativity to generate unique solutions
4. Entrepreneurship—applying innovation, bringing ideas to fruition, by inspiring others' imagination

"There is an insatiable demand for innovation and entrepreneurship. These skills are required to help individuals and ventures thrive in a competitive and dynamic marketplace. However, many people don't know where to start. There isn't a well-charted course from inspiration to implementation. Other fields—such as physics, biology, math, and music—have a huge advantage when it comes to teaching those topics. They have clearly defined terms and a taxonomy of relationships that provide a structured approach for mastering these skills…. Without it, there's dogged belief that these skills can't be taught or learned."

Source: T. Seelig, T. and S. Blank, "How to Think Like an Entrepreneur: The Inventure Cycle," September 9, 2014, https://steveblank.com/2014/09/09/how-to-think-like-an-entrepreneur-the-inventure-cycle.

Agencies may use two methods, or a combination of them, to solicit ideas: (1) an open call for ideas and (2) challenges to specific concerns in the agency. The difficulty in the open call for ideas is that ideas often do not have a home and managers may need to engage with interested offices

(1, 2005):51–56; Hartley, Jean. "Innovation in Governance and Public Services: Past and Present." *Public Money & Management* no. 25 (1, 2005):27-34; G. Moore, *Crossing the Chasm and Dealing with Darwin: How Great Companies Innovate at Every Phrase of the Evolution*, Penguin, 2005; Design Council. Design for Public Good. United Kingdom: Design Council, 2008; Eggers, and S. K. Singh. "The Public Innovator's Playbook: Nurturing Bold Ideas in Government," Deloitte Research, 2009; and OECD. Innovating the Public Sector: From Ideas to Impact, Building Organizational Capacity for Public Sector Innovation. Paris, FR: OECD, 2014.

[10] J. Pahlka, "On Extraordinariness," Medium, August 2, 2016, https://medium.com/code-for-america/on-extraordinariness-c48a2a5e955c.

that would commit to implementing the idea. A targeted challenge is designed to generate a diverse range of potential solutions to a specific problem from across the organization. The challenge may be generated by the office that identified the problem. In soliciting ideas for solutions, Read Holman, a former policy advisor in the Office of Science and Technology Policy (OSTP), advises that agencies seeking out solutions identify ways to "understand the root problem via problem definition frameworks (root cause analysis, systems mapping, etc.) To solve the right problem, you need to ask the right question." He adds: "Source ideas from unexpected places; good ideas can come from anywhere."[11] To attract and motivate individuals to generate ideas, Hamilton advises: "Orient your language toward the problem you want to help people solve. Don't sell it as a process. Break it into individual pieces and keep the focus on solving the problem for the customer. Scale back the evangelizing, and think about how people within the agency will generate and access the idea."

Creating an environment and culture that welcomes potentially disruptive ideas may require instituting systematic mechanisms for the generation of those ideas, such as information collection platforms and techniques. Innovation platforms are typically internal tools that allow agencies to crowd-source ideas from their employees about how to improve processes and activities. An innovation platform can provide leadership to receive feedback and help select the most promising ideas to implement. (See "Example: Innovation (Idea Generation) Platforms").

[11] R. Holman, phone interview, August 12, 2017.

Example: Innovation (Idea Generation) Platforms

Three examples of innovation platforms are described below, one at the Consumer Financial Protection Bureau (CFPB), the second at the Transportation Security Administration (TSA), and the third at the U.S. Coast Guard.

- CFPB's IdeaBox is an internal innovation platform for CFPB employees to share and build ideas on how to further the CFPB's mission of improving the financial lives of consumers and how to enhance the CFPB's operations. A team supporting IdeaBox reviews and incubates the ideas for possible implementation, navigates these ideas through decision-making channels, and posts responses on their outcomes.
- The TSA's IdeaFactory is an internal innovation platform that allows TSA employees to submit ideas and collaborate on the development of innovative solutions to advance TSA's mission to keep the nation's transportation systems secure. The tool empowers some 60,000 employees that staff more than 450 airports and other offices throughout the country to submit ideas and rate and comment on the ideas of others.
- The U.S. Coast Guard's CG_Ideas@Work is an internal innovation platform that engages active duty, reserve, civilian, and auxiliary members to share their ideas. The platform allows U.S. Coast Guard personnel to respond to challenges posted by leadership or generally share their ideas in an open forum.

These agencies used innovation platforms to create more easily accessible opportunities for collaboration among employees across the country. Through their innovation platforms, these agencies are able to engage their dispersed workforce in the process of improving their respective organizations' operations and services. Innovation platforms empower employees by providing an additional channel to submit ideas for consideration by the leadership or other relevant staff in the organization.

Source: M. Desai, in-person interview, February 11, 2015; T. Cariola, in-person interview February 5, 2015; T. Weinert, in-person interview, June 1, 2017.

b. Selection of an Idea for Incubation

Not all innovative ideas may be good ideas. As such, the selection of viable innovative ideas requires the development of processes and criteria for selection and incubation, including plans for their development, likelihood of success, and anticipated outcomes. In some innovation platforms, employees can provide comments and rate the feasibility and potential impact of the ideas. Typically, these ratings are part of the selection criteria and inform leadership's decisions on which ideas to pursue. Innovation platforms and other tools that support the generation of ideas could integrate features that allow for crowdsourced selection of innovative ideas. See "Example: Selection Features in Innovation Platforms."

Example: Selection Features in Innovation Platforms

Innovation platforms may also provide some features that help managers select ideas for incubation. Similar to ways popular social media websites identify the most important topics, platforms may ask employees to rate posted material and provide feedback. For instance,

- CFPB's IdeaBox uses a system similar to Facebook that allows employees to "like" submitted ideas. The most liked ideas bubble to the top and gain greater visibility for further assessment by program managers and the IdeaBox team.
- TSA's IdeaFactory uses a 1 to 5 star rating system similar to Yelp that allows employees to rate and review contributed ideas. Similar to IdeaBox, the most popular ideas can be filtered and further discussed for possible incubation.
- The U.S Coast Guard's CG_Ideas@Work features an agree and disagree option similar to Reddit, a social media and news aggregator, in which important ideas move up or down a scale relative to other content. Users can also comment on proposed ideas to challenges, and they can disagree or agree with the comments.

Source: M. Desai, in-person interview, February 11, 2015; T. Cariola, in-person interview February 5, 2015; T. Weinert, in-person interview, June 1, 2017.

c. Prototyping and Implementing Promising Ideas

The conditions that facilitate successful prototyping and implementation of promising ideas vary by organizational context. Holman emphasizes the need to "iterate early and often," recommending "starting small with pilots or prototypes before investing significant resources in expensive and time-consuming development phases."[12] Establishing an innovation accelerator is one option that can provide opportunities to further test ideas. In addition, it may be important to identify possible end-users, and talk to them as part of the planning process to better understand steps towards implementation and their impacts.

1) Establishing Accelerators

Internal innovation accelerators provide a space for the exploration and testing of new ideas, wrapped in a structure of training, coaching, and support and access to resources. They can provide a trusted platform to grow new solutions in a low-risk, supportive environment. The accelerator model can help agencies identify paths for overcoming systems-level challenges. Accelerators also propagate an agency's innovation ecosystem by equipping internal innovators with tools to realize new ideas. Many variations of accelerators are possible. Similar to startup accelerators in the private sector, Federal accelerators may contain the following elements:[13]

- Small teams (typically of 3 to 5 people)
- Competitive application process

[12] R. Holman, phone interview, August 12, 2017.

[13] A. Ippolito, email communication, January 3, 2017.

- Some resources are given to selected teams (seed-funding, tools, leadership time, infrastructure resources, etc.). Start with a small amount of resources and let success build on itself, e.g., by documenting early "wins" and other supportive evidence from piloted ideas.
- Fixed time frame (typically 3-6 months)
- Training sprint in which the practices of customer- or end-user discovery, prototyping, and testing are introduced and executed. This could include a 3 to 5 day "boot camp" at the beginning of the accelerator program.
- Ongoing coaching and mentorship to reinforce new methodologies (typically through weekly check-ins)
- A culminating event at the end where each team presents their results to senior leadership. Teams describe what they built, what they learned, and pitch for further support to take their idea to the next level. This approach may involve a "Demo Day" or a "Shark Tank"-like event, which provide other stakeholders within the agency to hear about the idea and its successes.

Using guidance from past accelerator models, it is important to take time to adequately plan the accelerator. At the same time, cautions Holman, "Many new accelerator programs are tempted to create at the outset a highly-functioning (and complicated) accelerator program with all of the bells and whistles (teaching, coaching, dinners, webinars, funding, boot camps, shark tanks, tech tools, etc.). It is best to start small with just the basics, launch a test pilot for a year, and then refine and scale based on learnings."[14] Refer to "Example: Accelerators at the Department of Health and Human Services (HHS) and the Department of Veterans Affairs (VA)."

[14] R. Holman, email correspondence, January 8, 2017.

Example: Accelerators at the Department of Health and Human Services (HHS) and the Department of Veterans Affairs (VA)

The HHS's Ignite Accelerator is an innovation startup program for HHS staff. Begun in July 2013, the program helps employees develop bold ideas to improve how their program, office, or agency works and infuse entrepreneurial approaches into their work. Selected teams receive design thinking and lean start-up training over a three-day boot camp, followed by coaching and technical guidance over three months to empower teams to define and test creative ideas in meaningful ways.

The VA's Innovators Network Accelerator, which is supported by the Spark-Seed-Spread Innovation Funding Program, provides training to employees to learn about innovation methods. It also provides three funding types ("spark" grants to support proof of concepts, "seed" grants to support pilots of innovations, and "spread" grants to support diffusion of innovations across the VA) and mentorship support to grow and deploy innovation projects.

Sources: HHS IDEA Lab, "Ignite Accelerator: About," https://www.hhs.gov/idealab/ignite-accelerator; and Innovators network, "Spark—Seed—Spread Innovation Funding Program, http://www.innovation.va.gov/innovatorsnetwork/assets/files/SPARKSEEDSPREADFACTSHEET.pdf.

2) Engagement with End-Users

There are various ways to engage with employees, targeted communities of users, or implementers regarding executing innovative ideas. For example, leadership can use a public platform to spotlight an issue, but it's often important to have a concurrent "bottom-out" strategy (Resource Box 1). When prototyping and implementing promising ideas, Lynn Buquo, manager for the NASA Center of Excellence for Collaborative Innovation, suggests "empowering front-line staff to get information directly into users' hands and facilitate a collaborative dialogue to create an empowering environment where it's okay to develop and use new ideas. It can take a concerted effort to move from teaching the status quo (an emphasis on how to program manage or write program requirements) to an emphasis on how to identify, break down, and frame problems in new ways. Reframing the culture is very much a multi-part, collaborative process."[15]

d. Replicating, Scaling-Up, and Diffusing Ideas That Work

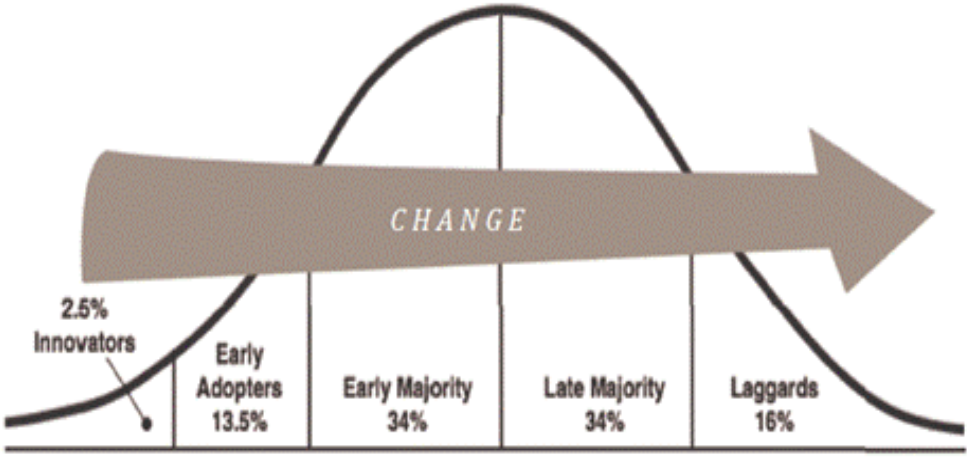
Prototypes that are successful may be diffused and applied at a larger scale within and across the Federal Government. However, it is important to avoid the "replication trap," advises Bob Sutton, professor at Stanford University, which involves trying to spread the "same thing, same way, everywhere."[16] Sutton and Huggy Rao, co-authors of *Scaling Up Excellence: Getting to More Without Settling for Less*, argue that the choice between replicating best practices versus adapting

[15] L. Buquo, email communication, January 19, 2017.

[16] B. Sutton, "Catholic or Buddhist Approach," video, eCorner, Stanford University, February 12, 2014.

and modifying them to fit local conditions is the key choice that determines the success or failure of the initiative.[17]

To better understand diffusion, Federal employees may consider how individuals take up new ideas and how change spreads across the organizational system at their agencies. For example, sociologists, economists, managers, and communications specialists have long studied how innovations diffuse and spread throughout systems and society.[18] According to Everett Rogers in *Diffusion of Innovations*, the transfer of ideas follows a distinct pattern from innovators and early adopters to followers.[19] This transfer is depicted in Figure 1.



Source: M. Edson, "How Change Happens: The Openlab Change Model," presentation, http://www.slideshare.net/edsonm/how-change-happens.

Figure 1. Innovation Adoption Curve

Figure 1. shows that champions initially create awareness of an innovative approach. This knowledge is then channeled to and through other individuals within a system. Supported by evidence of its effectiveness, agents in the system are then persuaded to adopt the innovation into their work. Edson remarks, "When the early majority sees what the early adopters are doing, they are much more likely to jump. Once you've got early adopters and the early majority, you got half of all the players committed and lasting change is more possible. As adoption increases, a

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17 A. Griswold, "Two Stanford Professors Have a Fascinating Theory of Why Businesses Succeed," *Business Insider*, February 4, 2014, http://www.businessinsider.com/scaling-up-excellence-robert-sutton-huggy-rao-2014-1.

18 Seminal examples include E. M. Rogers, *Diffusion of Innovations*, New York, NY: Free Press of Glencoe, 1962; and C. N. Christensen, *The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail*, Boston Massachusetts: Harvard Business School Press, 1997.

19 E. Rogers, *Diffusion of Innovations*, Fifth Edition, New York, NY: Free Press, 2003.

multiplier effect kicks in, and the network grows, eventually reaching a point where widespread adoption is reached. The big, hard thing is getting early adopters to commit. Late adopters are somewhat more wary, but glad to step in once a reliable proof-of-concept exists. The early majority seeks the comfort of numbers and initial precedent. The late majority will resist until the widespread diffusion of an innovation has been achieved."[20]

e. Analyzing Implementation and Learning

Throughout the innovation process, evaluations, both informal and formal, help inform the success, outcomes, and feasibility for replicating or diffusing an idea. Holman recommends "using feedback loops; incorporating early feedback into your work to make it better. Gathering evidence to support the decision-making process is useful in scaling only what works."[21] Examples are provided below of ways to foster an environment of experiential learning in professional training and development and building communities of practice.

1) Integrating Experiential Learning in Professional Training and Development

Experiential learning emphasizes hands-on interaction, which may help bridge the gap between theory and practice and better prepare Federal employees to apply new knowledge in their work. Integrating experiential learning in training and development programs may require managers and senior leadership to support the investment of resources and time for development of these programs. See "Example: Digital IT Acquisition Professional (DITAP) Training."

[20] M. Edson, phone interview, July 5, 2016.

[21] R. Holman, phone interview, August 12, 2017.

Example: Digital IT Acquisition Professional (DITAP) Training

The Office of Federal Procurement Policy within the Office of Management and Budget (OMB) and the U.S. Digital Service (USDS) created the Digital IT Acquisition Professional (DITAP) Training program to train contracting professionals on how to develop acquisition strategies for procuring digital supplies and services.

DITAP is a "whole new concept," argues Joanie Newhart, Associate Administrator of Acquisition Workforce Programs at OMB. "We think if we do this, we can change agency cultures." DITAP was designed through a challenge issued by the Office of Management and Budget on Challenge.gov.

"We had three key goals in mind when we designed this program," writes Traci Walker, Director of Digital Service Procurement at USDS: "(1) Practice: All Contracting Officers that complete this program will become digital service procurement experts. (2) Process: Contracting Officers will be equipped with the knowledge necessary to be imbedded within agency Digital Service teams to serve as a business advisor to the team, its customers, and its stakeholders. (3) Culture change: Contracting Officers will gain knowledge on how to influence their partners and allies within their agency and government by leading agency training, workshops, and consultations."

DITAP involves

- an intensive six-month blended learning program with both online and in-person components;
- online learning through a learning portal, discussion boards, interactive and live digital assignments, and collaborative in-person classroom sessions;
- hands-on training that stresses experiential learning; and
- participants working in an integrated team involving program officers and legal counsel upfront to decide together how to implement new contracting approaches.

The first DITAP class was offered in November 2016 and subsequent training was rolled out in the course of the training program based on feedback from initial course participants.

Sources: Federal Acquisition Institute, "Digital IT Acquisition Professional Training (DITAP) with Joanie Newhart," February 18, 2015; T. Walker, "Congratulating our Challenge.gov winners," U.S. Digital Service; Challenge.gov, Digital Service Contracting Professional Training and Development Program Challenge, Office of Management and Budget; J. Brown, "Prepared Remarks of U.S. CAO Anne Rung," March 22, 2016.

2) Building Communities of Practice

Federal managers may wish to consider building communities of practice, which can enable peer-to-peer knowledge-sharing and collaboration around effective innovative approaches. Communities of practice can create continued opportunities for innovators to connect with each other and with the initiatives that are being pursued. Communities of practice can also help decrease the learning curve, reduce re-work, prevent re-invention, and increase innovation.[22] Communities of practice may provide communication pathways through digital listservs, regular meetings, or events and other convening activities.

Communities can be created both *within* agencies and *across* government for maximal benefit. However, "communities of practice are not set-it and forget-it collaborations," cautions Christofer

[22] E. L. Lesser, and J. Storck, "Communities of Practice and Organizational Performance," *IBM Systems Journal*, 2001.

Nelson, former Assistant Director for Open Innovation at OSTP. He adds, "they require active management and can benefit from champions that help to manage and shepherd them along."[23] Communities of practice can require an investment of time and space for people to interact and build relationships. See "Example: Federal Prizes and Challenges Community of Practice."

Example: Federal Prizes and Challenges Community of Practice

The community of practice on Prizes and Challenges emerged from a collaborative effort with OSTP and the General Services Administration (GSA). "We seeded it early on and helped it grow," elaborates Nelson, "We wanted to create a place that provided professional development to support the growth of the community and to help people build their capacity." While a website functioned as a hub, quarterly meetings offered opportunities to build connections and share emerging best practices. "The Challenges listserv became a great tool over time, but the early workshops and events is where we laid the foundation," Nelson explains.

GSA continues to convene quarterly meetings, but the thriving community of practice activities are largely driven by the participants themselves. Nelson adds: "Now the listserv serves as support, people ask very specific, detailed, difficult questions, and it drives itself. Within one hour of a message going out, three people will respond to explain, 'This is how I did it, and here is the name of lawyer at my agency that can help'." He adds that many of the subjects of the quarterly meetings, workshops, and trainings now come from regular questions and discussions that happen on the listserv and throughout the community of practice.

Source: C. Nelson, phone interview, December 20, 2016.

2. Crosscutting Institutional Elements

a. Institutional Levers to Support Innovation

Agencies may consider using institutional levers that can support innovation, including articulation of senior leadership that innovation is a priority, developing policy guidance to encourage adoption of innovation, and establishing enabling units, centers of excellence, and a senior-level forum or council.

1) Making Innovation a Senior Leadership Priority

In dozens of interviews spanning each approach, innovators repeatedly emphasized the critical importance of high-level leadership support. "The job of leaders is to figure out how to surface, encourage, and foster employee talent to solve the problems that need to be solved**.** Most of the time, the answers are within the room itself. It's just about *how you create the environment to share or think in different ways*," shares Jim Macrae, Associate Administrator of the Health

[23] C. Nelson, phone interview, December 20, 2016.

Resources and Services Administration.[24] For example, "when leaders at any level, whether a frontline supervisor or agency head, put into place mechanisms for benchmarking progress on a project, ask questions about, or ask to meet the people working on it, they signal that innovative work is valued and create psychological safety for other aspiring innovators," explains Marcuse.[25]

Bryan Sivak, former Chief Technology Officer at HHS remarks that the HHS Deputy Secretary "…was always there for advice, for help connecting with various parts of the bureaucracy (political or career), available to show up at an event, give remarks and praise, and just generally be a good leader. But he always let us execute, which is the main reason we were successful."[26]

2) Developing Policy Guidance to Encourage Use of New Approaches and Tools

Federal managers can consider how to use policy guidance to encourage the adoption of new approaches and tools. Policy guidance may help employees better understand how to apply new approaches or tools to a given setting and what mechanisms are available to help support their implementation, including describing key roles and responsibilities for deployment. The delegation or decentralization of authority may also facilitate the use of new methods by reducing the burdens for approvals. Agencies may consider targeting policies at varied levels to increase awareness and overcome barriers to implementation:

- Policy guidance across the government: An official with cross-governmental authority may refer back to the statutory language to provide clarity on legislation. For example, the Office of Management and Budget (OMB) regularly issues memos to clarify how statutory language can be interpreted and answers frequently asked questions to explain in more detail new or existing statutes.
- Agency-specific guidance: Each agency can create its own dedicated policy guide expressing how and when to use innovative approaches and explaining the relevant authorities or supporting policies. At this level, it may be important that agency heads understand how they can encourage greater adoption by delegating authority for approvals to lower levels. For example, to institutionalize and encourage the adoption of prizes and challenges at HHS, former HHS Secretary Kathleen Sebelius delegated authority to operating and staff division heads, providing them the ability to run their own prizes and challenges without seeking Secretary approvals.[27]

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[24] M. Sekhar, "Operationalizing Innovation: A Q&A with Jim Macrae," HHS IDEA Lab, November 25, 2015.

[25] J. Marcuse, J., phone interview, December 21, 2016

[26] B. Sivak, email communication, January 19, 2017.

[27] Federal Register, "Department of Health and Human Services (HHS): Office of the Secretary, Delegation of Authority," Vol. 76, No. 86, May 4, 2011, p. 25355, https://www.gpo.gov/fdsys/pkg/FR-2011-05-04/pdf/2011-10847.pdf.

3) Establishing Enabling Units or Centers of Excellence

Existing organizational structures have enormous operational responsibilities, and sometimes lack the bandwidth and capacity to work through the challenges of executing new methods for the first time. Establishing a dedicated group to focus on these measures that can cut across an agency's functions and activities, such as a center of excellence for innovation, may provide a space for employees to cultivate their ideas with support from dedicated staff and expertise. "Coming up with ideas isn't the problem, it's the hard work of selling the idea and getting way into the weeds with the people who actually have to execute the idea," notes Camron Gorguinpour, Director of the Air Force's Office of Transformational Innovation.[28] Centers of excellence may also provide a safe space for experimenting with new methods.

In standing up new centers of excellence, he advises that "agencies should consider how to integrate new units within the operations of their organization to ensure the entire organization benefits from a center's focused expertise. New units should look broadly and think through how to navigate the interdependence of different actors and functional area, especially in complicated bureaucracies." Additionally, "think thoroughly about a robust internal communications strategy," advises Buquo.[29] The messaging developed regarding a new unit's role within the agency may be an important aspect of broadly encouraging innovation and attracting employees to learn, share, and execute their ideas.

4) Establishing a Senior-Level Forum or Council

Federal agencies may wish to convene senior leaders via an innovation council or other forum to signal the importance of innovation to employees. A forum or council could help support broader thinking and dialogue regarding strategic innovation and the ideas or approaches being pursued. In addition, it could help create consensus and coordinate the advancement of innovative approaches across the organization.

In implementation, Holman suggests that "agencies create a clear purpose for the council to encourage participation and engagement from members; it's important that councils don't become simply another meeting. The membership composition of a council is also important for maximizing its impact: Effective councils break down standard hierarchies and have both senior leadership as well as staff-level involvement."[30] Sanjay Koyani, Executive Director of Innovation at HHS adds: "While membership can differ depending on the purpose of the council, it is important to seek and support engaged individuals as members who are influential, available and

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[28] C. Gorguinpour, phone interview, December 22, 2016.

[29] L. Buquo, phone interview, December 22, 2016.

[30] R. Holman, email communication, January 8, 2017.

willing to work on propelling innovation initiatives forward."[31] (See Appendix A for a description of the HHS Innovation Council.)

3. Alignment of Incentives to Reward Risk-Taking and Experimentation

Agencies may wish to consider how formal recognition could be part of a strategy to create an atmosphere where innovators feel valued and supported within their organizations. Examples of formal recognition include rewarding innovators publicly and integrating innovation in employee performance plans.

a. Recognizing Innovators through Awards and Acknowledgement

Recognizing Federal innovators through agency awards or acknowledgements, such as letters from senior officials, or through other opportunities, such as attendance at events with agency leadership or other high-profile individuals, can help encourage a culture that celebrates and sustains innovative work and risk-taking. Rewards and recognition can also provide a visible example of what peers are doing and build support for adoption of ongoing initiatives. Aligning employee incentives with activities that nurture innovation can help agencies shift their culture.

Agencies have some flexibility in designing their awards programs; however, supervisors should work with their agency awards administrators to determine the types of awards and governing policies related to providing awards in their agency. The types of awards agencies may give Federal employees as individuals or members of a group include:[32]

- Cash;
- Honorary recognition;
- Formal recognition; or
- Time off without charge to leave or loss of pay.

One possible strategy in instituting rewards is to focus on rewarding managers. "The supervisor is center of gravity of any organizational strategy," shares Marcuse, "You can't influence the behavior of the workforce without influencing behavior of the management. Many senior leaders try to send signals to their workforce by essentially speaking directly to them, going over the heads of multiple layers of management. This approach helps, but it's a more powerful strategy to engage managers and modify their incentives to reward different behaviors."[33]

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[31] S. Koyani, email communication, January 4, 2017.

[32] Office of Personnel Management (OPM), "Performance Management – Performance management Cycle: A Supervisor's Quick Review of Awards."

[33] J. Marcuse, email communication, January 19, 2017.

b. Integrating Innovation in Individual Employee Performance Plans

Individual employee performance management plans can be another avenue to align incentives towards innovative activities.[34] Integrating measures into performance plans can explicitly encourage experimentation. By starting with goals set at the highest level of an agency and reflecting downward through each employee's individual performance management plan, individual plans can be aligned with agency-level strategic goals and sub-goals.[35]

Agencies vary in their use of performance plans. The potency of performance plans as a lever for encouraging innovation may depend on how seriously the plan is treated within the agency and by supervisors. According to OPM, challenges with using performance plans to incentivize innovation in this way include increased employee stress, fear of failure, setting goals as ceilings, and ignoring non-goal areas.[36] These challenges may be addressed via management strategies like clear, open communication and realistic, achievable goal-setting. Mark Naggar, Program Manager for HHS Buyer's Club, suggests that aligning individual performance plans with agency goals in a transparent fashion can be an effective tool for instituting culture change.[37]

c. Linking Innovation with Agency Performance Management Agenda

Agencies annually document agency-wide performance plans and performance reports. Agencies can consider ways to link innovative approaches into these plans and reports to track progress and demonstrate how innovations can lead to improved agency performance. Adopting goals that relate to innovative approaches is one way agency leadership can signal their support and commitment for using these methods. Unrealistically ambitious goals can be discouraging, so quantified goals may need to start small and increase in ambition over time as an agency gains experience implementing innovative approaches. The identification of agency-wide goals in support of innovation can also benefit from collaborative, employee-centered dialogue.

Drivers to measure, analyze, and communicate agency performance include mandates under the Government Performance and Results Act (GPRA) of 1993 and GPRA Modernization Act of 2010, among other governing policies (Refer to Appendix B for further information).[38]

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[34] D. Chenok, "Encouraging and Sustaining Innovation in Government for the New Administration," IBM Center for the Business of Government, March 3, 2016.

[35] M. Naggar, phone interview, December 29, 2016

[36] OPM, "Performance Management—Improved Performance Starts with Planning IV," https://www.opm.gov/policy-data-oversight/performance-management/performance-management-cycle/planning/improved-performance-starts-with-planning-iv.

[37] M. Naggar, phone interview, December 29, 2016.

[38] For examples of Federal agency performance goals, refer to www.performance.gov.

F. Lessons Learned

Some lessons learned for institutionalizing innovation processes and fostering culture change in the Federal Government include:

- Facing Skepticism with Evidence and Persistence: Evaluation and the collection of evidence can help demonstrate to skeptics the value of implementing new ideas. Jennifer Pahlka notes, "You have to step back–sometimes way back–and try to justify, explain, convince, win over dozens or hundreds of people in order to do what you came to do…. It's hard."[39] It may be useful to consider how innovative approaches can be implemented incrementally as a way to grow support as pilots demonstrate evidence.
- Understanding Institutional Contexts: No one size fits all—innovations must be adapted to best fit your agency, so approaches need to be tailored to the problems and resources specific to individual agencies. New practices cannot be replicated across agencies if their implementation does not reflect the agency-specific contexts. For transformative change, champions must teach colleagues *how* to get things done, using storytelling to illustrate and salesmanship to persuade.[40]
- Identifying Barriers: It is important to know where genuine barriers to exist with respect to compliance with Federal statutes, regulations, and policy or procedures in place at agencies. Similarly, it is important to educate others across the agency about perceived obstacles, because such perceptions may inhibit adoption of new approaches.
- Focusing Communication on Intended Outcomes: A shared understanding of the purpose for the innovation can be an important factor in successfully implementing new approaches. Agencies may wish to consider how to clearly communicate how novel practices are intended to lead to positive mission-relevant outcomes.
- Accessing Tools: Federal employees may operate in an environment that can be naturally inhibitive. With varying appetites for risk-taking and openness for change, employees may be looking for tools and capabilities to do their jobs better. Would-be innovators may benefit from recognition, encouragement, and access to these tools and capabilities to initiate and diffuse new practices. Institutionalizing these tools and capabilities could promote sustained innovation in the long term.

G. Future Considerations

Innovation is not a process with a fixed beginning or ending. Innovation is a dynamic process responding to continuously changing needs and outcomes. An innovative method today may be

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[39] J. Pahlka, "On Extraordinariness," *Medium*, August 2, 2016.

[40] +Acumen, "On Leading Change: Three Simple Lessons on Innovation from Government," August 9, 2016.

the widely adopted status quo ten years from now.[41] New methods will continue to emerge. Innovation can help lead to a more efficient Federal Government. When government works better, lives are improved and civic confidence grows. In order for government to work better, the practices of government must continually improve and evolve.

Participants and users of the resources described could ask themselves what innovative methods are missing or should be made more visible to the Federal community? How do agencies identify the innovations within their agencies and find ways to raise their awareness to a federal-wide community of implementers? What other methods and mechanisms are complementary to the approaches in the Federal Government that could be developed to promote institutionalization of innovative capacity across the government? How can Federal employees continue to learn about the implementation of innovative approaches and share best practices? What are opportunities to raise awareness of government-wide approaches in the Federal Government?

[41] E. Ries, *The Lean Startup: How Today's Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*, p. 268, Crown Business Publishing, 2011.

Appendix A.
Additional Examples of Institutional Levers and Incentives to Promote Innovation in the Federal Government

This appendix provides additional examples of successful means of crosscutting institutional elements, including use of institutional levers to support innovation and alignment of incentives to reward risk-taking.

Institutional Levers to Support Innovation

This section provides examples of how agencies have used institutional levers successfully to support innovation.

Crowdsourcing and Citizen Science Community of Practice

The Crowdsourcing and Citizen Science Community of Practice represents a grassroots approach to building a knowledge-sharing community. The group began three years ago as a small listserv with five members and has now grown to more than 300 Federal employees from 59 government organizations.[42] The group grew organically over time, "just because people wanted to connect with one another," recounts Nelson.[43] The group was largely self-organizing, with some support from OSTP and GSA to "help shepherd it along and develop it more formally…on the policy side."[44] The community of practice continues to operate as a grassroots effort and gathers regularly to share resources, methods, and idea and feed into more formal policy work on the subject.

Health Resources and Services Administration (HRSA) Leadership Training Program

Through the HRSA leadership training program, employees participate in a seven-month project. The project consists of teams of employees that apply design-thinking techniques to propose solutions to big problems experienced by the agency. "Rather than going to a class, the training is

[42] K. Olson, "Federal Agencies Take Citizen Engagement to a New Level," GSABlog, December 12, 2016.

[43] C. Nelson, phone interview, December 20, 2016.

[44] C. Nelson, phone interview, December 20, 2016.

experiential, focused on customer discovery and employees interacting directly with the people necessary to address the problems," says Macrae.[45]

After HRSA's leadership training program, participants reported that they would use the skills gained in the next problem they confronted. "This was the institutionalizing of it," Macrae notes: "Now, we can do this again and again and this is where the culture can shift. Not every idea has to go through an incubator."[46] Shifting the daily mindset is the goal. Teaching design thinking as an innovation method provided HRSA staff with foundational tools while helping adjust employees' mindsets towards solving problems and institutionalizing an innovative culture.

New Units or Centers of Excellence: NASA's Center of Excellence for Collaborative Innovation (CoECI)

NASA established the Center of Excellence for Collaborative Innovation (CoECI) in November 2011 after a successful pilot program to assess if the use of crowdsourcing could accelerate and augment NASA's research and development efforts.[47] Buquo explains, "The Center started small, scaling operations as it proved success through quick wins with internal NASA teams along with its collaborations with other agencies.[48] Through the NASA Tournament Lab, an online virtual community used to facilitate crowdsourcing, CoECI helps employees collaborate with others within the NASA organization and across the Federal Government on challenge-based approaches.[49]

CoECI acts as an expert resource on crowdsourcing and prize-based challenges (including scope development, cost and schedule management, marketing, and awards). CoECI educates and shares best practices across the Federal Government. CoECI also measures performance impacts and uses data-driven analysis to demonstrate the value of crowdsourced challenges and identify ways to make implementation more effective. Nelson, shares that "CoECI's efforts helped lay the groundwork for adoption of challenges and crowdsourcing in the Federal Government by establishing a knowledge base of why these mechanisms did or did not work."[50]

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45 J. Macrae, phone interview, December 2, 2016.

46 J. Macrae, S. Matoff-Stepp, M. Arsenault, and S. Miller, phone interview, December 2, 2016.

47 J. R. Davis, "Open Innovation Projects: NASA Challenges through Open Innovation," NASA Johnson Space Center, https://www.nasa.gov/centers/johnson/pdf/478350main_2010-davis-nasaOpenGovInnovationArticlePosting.pdf.

48 L. Buquo, phone interview, December 22, 2016.

49 Center of Excellence for Collaborative Innovation (CoECI), "NASA Tournament Lab," https://www.nasa.gov/coeci/ntl.

50 C. Nelson, phone interview, December 20, 2016.

Air Force Office of Transformational Innovation (OTI)

The Air Force created OTI in June 2014 to help identify and execute new acquisitions processes and enable the Air Force to deliver capabilities more quickly and cost-effectively. Originally envisioned as a single position responsible for working with the acquisition community, the explicit goal was to implement "Bending the Cost Curve," a targeted initiative to engage with industry to improve procurement.[51] Gorguinpour says, "With positive initial reception to early discussions and experimentation, in two years a staff of two has scaled to become a staff of 11."[52]

OTI collaborates with internal and external stakeholders to propose ideas and prototype radical changes to address acquisition challenges. "We're there to handhold, collaborate, communicate, and work with folks every step of the way," Gorguinpour explains.[53] One success has been the creation of an Airworthiness Accreditation process for non-defense military aircrafts (NDMAs), which alleviates the up-front costs necessary for industry to develop NDMAs by providing a cost-reimbursable service to industry.[54] OTI activities are executed with a "fail fast" model, meaning that each activity is given six months to demonstrate clear potential promise. The OTI openly documents and regularly updates a list of failed projects on their website.

OTI functions as an adjunct organization that reports directly to the Air Force's Assistant Secretary for Acquisitions. OTI's relationships with other Air Force contracting offices have evolved over time; Gorguinpour explains, "We don't come in as a hammer over the head about how to do things better; that's not effective and would not last. Instead, we're trying to create a fair and open marketplace of ideas. We have to convey to others—with enough detail—*why* trying something new is important."[55] In 2016, a dozen programs proactively reached out to OTI for guidance on how to use flexible contracting authorities. OTI advised on how to evaluate the use of authorities within the acquisition plan and maximize potential benefits.

HHS Innovation Council

Chartered in 2012, the HHS Innovation Council creates and promotes a culture of innovation across HHS and coordinates the Department's innovation efforts. The Council represents interests across the Department in addressing broad community issues and resolving barriers to innovation. The Council serves as the convening body to spark and help institutionalize innovation activities. The Council membership comprises HHS's CTO, the Assistant Secretary of Administration, one member from each operating or staff division, and two HHS employees (non-voting). Most

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[51] Transformational Innovation, "Bending the Cost Curve (BTCC), http://www.transform.af.mil/BTCC.aspx.

[52] C. Gorguinpour, phone interview, December 22, 2016

[53] Gorguinpour, phone interview, December 22, 2016.

[54] Transformational Innovation, "Airworthiness Accreditation," http://www.transform.af.mil/Successes/AirworthinessAccreditation.aspx.

[55] C. Gorguinpour, phone interview, December 22, 2016.

Council meetings are open to HHS employees. Koyani says, "Council meetings have attracted large employee turnout from across the Department. It is notable that over 1,000 HHS employees signed up to track the activities of the HHS Innovation Council via Yammer, a social networking platform.[56]

Koyani explains how the Council played a central role in advancing HHS's innovation agenda: "During its first three years of existence, the Council enabled many important advances, including facilitating a change in the social media policy from a confined approach to one that enables uses of social networking platforms by HHS operating divisions; development of new solution-generating pathways, such as prize competitions, that use open innovation practices to solve key challenges; creative uses of hiring authorities…to leverage outside expertise; and the creation of innovation programs."[57]

In 2012, an individual from the HHS New Media team presented a seemingly minor issue that had substantial impact on frontline staff: The legal process for approving new tools to be used was unnecessarily complicated. This presentation, made by a GS-11 directly to the CTO of HHS, the Assistant Secretary for Administration, and others, resulted in a Secretary-level memorandum to simplify the processes. According to Holman, "This outcome saved a substantial number of hours and thus taxpayer dollars, which ultimately increased the Department's ability to carry out its mission."[58]

The Council meetings took a brief hiatus in late 2014 and re-launched in 2015. Since its re-launching, the Council has been exploring solutions to crosscutting barriers to innovation, such as hiring practices, and served as an advisory body to the innovation efforts led by the HHS CTO. Holman adds that the value of the Council was in "its very existence as a body advising the Secretary signaling to all HHS staff the importance of seeking new approaches and outside-the-box ideas."[59] The memo documenting approval of the HHS Innovation Council Charter demonstrates how a Department can formally create this mechanism.[60]

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[56] S. Koyani, email communication, January 4, 2017.

[57] S. Koyani, email communication, January 4, 2017

[58] R. Holman, email communication, January 8, 2017.

[59] R. Holman, email communication, January 8, 2017.

[60] Refer to HHS memorandum, Subject: Request for Approval for the HHS Innovation Council Charter, July 3, 2012, https://www.hhs.gov/idealab/wp-content/uploads/2014/05/Approval-of-the-HHS-Innovation-Council-Charter-091812.pdf.

Alignment of Incentives to Reward Risk-Taking and Innovation

The following examples provide insight into how agencies have used formal recognition as part of a strategy to create an atmosphere where innovators feel valued and supported within their organizations.

HHS Innovates Awards

One example of an agency-level recognition program is the HHS Innovates Award, which identified and celebrated employee-led innovation at HHS.[61] Each year, HHS employees were encouraged to submit their innovative solutions or nominate work by their colleagues. Top innovative solutions were voted on by HHS staff, and winning innovators were personally recognized by HHS leadership in an awards ceremony. In addition to engaging the community of innovators across HHS, participants also received:

- Recognition for their work across HHS and in the media;
- Cash prizes for winning innovators; and[62]
- Inclusion of HHS Innovates certificate in winning innovators' employee performance files.

Between 2010 and 2015, HHS employees nominated over 500 staff-driven innovations, with more than 200 employee innovators recognized by the Secretary.[63] "Recognition is one of the reasons why people actually participate in these things. They want to see their ideas develop. They want to be able to experiment with some of these concepts. But to get recognized by the leadership of the department is also very compelling," comments Sivak.[64]

HRSA Holistic Incentive System for Innovation

"Rewarding people for being innovative, and making the resources (both time and money) available to encourage employees to take risks may help institutionalize a culture of innovation," according to Macrae.[65] At HRSA, a holistic incentive system was developed including:

- Mentors and leaders: Both can play an important role recognizing staff for being creative and fulfilling the agency's goals. Recognition can be a verbal acknowledgement, a pat on the back, or a formal letter of recognition. Acknowledging individuals and teams for their work in front of other staff reinforces the message that

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61 HHS IDEA Lab, "Innovates Awards—About."

62 For HHS Employees and Commissioned Corps Officers only.

63 HHS IDEA Lab, "Innovates Awards—About."

64 A. Feldman, "Implementing a Department-Wide Innovation Strategy: An Interview with Bryan Sivak, Chief Technology Officer, U.S. Department of Health & Human Services – Episode #58," GovInnovator Podcast, August 20, 2014.

65 J. Macrae, phone interview, December 2, 2016.

effort toward innovative problem-solving is taken seriously within the agency and sets a course toward greater adoption of the desired mindset.

- Awards: HRSA began an annual in-house innovation award to reward ideas that come through their organizational innovation ecosystem. Additionally, employee submissions to their idea incubator have increased gradually over time, sparking further recognitions for employees by the HHS Innovate program.
- Symposium: HRSA began a research and innovation symposium as a way to provide recognition to staff. Employees present at the symposium and are recognized for their work on developing or conceptualizing various tools.

Linking Innovation in Individual Employee Performance Plans at HHS

Naggar explains, "Individual performance plans are an opportunity where employees can actively engage in and shape the expectations for their work. Each performance management plan has multiple elements associated with an individual's functional role or responsibilities, like administrative or communication work. Typically, metric-based components are evaluated in conjunction with employee performance, which feeds into their ratings."[66]

While supervisors may take a lead role in designating what performance plans will measure, Naggar shares that, for him, "it was useful to actively engage with employees in the process and directly integrate his agency's strategic goals into individual performance plans."[67] Through this process, he integrated two goals from the HHS Strategic Plan into employee performance plans to ensure that outcomes were grounded in agency priorities:

1. Enhance the quality, availability, and delivery of information
2. Promote interoperability and integration of information resources

Naggar also suggests that "if forms were redesigned in a user-centric way and captured digitally, agencies could easily leverage results to assess agency-wide areas for improvement. '360 degree' reviews are a common tool in the private sector that could be incorporated into how agencies use performance management. Efforts to holistically align organizational incentives would ideally harmonize the different performance metrics to encourage greater collaboration between cross-functional teams. You need to know what's going on around you—what your work is connected to, and how it relates."[68]

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66 M. Naggar, phone interview, January 11, 2017.

67 M. Naggar, phone interview, January 11, 2017.

68 M. Naggar, phone interview, December 29, 2016.

Linking Innovation to the HHS Performance Management Agenda

In February 2015, HHS added two new goals to its 2016 Annual Performance Plan:[69]

1. Increase the number of innovation solutions developed across the Department.
2. Increase the number of opportunities for the public to co-create solutions through open innovation.

"Further defining innovative acquisition as part of the metrics for these goals was a challenging process," notes Naggar. "It can be difficult to define something new that hasn't been measured before. The unknowns in novel approaches can make it difficult to achieve consensus on how to define a new concept, how to measure and capture it, and how to incorporate those measurements into accountability plans. Outside senior support that can lend 'air cover' and help to shepherd a new concept through the approval process was essential," he notes. Integrating explicit goals to track innovative activities into HHS's annual performance plan established firm goal posts for the organization to move towards. "This aimed to encourage innovation to be actualized, not just talked about."[70]

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69 HHS, "Annual Performance Plan, Fiscal Year 2016," https://www.hhs.gov/about/budget/FY2016/performance/index.html.

70 M. Naggar, phone interview, January 11, 2017.

Appendix B.
Supporting Policies Related to Increasing Awareness, Adoption, and Adaptation of Innovation in the Federal Government

This appendix provides legislation, policy and guidance reports that broadly support increasing awareness, adoption, and adaptation of innovation in the Federal Government.

Legislation

S.3084—American Innovation and Competitiveness Act, January 2017

The America COMPETES Reauthorization Act, includes authority for all Federal agencies to conduct prize competitions.

GPRA Modernization Act of 2010 (GPRAMA) (Public Law 111-352) January 4, 2011

Government Performance and Results Act of 1993 (GPRA)

Policy and Guidance

Innovation in Performance Planning

"Principles for Federal Engagement in Standards Activities to Address National Priorities" OMB, M-12-08, January 17, 2012.

"Delivering an Efficient, Effective, and Accountable government and Implementation of the GPRA Modernization Act of 2010," OMB, M-11-31. Aug 17 2011.

"Delivering on the Accountable Government Initiative and Implementing the GPRA Modernization Act of 2010." OMB M-11-17. April 14 2011.

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"Strengthening Employee Engagement and Organizational Performance." OMB, OPM, WHPPO. M-15-04. Dec 23 2014, https://www.whitehouse.gov/sites/default/files/omb/memoranda/2015/m-15-04.pdf.

Office of Personnel Management (OPM). "Performance Management—Improved Performance Starts with Planning IV," https://www.opm.gov/policy-data-oversight/performance-management/performance-management-cycle/planning/improved-performance-starts-with-planning-iv/.

"Institutionalizing Hiring Excellence to Achieve Mission Outcomes." OMB M-17-03. Nov 1 2016, https://www.whitehouse.gov/sites/default/files/omb/memoranda/2017/m-17-03.pdf.

Performance.gov website, www.performance.gov.

Rewards

OPM, "Performance Management Cycle: Overview," https://www.opm.gov/policy-data-oversight/performance-management/performance-management-cycle.

OPM, "Performance Management Cycle: Awards Ceremony Suggestions," https://www.opm.gov/policy-data-oversight/performance-management/performance-management-cycle/rewarding/awards-ceremony-suggestions.

OPM, "Performance Management Cycle: Ceremony Has Its Own Recognition Value," https://www.opm.gov/policy-data-oversight/performance-management/performance-management-cycle/rewarding/ceremony-has-its-own-recognition-value/.

OPM, "Performance Management: Performance Management Cycle," https://www.opm.gov/policy-data-oversight/performance-management/performance-management-cycle/.

Prizes and Challenges Toolkit, "Resources," Sample Agency Policies and Capacity Building, https://www.challenge.gov/toolkit/resources/.

Appendix C.
Additional Resources for Learning About and Scaling Up Innovative Approaches in the Federal Government

This appendix provides additional resources on topics—including existing communities of practice, views on Federal Government innovation, development and launch of accelerators, building communities of practice, innovation and performance management, and other resources, such as related toolkits on innovation, multimedia, reports, articles, and books—to support would-be adopters in increasing awareness, adoption, and adaptation of innovation in the Federal Government.

Communities of Practice

- Federal Community of Practice for Change Management, established by Association of Change Management Professionals, DC, Chapter and open to all Federal Government employees, http://www.acmpdc.org/?page_id=26.
- Hack-the-red tape, a listserv on hacking red tape for innovators in the Federal Government, open to all Federal Government employees, https://list.nih.gov/cgi-bin/wa.exe?SUBED1=HACK-RED-TAPE&A=1.
- Innovation Committee, established by the U.S. Chief Information Officer and the Federal CIO Council, (CIO.gov), focuses on enabling transformation to the 21st century government through strategic investments in information technology, https://cio.gov/about/groups/innovation-committee/.
- MobileGov Community of Practice, a network of Federal employees that shares information, practices and tools online and through events to keep government on top of mobile technology; activities include the Federal Crowdsource Mobile Testing Program, the Structured and Open Content Models Working Group, as well as offering programing through webinars and in-person events via DigitalGov University, https://www.digitalgov.gov/communities/mobile/.
- Social Media Community of Practice/SocialGov Community: Unites more than 1000 digital managers across the Federal and state government in an inter-agency program aimed at improving the creation, adoption and evaluation of digital engagement programs. The SocialGov Community launched in June 2012 as a performance-based inter-agency collaboration, working with missions across government, the White House,

international partners, public private partnerships, and citizens to promote the effective and responsible use of social media and digital engagement for measurably improving citizen services, making them more inclusive and accessible, and reducing their costs, https://www.digitalgov.gov/communities/social-media/.

Views on Innovation in the Federal Government

"Innovation as a Problem Solving Tool in Government," Office of the Chief Technology Officer - U.S. Department of Health and Human Services, December 2016: An overview of how HHS has deployed innovative approaches to deliver on its mission, https://www.hhs.gov/idealab/wp-content/uploads/2017/01/Innovation-as-a-Problem-Solving-Tool-in-Government_final.pdf.

"Open Innovation: Practices to Engage Citizens and Effectively Implement Federal Initiatives," U.S. government Accountability Office, October 13, 2016: Open innovation tools for more effective citizen engagement, http://www.gao.gov/products/GAO-17-14

"Innovation at DARPA," DARPA, July 2016: This report outlines the history of innovation at DARPA and discusses processes and practices within the institution to create an innovative environment, http://www.darpa.mil/attachments/DARPA_Innovation_2016.pdf.

Davis, J. and Richard, E. E., "Advancing Innovation through Collaboration: Implementation of the NASA Space Life Sciences Strategy," International Astronautical Federation, 2011: An overview of the current collaborative strategies in NASA and future possibilities, http://www.nasa.gov/pdf/649978main_IAC-11E612x9614AdvInnov.pdf.

Davis, J. and Richard, E. E., "Accelerating Innovation: NASA Human Health and Performance," NASA, January 29, 2016: Slide deck on instituting innovative approaches based on NASA experiences with human health and performance, http://www.aiaahouston.org/presentations/Open_Innovation_%E2%80%93_Results_New_Capabilities_Strategic_Framework.pdf.

"Data and Analytics Innovation: Emerging Opportunities and Challenges," U.S. Government Accountability Office, September 2016: GAO convening summary of the emerging innovation opportunities presented by big data and analytics, http://www.gao.gov/assets/680/679903.pdf.

"Open Innovator's Toolkit," National Science and Technology Council, February 8, 2012. Former CTO Aneesh Chopra lays out a vision for innovation in government, https://www.whitehouse.gov/sites/default/files/microsites/ostp/openinnovatortoolkit_nstcmemo.pdf.

"NASA Challenges through Open Innovation," This memo provides a glimpse of the early evolution of NASA's efforts on open innovation, including the pilot efforts that led to the founding of CoECI, https://www.nasa.gov/centers/johnson/pdf/478350main_2010-davis-nasaOpenGovInnovationArticlePosting.pdf.

"Houston, We Have a Problem: NASA and Open Innovation," (Parts A and B), Harvard Business School case studies, N9-414-044 and N9-414-057, Michael Tushman, Hila Lifshitz-Assaf, Kerry Herman, May 5, 2014.

HHS IDEA Lab, HRSA, "A Project, a Pilot and a Plan: Promoting a Culture of Innovation."

Resources to Develop and Launch Accelerators

HHS IDEA Lab, "Ignite Accelerator Syllabus," http://www.hhs.gov/idealab/ignite-syllabus.

"VA Innovators Network continues to make progress," from VA's VAntage point blog, April 2016, http://www.blogs.va.gov/VAntage/26872/va-innovators-network-continues-make-progress-improve-veteran-experience-innovation/.

"Innovators across VA showcase their efforts," from VA's VAntage point blog, August 2016.

"Spurring Digital Innovation with a Page from the Silicon Valley Playbook," John Ream and David, Deloitte, February 2016, http://dupress.deloitte.com/dup-us-en/focus/signals-for-strategists/corporate-accelerators-spurring-innovation-startups.html.

"Innovation Accelerators: Defining Characteristics among Startup Assistance Organizations," report for Small Business Administration, October 2014, https://www.sba.gov/sites/default/files/rs425-Innovation-Accelerators-Report-FINAL.pdf.

Data on hundreds of accelerators and the companies they fund around the world, from Seed-DB, http://seed-db.com/accelerators.

"Accelerating Growth: Startup Accelerator Programs in the United States," Ian Hathaway, Brookings, February 2016, https://www.brookings.edu/research/accelerating-growth-startup-accelerator-programs-in-the-united-states.

Resources to Help Build Communities of Practice

HHS (https://www.acf.hhs.gov/ocs/resource/establishing-a-community-of-practice-to-enhance-training-technical) suggests the following resources for establishing communities of practice:

Gottlieb, H., "Learning Communities / Communities of Practice / Learning Circles: What are they? How do they work? Why would we want one?" Help 4 NonProfits, 2009, http://www.help4nonprofits.com/NP_EDU-Cm_Learning_Communities.htmVisit%20disclaimer%20page.

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Lesser, L. E. and Storck, J., "Communities of Practice and Organizational Performance," IBM Systems Journal, 2001, http://www.providersedge.com/docs/km_articles/CoP_and_Organizational_Performance.pdf.

McDermott, R. and Archibald, D., "Harnessing Your Staff's Informal Networks," Harvard Business Review. March 2010, http://hbr.org/2010/03/harnessing-your-staffs-informal-networks/ar/1.

Digital.gov, "Communities," https://www.digitalgov.gov/communities.

Resources on Innovation and Performance Management

Behn, B., "Why Measure Performance? Different Purposes Require Different Measures," Public Administration Review, September/October 2003, Vol. 63, No.5.

"Why Successful Performance Measurement Starts with Considering Purpose: An Interview with Bob Behn, Professor, Harvard Kennedy School." GovInnovator Podcast, July 14, 2014.

Other Resources

Toolkits on Innovation

Capacity to Innovate: Guidance for innovating in your organization, http://capacitytoinnovate.org/.

DIY Toolkit: Practical tools to trigger & support social innovation, http://diytoolkit.org/.

Open Opportunities: Platform to engage with other Federal employees on projects across the government, https://openopps.digitalgov.gov/.

Multimedia

"Operationalizing Innovation: A Q&A with Jim Macrae," November 25, 2015, https://www.hhs.gov/idealab/2015/11/25/operationalizing-innovation-qa-jim-macrae/.

Harvard Business Review on leadership styles, https://hbr.org/topic/leadership.

TED Talks on leadership, https://www.ted.com/topics/leadership.

Tina Seelig on the "Inventure Cycle," 2.5-minute video], http://ecorner.stanford.edu/videos/2266/The-Art-of-Teaching-Entrepreneurship-and-Innovation-Entire-Talk.

Gov Innovator Podcast: Conversations on useful practices and insights from public sector innovators and experts, hosted by Andy Feldman, a Visiting Fellow at the Brookings Institution and former Special Advisor for Evidence-Based Policy at OMB, http://govinnovator.com.

"Implementing a Department-Wide Innovation Strategy" with Bryan Sivak, former Chief Innovation Office of the U.S. Department of Health and Human Services, http://govinnovator.com/bryan_sivak.

"Learning from Innovative Businesses about Creating a Culture of Experimentation in Government," with Jim Manzi, author of Uncontrolled, http://govinnovator.com/jim-manzi.

Stanford's e-corner contains several conversations, videos and podcasts with leading innovators and entrepreneurs, http://ecorner.stanford.edu. Content includes:

"Make Government Work Better for All," with Jenn Pahlka, founder and executive director of Code for America and former US Deputy Chief Technology Officer, discusses how

government can harness technology and design principles, http://ecorner.stanford.edu/podcasts/3426/Make-Government-Work-Better-for-All.

"From Inspiration to Implementation," with Tina Seelig, Professor of Practice at Stanford's School of Engineering, introduces the Inventure Cycle and discusses the attitudes and actions needed to foster innovation, http://ecorner.stanford.edu/videos/3386/From-Inspiration-to-Implementation-Entire-Talk.

"Innovate for America," with Aneesh Chopra, former U.S. Chief Technology Officer, describes the potential of technology and innovation to unlock national economic growth and prosperity in the United States, http://ecorner.stanford.edu/videos/2756/Innovate-for-America-Entire-Talk.

Steve Blank's repository of resources related to innovation and entrepreneurship, https://steveblank.com/slides/. Also, Steve discussed work with the government and implementation strategies for innovation tools at the 2012 National Governors Association annual meeting: Part 1, https://www.youtube.com/watch?v=XAN1pNO10KE&feature=youtu.be and Part 2, https://www.youtube.com/watch?v=8TYKnI7zMI4&feature=youtu.be.

Reports

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"Leadership from Invention to Impact: Insights from the 2015 Public Sector for the Future Summit at Harvard University," Leadership for a Networked World, 2015: Summary report from summit at Harvard on economics of scale, evidence based government, change agents and more,

https://lnwprogram.org/sites/default/files/2015_Leadership_from_Invention_to_Impact.pdf#12.

"The 2016 Federal Leadership Summit: Harmonizing Data, Shared Services, and Culture," Leadership for a Networked World, 2016: Summit report on how to leverage and apply of 21st century capabilities create a culture of innovation, https://lnwprogram.org/sites/default/files/2016_Federal_Leadership_Summit_-_Harmonizing_Data_Shared_Services_and_Culture.pdf#19.

"The Architecture of Innovation: Institutionalizing Innovation in Federal Policymaking," Beeck Center for Social Impact and Innovation and the McCourt School of Public Policy at Georgetown University, October 2016: A review of recent Federal innovation efforts and an assessment of future structural reforms that may enable greater progress, https://mccourt.georgetown.edu/sites/mspp/files/documents/the_architecture_of_innovation_mccourt_beeck_center_georgetown_university.pdf.

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Abbreviations

ABLE	Adolescent Behavioral Learning Experience
ACF	Administration for Children and Families
ARRA	American Recovery and Reinvestment Act
CEO	Chief Evaluation Officer
CEP	Commission on Evidence-Based Policymaking
CLEAR	Clearinghouse for Labor Evaluation and Research
CLI	Children's Literacy Initiative
CNCS	Corporation for National and Community Service
DHHS	Department of Health and Human Services
DIV	Development Innovation Ventures
DOJ	Department of Justice
DOL	Department of Labor
ED	Department of Education
EIR	Education and Innovation Research
ESSA	Every Student Succeeds Act
FY	fiscal year
GAO	Government Accountability Office
GHHI	Green and Healthy Homes Initiative
HHS	Health and Human Services
HUD	Housing and Urban Development
i3	Investing in Innovation
IES	Institute of Education Sciences
IWG	Interagency Working Group
MBK	My Brother's Keeper
MRT	Moral Reconation Therapy
NCEE	National Center for Education Evaluation and Regional Assistance
NCLB	No Child Left Behind
NFP	Nurse Family Partnership
OAH	Office of Adolescent Health
OMB	Office of Management and Budget
PAF	Pregnancy Assistance Fund
PART	Program Assessment Rating Tool
PFS	Pay for Success
RCT	randomized control trial
SFA	Success for All
SIF	Social Innovation Fund
SSIR	Social Spending Innovation Research
STEM	science, technology, engineering, and mathematics
TANF	Temporary Assistance for Needy Families

TFA	Teach For America
TPP	Teen Pregnancy Prevention
USAID	U.S. Agency for International Development
WIOA	Workforce Innovation and Opportunity Act
WWC	What Works Clearinghouse

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14. ABSTRACT

In March 2016, the Office of Science and Technology Policy (OSTP) requested that the IDA Science and Technology Policy Institute (STPI) describe a set of approaches to improve innovation in and the effectiveness of the Federal Government. The innovative approaches identified create new processes, products, services, and methods of delivery; have been implemented or are in the initial stages of implementation; and have led to improvements in outcomes, efficiency, effectiveness, or quality related to Federal Government activities. The objective of this project was to describe the lessons learned from the implementation of innovative approaches and identify opportunities for how to support the scaling up of these approaches throughout the Federal Government. This report provides a background describing what innovation in the Federal Government means in practice, including elements of the innovation process and how innovation practices could be institutionalized within organizations.

15. SUBJECT TERMS

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