BEECK CENTER FOR SOCIAL IMPACT + INNOVATION

SETTING THE STAGE FOR TRANSFORMATION

FRONTLINE REFLECTIONS ON TECHNOLOGY IN AMERICAN GOVERNMENT

DEC 2019 // BY CHRISTOPHER WILSON

beeckcenter
social impact + innovation

About the Beeck Center for Social Impact + Innovation

The Beeck Center is an experiential hub at Georgetown University that trains students and incubates scalable, leading edge ideas for social change. We believe impact at scale requires the courage to think and behave differently. Our work centers on investing in outcomes for individuals and society. We equip future global leaders with the mindset to promote outcome-driven solutions, using the tools of finance and data + digital. We convene actors across the public, private, and civic sectors to advance new tools, frameworks, and approaches necessary to achieve these outcomes.

About The Digital Service Collaborative

The Digital Service Collaborative (DSC) is a program designed to develop research around government digital services, create tangible resources for practitioners, cultivate the community of digital service leaders in governments to share and scale efforts, and explore policy considerations including ethics and privacy. The DSC team is based out of the Beeck Center at Georgetown University, and also supports public and private sector efforts to responsibly share and use data to address some of society's most challenging issues and to support civic engagement with public institutions.

About this Report

This report is based on research and analysis conducted by student analysts and fellows at the Beeck Center from December 2018 through March 2019, including the invaluable support of Will Denison, Vandhana Ravi, and Alberto Rodriguez. Special thanks to Emily Tavoulareas for guidance and leadership in assessing the interview results and applying a design lens to understand how the interviews should inform practice. Finally, thanks to the dozens of busy people who gave their time and energy to help us understand what digital transformation looks like on the front lines.

Cover Photo by Michael on Unsplash

Executive Summary

Digital tools and strategies have a tremendous potential to transform government: improving services, boosting efficiency, and strengthening ties to the public. The last decade has seen several important milestones as data and technology have been leveraged to solve specific challenges across the vast scope of government in the United States. Despite the best efforts of technologists, visionaries, and institutional champions, the full potential of these tools has been slow to materialize at scale.

This report aims to better understand why. It first looks at the potential of digital tools and how governments have approached their use, challenges governments have faced when leveraging data and technology, and how these dynamics play out across different policy areas and levels of government. To do so, the report explores the lessons and experiences of individuals working at the front lines of technology and innovation in the public sector. Desk research was complemented by structured interviews with more than 70 people leading or supporting the novel use of technology or data in federal, state, and local government in the United States. Researchers asked how these tools could best add value to government, what was obstructing their work, and what they needed to do their work better.

The conclusions are clear. Technology and data are the new normal, and governments have no choice but to address how they impact the core work of government. This has tremendous potential to improve government and government services. But technology is no magic bullet, and never catalyzes government transformation on its own.

People working at the front lines of government technology and innovation rather describe digital transformation as an iterative and evolutionary process.

Drawing on those perspectives, this report suggests three broad *institutional conditions* that facilitate digital transformation through the added value of applying technology-related tools and strategies to specific programs and processes:

1. Explicit support for cross-functional technical expertise
2. Deliberate professionalization of technical expertise, and
3. Open and engaged institutions.

The report recommends specific actions that policy makers, practitioners, and external stakeholders can take to help government institutions pursue these conditions. It lays the foundation for strong application of data, as well as technological tools and strategies, setting the stage for overarching digital transformation.

Table of Contents

Considering technology in government

Technology's potential to improve government is profound and widely discussed. From first steps towards digitization and cloud services, to the increasing allure of Agile workflows and collaborative service design, to the perennial hype of emerging technologies like blockchain and artificial intelligence, there is no shortage of speculation on the value that technology can add to public sector services and operations.

This potential remains largely untested, however, as government institutions have not adopted digital tools at the pace of the private sector. Research from the World Economic Forum notes not only that "governments are the dinosaurs of the digital age: slow, lumbering and outdated," but that the gap between how governments and citizens use technology is widening.[1]

Technology and data are the new normal, and governments have no choice but to address how they impact the core work of government. This has tremendous potential to improve government and government services. But technology is no magic bullet, and never catalyzes government transformation on its own.

Researchers and commentators have suggested several theories to explain this lag, including the slow and deliberate approach to technology adoption that is mandated by government's unique duty of care towards the public.[2] Some of the other explanations offered by global research on national transformation processes in national governments include weaknesses in national digital strategies,[3] the operational and tactical barriers facing implementation,[4] and the common failure of government institutions to acknowledge the uncertainty inherent in digitization processes.[5] North American analysts and consultants emphasize the barriers of

[1] Baller, Dutta, and Lanvin, "The Global Information Technology Report 2016: Innovating in the Digital Economy," 3, 11.

[2] Smartsheet, "How Digital Transformation Is Revolutionizing Government."

[3] Rami Mourtada et al., "How to Supercharge Your National Digital Transformation."

[4] Stephen Twynam, "Enabling Effective Digital Government Transformation."

[5] Howes and Kidney Bishop, "The Hidden Obstacles to Government Digital Transformation."

vendor management, budgets, and hiring freezes.[6] Research from 18F, a service delivery organization sitting inside the U.S. General Services Administration, highlights how infrastructure and institutional constraints on technical teams inhibit the transformative potential of innovation projects in government entities.[7]

Obstacles to improving government through technology will vary as dramatically as the contexts in which they take place, but one thing is clear: those obstacles appear to be numerous.

These challenges are real, and there's more of them. A quick internet search will surface dozens of descriptions of how smart government technology is obstructed by procurement, hiring, risk aversion, and fears about disrupting legacy systems. Equally striking is how infinitely diverse those challenges are across different levels of government, policy areas, and specific types of interventions. Rolling out a single sign-on system for public benefits will look dramatically different in a small town and a large state. The obstacles to implementing e-voting will be different in federal and municipal elections. Online consultations for urban planning look a lot different in New York City than in Brownsville, TX, where 67% of households lack broadband internet access.[8]

Obstacles to improving government through technology will vary as dramatically as the contexts in which they take place, but one thing is clear: those obstacles appear to be numerous.

Yet there is cause for hope. This report is written at a uniquely opportune time for digital transformation in American government. Pockets of federal technology expertise in 18F,[9] the U.S. Digital Service,[10] the Presidential Innovation Fellows,[11] and

[6] A recent survey by CDW found that "35% of state and local governments citing vendor management" as a primary obstacle CDW, "The Digital Transformation Insight Report," 4:4. See also "A Cross-Cutting Look at Digital Transformation in the Public Sector."

[7] Pandel et al., "Best Practices in Government Digital Transformation: Preliminary Report."

[8] Plautz, "Brownsville, TX and Detroit Top List of Cities with Least Broadband Access | Smart Cities Dive." For broader policy implications, see also Mossberger, Tolbert, and McNeal, *Digital Citizenship*.

[9] See https://18f.gsa.gov/, accessed 21 October 2019.

[10] See https://www.usds.gov/, accessed 21 October 2019.

[11] See https://presidentialinnovationfellows.gov/, accessed 21 October 2019.

throughout federal agencies are well institutionalized and are refining their work to build value and capacity across American government. There has also been a remarkable spike of interest and awareness among state and local governments, manifest in the proliferation of new innovation and digital service teams, smart city initiatives,[12] digital county projects,[13] and state level Chief Information and Chief Data Officers, the individuals largely charged with leading government technology efforts.[14]

One of the key tenets of this hard-won realism, now widely recognized, is that technology alone will never transform government or solve policy problems. Technology is an instrument that can be adopted to improve the efficiency and impact of government's core functions.

In legislative terms, the 2017 Modernizing Government Technology Act[15] has been followed by three potentially landmark advances in 2019, with the passage of the Open Data Act,[16] the formation of a House Select Committee on Modernizing Congress,[17] and the movement to revive the Office of Technology Assessment, now as part of the Government Accountability Office.[18] Senator Kamala Harris has also introduced a Digital Service Act that would allocate an annual $15 million to modernization efforts in state and local governments.[19] Against this legislative and

---

[12] Durr, "U.S. Conference of Mayors & NYU Launch the Mayors Leadership Institute on Smart Cities."

[13] Grenslitt, "Digital Counties Survey 2018 Winners Announced."

[14] Miller, Ben, 'The Club of 50: Data on State Chief Information Officers', Government Technology, 2019 [accessed 19 July 2019] and Freed, Benjamin, 'State Chief Data Officers Get an Association of Their Own', State Scoop, 2019 [accessed 3 December 2019]

[15] Cordell, "Trump Signs Modernizing Government Technology Act into Law."

[16] Adopted as the Foundations for Evidence-Based Policymaking Act of 2017 on Jan 14, 2019, see https://www.congress.gov/bill/115th-congress/house-bill/1770, accessed 21 October 2019.

[17] Chappellet-Lanier, "There's a New Select Committee for Modernizing Congress. What Does It Mean for Legislative IT?"

[18] U.S Government Accountability Office, "Our New Science, Technology Assessment, and Analytics Team | WatchBlog: Official Blog of the U.S. Government Accountability Office."

[19] Lapowski, "Kamala Harris Wants to Give States Millions to Overhaul Tech | WIRED."

institutional backdrop, the national community of enthusiasts for government technology is thriving,[20] even as the movement enters an era of civic tech realism.[21]

One of the key tenets of this hard-won realism, now widely recognized, is that technology alone will never transform government or solve policy problems. Technology is an instrument that can be adopted to improve the efficiency and impact of government's core functions.

When this is done well, it can have profound policy impacts, dramatically improving government services and results from specific projects. When technological tools and strategies are thoughtfully applied to the fundamental processes and missions of government, the benefits move beyond siloed services and one-off programs, with wide ranging potential benefits to government performance and citizen satisfaction.

Whether or not transformation can ever be "finished," there is clear agreement among practitioners that meaningful digital transformation processes are a function of deliberate institutional design and not the simple adoption of technological tools and strategies.

---

[20] Jukes, "Solving Civic Tech Challenges at Code for America Summit."

[21] Knight Foundation, "Trends in Civic Tech."

What is digital transformation?

As much as anything, digital transformation in government is a buzzword, regularly defined according to abstract ideals[22] and described as an inevitable consequence of societal trends.[23] When looking for an applied definition, one of the most useful comes from 18F's research on the topic, which identifies three characteristics of a transformed government institution:[24]

- People at all levels feel connected to the agency's mission, have a sense of purpose, and are empowered with the autonomy to act on that purpose.
- The agency chooses and manages technology effectively in the service of its larger mission.
- The agency is capable of and committed to practicing continuous improvement.

There may not yet be any clear examples of a fully transformed government institution in the real world. Cities as dissimilar as London and Cary, North Carolina have been suggested,[25] while global research on national digital service teams suggests that transformation is a process that is cultivated, without necessarily every being fully finished or achieved.[26]

Whether or not transformation can ever be "finished," there is clear agreement among practitioners that meaningful digital transformation processes are a function of deliberate institutional design and not the simple adoption of technological tools and strategies.

This requires teams and leaders to cultivate and nurture institutional environments in which technology is seen not as catalyzing sudden change, but as a tool to be carefully aligned with problems and contexts.

---

[22] Corydon, Ganesan, and Lundqvist, "Transforming Government through Digitization"; Eggers and Bellman, "The Journey to Government 's Digital Transformation."

[23] Cherkis, "Technology Adoption Slower, But Certain In Government — And For Good Reason"; Adolf, "Digital Transformation in the Public Sector."

[24] Pandel et al., "Best Practices in Government Digital Transformation: Preliminary Report."

[25] Blackwell, "The Leadership Labs: 5 Secrets for Rapid Digital Transformation"; Etheredge, "Examples of Digital Transformation in Real World Organizations."

[26] Eaves and McGuire, "2018 State of Digital Transformation"; Bracken and Greenway, "How to Achieve Sustain Gov. Digit. Transform."; Mergel, Edelmann, and Haug, "Defining Digital Transformation: Results from Expert Interviews."

People actively supporting the adaptation and implementation of new tools to age-old problems often work in the shadows of government. Their work isn't always the most exciting or shareable. It sometimes results in compromise and failure. But it is from this perspective that we can best understand what technology can do to improve government, and how to manage the risks and challenges along the way.

That environment is one in which digital is aligned towards the core mission of government, in keeping with 18F's operational definition of digital transformation. It is a necessary condition not only for successfully leveraging government technology, but for avoiding costly failures.

As described in foundational research from the think tank New America:

> When governments aren't able to make this shift—when they implement technology without considering process and people implications, or when they start with the technology rather than viewing it as one tool in an arsenal of possible solutions—they risk reinforcing the concept that government can't do anything right. This narrative isn't wildly off. Over the course of the year we conducted this research, huge government tech failure stories made regular headlines, including the Hawaii false missile alert, an IRS failure that prevented people from paying taxes, a fiasco involving the state of Rhode Island's massive benefits system that left residents unable to collect SNAP [Supplemental Nutrition Assistance Program] benefits and health.[27]

Cultivating institutional cultures that align people and technology with government's core mission is the first step toward deliberate and thoughtful application of technology to problem solving, which is itself a first step towards enabling the digital transformation of government.

[27] Schank and Hudson, "Getting the Work Done : What Government Innovation Really Looks Like," 17–18.

There is never a cookie-cutter fix for service design and institutional hacking. The most meaningful interventions are always contextualized.

Motivations for this report

This report addresses the question of how to cultivate that type of institutional culture in government—how to set the stage for digital transformation. To do so, it begins with the premise that the people doing hands-on work at the cutting edge of government technology and innovation are best positioned to understand that process.

People actively supporting the adaptation and implementation of new tools to age-old problems often work in the shadows of government. Their work isn't always the most exciting or shareable. It sometimes results in compromise and failure. But it is from this perspective that we can best understand what technology can do to improve government, and how to manage the risks and challenges along the way.

As such, this report builds on a review of literature and commentary regarding government technology and innovation. It departs from the emphasis on national-level digital teams, which dominates international research on digital transformation,[28] to address challenges and opportunities across all levels of government. In prioritizing perspectives and assessments by people doing hands-on work, it also builds on important work done by the Public Interest Technology team at New America,[29] but emphasizes obstacles and strategies to adopt technology in line with more fundamental shifts in institutional cultures and processes.

Lastly, whether or not every government is a snowflake, there is great diversity in institutions. It would be impossible for this report to do justice to the implications that different institutional histories, cultures, and contexts have for how digital technologies are considered and adopted. Instead, this report aims to build on the breadth of issues and themes that frontline digital service professionals are facing, and to highlight those lessons and strategies that might be most relevant across multiple contexts.

[28] Mergel, "Digital Service Teams in Government."

[29] Muñoz et al., "Public Interest Technology: Closing out Year One and Looking Forward to Year Two."

There is never a cookie-cutter fix for service design and institutional hacking. The most meaningful interventions are always contextualized.

Nor should any of the assessments and recommendations here be taken as unconditionally true, but considered in the context of what institutions are struggling with, and what they may hope to accomplish.

By providing a fresh accounting from people doing the work, this report hopes to give fresh insights and guidance on how to set the stage for better technology, better services, and better government.

Toward that end, this report is structured as follows:

- This introduction closes with a brief presentation of the *methods* through which the research and analysis were conducted.
- The second section presents how respondents described the potential *benefits and challenges* associated with adopting technology, data, and innovation in government. This section places special emphasis on how respondents described the short-term benefits that can accompany digital services and data-driven processes, and the more fundamental institutional changes associated with digital transformation.
- The third section builds on these insights, and a review of relevant literature, to suggest *institutional conditions* that might best facilitate the meaningful adoption of technology and iterative processes of digital transformation.
- The final section presents *recommendations* to policy makers, practitioners, and external stakeholders.

Methods and process

Research for this report was conducted as part of scoping and consultation exercises for the Digital Service Collaborative, coordinated by the Beeck Center for Social Impact + Innovation, in partnership with The Rockefeller Foundation.[30]

Data was collected between November 2018 and March 2019, including the following activities:

- Desk research on the state of practice in digital services, policy innovation, digital government, civic technology, and data-driven government, including existing networks, best practices, and literature review. Desk review of more than 80 articles, reports, and policy briefs on the use of digital technology and data in government processes.

- A pre-launch consultation, featuring semi-structured interviews with more than 70 individuals working on issues related to digital government. Respondents were primarily from federal and city governments. County and state governments were also represented, as were academic and private sector actors with relevant insights and experience. Respondents were selected on the basis of their experience attempting or succeeding to implement digital service or data-driven programming or policy in government. Interviews were conducted via telephone and followed a script, lasting 30 minutes.

- Informal consultation and planning conversations with more than a dozen professionals and organizations actively working to provide support to digital transformation in government in the U.S. and globally.

The data collected from this process was reviewed during a three-day synthesis workshop in March 2019. Five members of the Digital Service Collaborative team reviewed data from structured interviews to iteratively identify how individuals working in government experience government use of digital technologies, and their potential to improve government. These perspectives were classified as opportunities, obstacles, needs, and desired interventions over the course of the synthesis workshop. Those perspectives were then assessed together with the other data sources described above, to form the basis for this report. The following months were spent drafting, editing, and soliciting feedback on this report.

[30] See https://beeckcenter.georgetown.edu/project/digital-service-collaborative-building-capacity-for-digital-transformation-in-government/, accessed 21 October 2019.

Frontline perspectives

Benefits and opportunities

The individuals interviewed for this report were asked how they envisioned the ideal state of digital government, and what they thought were the most important benefits to be gained from applying new technologies and associated strategies to government work. The responses this question elicited were remarkably diverse, but can be loosely grouped into three broad categories:

1. Digital communication and service delivery platforms can facilitate *novel interactions with publics and constituencies*, dramatically expanding notions of participatory and deliberative politics, and *improving the quality of services and levels of satisfaction* with public services.
2. The proliferation of data and analytical tools dramatically lowers barriers to *evidence-informed policy-making and problem diagnosis*.
3. Digitizing services and processes can *lower costs and increase efficiency* in ways that fundamentally alter business processes and the allocation of government resources.

Specific benefits and opportunities will be presented below. First, it is important to note that respondents differentiated between:

- short-term benefits, such as the increased opportunities for engagement with a specific constituency, better policy for specific social problems, or dollars saved on a specific activity, and
- long-term benefits, whereby fundamental government roles and business processes became more open, informed, and efficient.

Importantly, this distinction was often described in sequential terms. Specific activities or technology implementations might influence government directly, but also indirectly, by demonstrating value, increasing awareness, and mitigating concerns related to the use of technological tools and strategies, setting the stage for more ambitious work.

Small and discrete projects demonstrating the value of technology often pave the way for more fundamental changes in the institutional cultures and processes within which government operates.

By this logic, respondents expected that through iterative approaches to innovation, experimentation, data sharing, collaboration, and openness, government institutions could steadily increase their awareness and capacity for even more of that work. Successfully digitizing one set of online forms can pave the way for conducting user research on how those forms are used, or moving other service interactions online.

This incremental advance was sometimes described in regard to specific methodologies such as agile processes or design thinking, or in regard to specific activities like data sharing or collaboration across institutional boundaries. Sometimes it was described in looser terms, such as changes to how teams interacted or knowledge was shared.

Consistent in these descriptions, however, was the idea that small and discrete projects demonstrating the value of technology often pave the way for more fundamental changes in the institutional cultures and processes within which government operates.

This perspective can be summarized according to three overarching arguments about how digital transformation might take place in government institutions.

How Transformation Happens

1. *Digital transformation is an iterative and evolutionary process*, in which new tools and strategies are applied and demonstrate value incrementally, opening space and interest for additional tools. No single tool or strategy ever immediately transforms an institution.
2. *Digital technologies are an instrument for improving government and not an end in themselves.* The objective behind implementing any digital tool, product or associated process is and should always be providing better government and better government services to the public.
3. *Digital technology is embedded in contemporary governance*; it cannot be avoided, nor should it be fetishized. As a descriptive term, "digital government" makes as little sense as "paper government." To effectively adapt to the new technological context in which they necessarily operate requires government institutions to acknowledge that using digital tools is the new normal.

Technology in this account is an instrument for facilitating institutional change, in part by demonstrating the value of technological tools and strategies for specific, short-term outputs and benefits. The remainder of this section briefly presents those opportunities as described by respondents, and organized according to the benefits

they have for (a) civic interaction and service delivery; (b) data, evidence, and analytics; and (c) efficiency and resources.

Interaction and service delivery

For many people working in government, the most immediate value to be gained from using technology involves improving how members of the public experience their interactions with government. This was often described in regards to ease of use, and the ponderous nature of government compared to popular apps and online services. As one respondent quipped, "70% of interactions with government involve a form, and most of them are terrible." Other respondents noted that it should be possible to "pay your water bill through Venmo," referencing the mobile payment service, or to "access services in the same way you buy something on Amazon."

Using digital tools to streamline interactions with government was widely expected to make them more efficient, pleasant, and accessible for the public. Several respondents described how this, in turn, might contribute to additional outcomes, including higher rates of satisfaction in government, improved trust in government, better access to information, and better protection of individual's rights and private information.

Respondents regularly referenced the potential of digital communications tools to "bridge the divide" between citizens and government institutions, and the powerful secondary effects this can have for helping government to understand the experiences of the people they serve.

In addition to digital communications tools, respondents made regular reference to design processes adopted from the technology sector. User-centered design and participatory design processes were regularly referenced as powerful tools for ensuring that online interactions and digital services meet peoples' needs and contribute to the outcomes described above.

Data, evidence and analytics

Respondents regularly referenced increased government access to data, evidence, and analytics technologies, and how this could support improved policy-making, decision-making, and service delivery. In some instances, this aligns closely with the user-centric and participatory design processes described above, insofar as granular data about public behavior or preferences can be used to design better government services and products. In the words of one digital service professional, "data allows government to build things that people actually want."

> **"Data allows government to build things that people actually want."**
>
> *– Digital service professional interviewed for this report*

Contributions to decision-making and policy processes were more commonly referenced, and in more abstract terms. Though there is a widespread observation that more data is available, respondents referenced relatively few cases of data and analytics actually applied to policy-making processes.

Lastly, several respondents noted how the use of technology and data allow for more precise and elaborate systems for monitoring and evaluating government activities. The potential to collect or simply save the data that is automatically generated when digital platforms are used for government services and programs enables a wide variety of monitoring activities. This includes adaptive approaches to monitoring, in which small adjustments to government activities and services can be made on a running basis, with an eye toward continual improvement.

Efficiency and resources

The potential to save time and money through digitization, for example moving from paper to digital forms, underpins prominent recommendations to prioritize the digitization of high-volume and labor-intensive government processes.[31] Respondents noted the potential savings that can follow from automated compliance systems, by reducing error and liability risks. These benefits were tempered by a recognition that digitization processes can imply other costs related to restructuring business processes, training, or reallocating human resources.

However teams and institutions choose to balance these costs and benefits, there was a clear consensus that "technology is the new normal," and at the end of the day, technology has become so deeply ingrained in the way that society functions, that "all policy is tech policy."

[31] See Corydon, Ganesan, and Lundqvist, "Transforming Government through Digitization."

There is a clear consensus that technology is the new normal, and technology has become so deeply ingrained in the way that society functions, that all policy is tech policy.

Barriers and obstacles

The people interviewed for this report described a host of obstacles to adopting digital tools, services and associated processes. Whereas potential benefits were described successively, with iterative successes contributing to institutional transformation, the challenges and obstacles to government technology and innovation were described cumulatively: individual challenges were described as equally relevant to discrete technology and data interventions as they were to fundamental changes in institutional processes and cultures.

The most prominent barriers and obstacles are presented below, grouped according to three categories: (1) obstacles of insufficient capacities or resources, (2) obstacles posed by formal rules and institutional structures, and (3) obstacles presented by institutional cultures and preconceptions.

In some cases, the people tasked with using these tools may even lack the fundamental technical literacy necessary to determine which technical skills are required.

Capacities and resources

Individuals leading work to implement digital tools and innovative processes in government are quick to note a lack of financial and material support for their efforts. A **lack of budget** for digitizing services and products was one of the most common complaints in these interviews. Several respondents noted, however, that budget shortages could also be an important lever for introducing digital approaches, by virtue of their cost-saving potential.

Respondents regularly referenced a lack of **human resources and technical capacity**. This goes beyond a lack of specific technical profiles within government. In many contexts, digital resources (and data in particular) are available, but staff often lack the technical skills necessary to leverage them.

In some cases, the people tasked with using these tools may even lack the fundamental technical literacy necessary to determine which technical skills are required.

Lastly, several respondents described **knowledge gaps** that kept them from leveraging technology. This was often described in regard to low levels of general awareness about how digital tools and strategies can be leveraged within institutions. More pointedly, several people described how digital enthusiasts lacked the information they needed to select and successfully implement context-appropriate approaches to digital service and data-driven government. Sometimes this means not knowing what tools are available. Others described situations where a specific tool or approach was identified, but the people responsible for its implementation were frustrated by not knowing whether peers in other contexts had gone through similar processes, and if they had, what had worked and what outcomes resulted.

Formal rules and institutional structures

There are a variety of formal obstacles to the smart implementation of digital tools and processes. Some of these involve specific institutional architectures and structures. For example, some respondents noted that the **role of Chief Information Officers tend to be poorly suited** to advancing digital transformation. Across federal, state, and local governments, CIOs tend to be mandated to oversee the development and implementation of technologies, but tend not to have technical skills or backgrounds, and are often mandated to oversee such a broad set of challenges, for which they lack the resources or authority to implement meaningful modernization initiatives. In the words of one respondent:

> "The role of the Chief Information Officer is one of the scariest things for the future of technology in government. Because in many cases you think it's acceptable to hire a CIO with no actual technology experience [...] because they're just a manager, and so suddenly you put the means of doing almost anything with tech, under somebody who doesn't understand tech."

Other structural challenges are more contextually specific, having to do with the **allocation of skills and mandates** across sets of staff or institutional hierarchies.[32] Several respondents described situations in which the composition of technical and non-technical expertise stymied efficiency or impact, either because technical expertise was included too late in project definition, because policy expertise was not

[32] For a detailed discussion of technical expertise in government, see Anastasoff and Smith, "Mobilizing Tech Talent: Hiring Technologists to Power Better Government."

included in the design of technical tools, or because technical expertise was not represented in decision-making and resource allocation processes.

The most notorious regulatory obstacle to government modernization is likely cumbersome and outdated **procurement** processes, and this was referenced repeatedly throughout consultation interviews. Much can be said about speed, complexity, and frustration of government IT technology procurement, and how it tends to empower large vendors to the detriment of governments and small firms.[33] Interviews for this research made it clear that those challenges are widely known, and that they provoke a significant disinhibition towards procuring technological products and services.

Comparably, some interviews also highlighted a perceived conflict with specific legislation. For example, the **Paperwork Reduction Act**, which imposes procedural requirements on government institutions that collect information from the public, is widely believed to prohibit user testing of digital products and services. This isn't true,[34] but several respondents referenced specific regulations that could be interpreted to inhibit digitization efforts, or be presumed to do so. In government contexts where express authorization for action is lacking, leaders may choose not to act in order to avoid what they perceive as ambiguity about whether action is permissible.

The startup mantra of "move fast and break things" would be entirely inappropriate for the public sector.

Institutional cultures and preconceptions

The institutional context of government was widely described as antithetical to innovation and transformation in interviews for this report. This was most commonly generalized as an inherent and fundamental **risk aversion** in government institutions, and contrasted with the experimental and innovative cultures that are often associated with startups and the private sector. Respondents also noted that this comparison is problematic, however, insofar as the startup mantra of "move fast and break things" would be entirely inappropriate for the public sector.

Part of the reason that government adopts technology more slowly than the private sector is because government is charged with safeguarding the public good, and

[33] See writing by Mark Headd, for example https://civichall.org/civicist/govtech-is-not-broken/

[34] Meyer, "User Research Is Not Illegal, Uncle Sam."

requires processes and precautions to protect individuals' wellbeing in an unpredictable and dynamic technology context.[35] As phrased by one respondent, "if someone in the private sector goes out of business nothing happens. If government fails, people can die."

An extreme and recent example of this severity is the failure of the Colorado state government to check an email account for child abuse reports for five years, resulting in the neglect of at least five abuse cases.[36] The responsibilities and risks that accompany government use of technology are unique precisely because government's job is to protect and serve the public. Individuals rely on public services in a way that has no analogue in the private sector, and this necessarily implies a duty of care that is antithetical to rapid experimentation and justifying failure by learning from failure.

Several government units have in fact demonstrated the ability to serve the public with proven methods and services while also making space to experiment and innovate.

This distinction is important for understanding digital transformation in government, but it would be wrong to assume a dichotomy of ponderous but responsible government, and agile but reckless business. There are exceptions to both extremes, and important middle ground between them.

Several government units have in fact demonstrated the ability to serve the public with proven methods and services while also making space to experiment and innovate.[37]

When considering barriers to responsible innovation and experimentation in the public sector, several respondents suggested that this exaggerated dichotomy is

[35] Others have suggested that digital transformation is different than in the private sector because government lacks the incentives that follow a profit mandate, and that government does not get to choose its customers. See Webber, "Understanding the Digital Transformation of Government."

[36] Knowles, "Colorado Email for Child Abuse and Neglect Reports Went Unchecked for Years - The Washington Post."

[37] See for example work by longstanding units such as the Defense Advanced Research Projects Agency (DARPA), and newer initiatives such as xD, the experimental emerging technology unit within the Census Bureau.

itself an obstacle, fueled by a lack of awareness about how technology and innovation can actually be applied.

The false dichotomy between government innovation and a ponderous status quo was often described in relation to a lack of **social incentives and leadership** in institutions. Often, public servants are not encouraged to take risks or to experiment with new ways of doing things, and there is an expectation in many institutions that the best way to succeed is to submit completely to "the way that things are done", and avoid expending effort trying to change things that can't be changed. Simultaneously, several respondents noted that rewards structures often encourage visible "wins" within existing systems, and discourage work on foundational systems and platforms for government information which have the potential to transform the ways in which policy is developed or services delivered.

The esoteric and enthusiastic way in which technology is sometimes presented can make this worse. Sometimes new tools and strategies are introduced with great enthusiasm and without acknowledging the work that has already been done. This can create significant resistance and skepticism among civil servants without technical expertise, especially if there is a significant gap in technical literacies.

Respondents described several situations in which enthusiasm for technology failed to acknowledge the value of previous work and drove a social wedge between technical and non-technical staff.

The combination of these social challenges can create a climate in which it is difficult to maintain enthusiasm for advancing government technology and innovation. Coupled with the obstacles related to capacities, resources, structures, it can lead to feelings of isolation and burnout among even the most dedicated public servants.

Modernizing and digitizing government is hard work. And without a feeling of institutional support or a broader community, there is a fear that many of the most innovative and promising **civil servants are burning out and giving up** before smart approaches to government transformation have a chance to take root. This, in turn, reinforces challenges related to securing the appropriate human resources and expertise.

Setting the stage for digital transformation

The perspectives above confirm findings from prior research by New America and 18F on how civil servants and technologists are advancing technology and innovation in government.[38] Two points are worth highlighting.

First, *there is good work being done all across government in the United States*. In cities, counties, states, and federal agencies, there are engineers, project managers, designers, policy makers, and other professionals surmounting all kinds of challenges to improve government with technology, data, and better practice. Those individuals are sometimes connected to peers and networks; sometimes they are not. But there are a host of bright spots along the frontlines of digital transformation in American government, with lessons and skills to share with their peers in other contexts.

Second, if any generalization can be made about these individuals, it is that *they are doing the work they do, not for the money or glory, but because they care deeply about public service*. All respondents to this research project expressed a deep dedication to their government service. As one stakeholder who works extensively with international stakeholders described it, the distinguishing characteristic of the U.S. civil servant may well be "grit".

Importantly, this dedication is often matched by an inventiveness, curiosity, and resourcefulness that represents the best of the technology sector. As articulated in the New America report on "what government innovation really looks like,"

> "...people in government care. They want to make a difference, but often aren't sure how. When given the chance to learn more, and to do better, they jump at it."[39]

The implication of these observations is that while technological tools and processes can add significant value to government, people are the most important resource for digital transformation.

---

[38] Schank and Hudson, "Getting the Work Done : What Government Innovation Really Looks Like"; Pandel et al., "Best Practices in Government Digital Transformation: Preliminary Report."

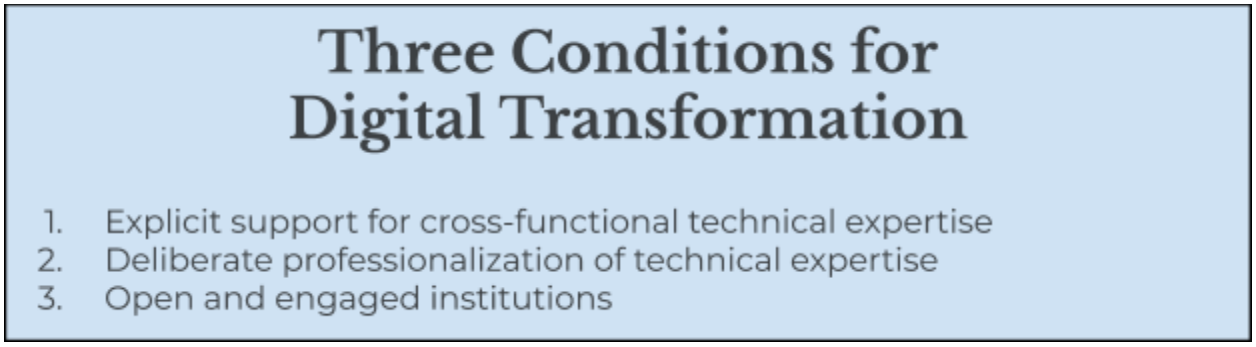
[39] Schank and Hudson, "Getting the Work Done : What Government Innovation Really Looks Like," 9.

While technological tools and processes can add significant value to government, people are the most important resource for digital transformation.

Individual enthusiasts of technology in government are the best resources for institutions looking to better join the two. People should be front of mind for policy makers and external stakeholders interested in supporting this work, and they are central to this report's recommendations.

There is no comparative evidence on digital transformation or its drivers.[40] This research has prioritized the working experience people on the front lines of transformation as a proxy and first step toward understanding how transformation occurs. Doing so suggests three conditions that support meaningful processes of digital transformation across a variety of government contexts.

These conditions are described below, and should be treated as working theories rooted in the actual experiences of civil servants and policy makers.



[40] Though recent conceptual frameworks have laid the foundation for this work, see for example Mergel, Edelmann, and Haug, "Defining Digital Transformation: Results from Expert Interviews."

Explicit support for cross-functional technical expertise

Institutions that provide clear recognition and support for digital and data-driven projects will be better able to integrate the assets and expertise associated with that work into the policy expertise and core processes of government, increasing their efficiency and potential impact. A lack of political and budgetary support is the cause of failure most frequently described in interviews for this report.

A lack of political and budgetary support is the cause of failure most frequently described in interviews for this report.

Explicit support is a necessary condition for the discrete projects and interventions leveraging technology and innovation, as well as long-term transformational processes.

Budgets are the most obvious type of necessary support, and named as a necessary condition in almost every interview conducted for this report. Without allocated budget, technological tools cannot be designed, procured, implemented, maintained, or evaluated. Without allocated staff positions and support, technology and data-driven projects will risk languishing and being deprioritized.

Several respondents elaborated on this by describing a need for environments in which technical expertise were explicitly prioritized on par and in concert with non-technical expertise. Several respondents described the importance of ensuring that technical expertise was granted “a seat at the table” in developing policies, services and interventions. Respondents emphasized the importance of ensuring inclusion of technical expertise across the life cycle of projects and policy processes.

All too often, technologists are brought into planning conversations after services have been already designed.

All too often, technologists are brought into planning conversations after services have been already designed. In order to ensure that technological tools and processes are leveraged efficiently and have the greatest impact, it is important to include experts in early design, implementation, and evaluation phases.

Practitioners suggested several specific approaches or achieving this. *Establishing and mainstreaming cross-functional and co-located teams* that include both policy and technical expertise is a strong mechanism for strengthening specific processes and interventions, and institutionalizing the collaboration and information exchange between policy and technical experts. Less demanding approaches include *ensuring that technical staff participate in service design activities*, such as field visits or ride-alongs, or that *policy staff participate in early prototyping and data mapping exercises*. The greater degree to which such activities are institutionalized, the greater their potential to overcome cultural and institutional obstacles to long term transformation.

Such processes may be challenging in larger governmental institutions, where technical expertise is already embedded in specific technical architectures, such as the CIO role increasingly common in governments. In such environments, it is important that technical mandates are complemented not only by budgetary support, but by technical capacities.

Some institutions have found the CIO role to be so constrained to technical matters, that they are now embedding political expertise into the CIO office in order to help them secure the political and budgetary support required for their work.

The details of a supportive context with vary across institutions, but these interviews present consistent refrain. Interventions and transformations are more likely to flourish and take root in environments where there is explicit and deliberate support for the technical expertise on which they rely, and where technical expertise is structurally embedded with non-technical policy expertise and political capacity.

Nurturing such an environment will help teams to identify ways that digital work can save resources, ways that rules and structures can be managed for more impactful work, and ways to overcome the natural tendency of government institutions to resist novel practice. This sets the stage for more successful projects and better policy, and provides a more solid foundation for government transformation.

Deliberate professionalization of technical expertise

Institutions that recognize and cultivate technical skills and expertise will have stronger digital awareness and data literacy, and will be better able to leverage those skills to improve services and business processes.

Formal professional associations specifically dedicated to digital services have only recently been created through the AGL Association, and within government, teams are still establishing job titles and possible career paths.

The variety of tools, approaches, and policy areas referenced in this report implies a wide variety of skills and expertise, and the people doing this work self identify in a variety of ways.[41] As a result, and despite long standing leadership by professional associations for government IT like the National Association of State CIOs (NASCIO) and the American Council for Technology and Industry Advisory Council (ACT-IAC),[42] formal professional associations specifically dedicated to digital services have only recently been created through the AGL Association, and within government, teams are still establishing job titles and possible career paths.

The delayed organization around professionalizing the government digital service field frustrates the hiring and intake of technical expertise, as well as the continual development of the skills and capacities necessary for this technology and innovation to deliver meaningful outputs.

Government institutions can address this by formalizing specific types of technical expertise. This may involve *creating job titles or career paths* that are more specific than "innovation specialist" or "communications officer". Doing so may engage with labels that today enjoy relatively limited recognition, such as front-end developers or UX designers, or may create entirely new positions, such as Detroit's Chief Storyteller,

[41] Research by New America found people using multiple labels, including "Community technologist. Civil servant. Designer. Entrepreneur. Digital expert. Hustler. Community advocate. Data-lover. Policy nerd. Problem solver. User of technology but not a technologist. Plus dozens of others, including but not limited to project manager, librarian, fixer of things, web manager, hacker, engineer, developer, social worker, community outreach coordinator, comms person, university researcher, chief innovation officer, policy expert, and founder." Schank and Hudson, "Getting the Work Done : What Government Innovation Really Looks Like," 11.

[42] See https://www.nascio.org/ and https://www.actiac.org/ , accessed 21 October 2019.

Chicago's Design Director, or the General Services Administration's Senior API Strategist. Doing so signals priorities throughout institutions, contributing to the climate of support described above. Doing so also makes it easier for individuals to showcase their work, learn and share with peers, and chart long term career trajectories within government.

Government institutions can support professionalization *by providing training and capacity development for specific skills*, both for staff with dedicated technical expertise, and for policy experts, to build their general awareness and familiarity with technological tools and approaches. This may involve the direct provision of training opportunities, but may also involve *recognizing a wider variety of accreditation and certificates awarded by external training providers*. Doing so sets a premium on technical skills, building the capacity of institutions to leverage technology and innovation in meaningful ways. Training can also leverage digital tools and strategies. OMB's Office of Federal Procurement Policy, for example, used an online competition to develop professional training for digital IT acquisition for federal contracting officers, which wed to communities of practice and widespread skills sharing across federal agencies.[43] This demonstrates how training and professionalization efforts that target specific interventions and processes can improve immediate objectives, while also contributing to a stronger foundation for digital transformation processes.

Open and engaged institutions

Institutions that are open and engaged with peers and stakeholders are better positioned to learn and iterate in ways that will support the effective use of digital tools and data.

Strong practices for sharing and learning outside of institutional boundaries can help staff to identify ways to overcome resource constraints and institutional hurdles, and provide concrete benefits to projects.

Respondents to this research consistently voiced frustration about a lack of connection with their peers working in other contexts. Several described instances in which comparable projects were implemented in multiple jurisdictions without any communication between them, and where there were missed opportunities to learn

[43] "Transforming Federal IT Procurement through Digital IT Acquisition Training: July 2017 Report to Congress."

from the successes and failures of others. This challenge is widely recognized, and several steps are being taken to build connections between people driving digital transformation in government. Externally funded networks dedicated to specific types of government actors, such as the Smart Cities Network[44] or the National Association of State CIOs are prominent in this regard, as well are more open networks, such as Apolitical[45] or the Government Innovators Network.[46] A host of small, informal networks have also been initiated and are run by individuals without any dedicated support or funding, including events, Slack messaging channels, and dedicated email lists.

Government institutions can support these kinds of activities and the goals they pursue by incentivizing external sharing and engagement with peers and external stakeholders. Strong institutional cultures for open government and open data can support this, and provide an institutional framework for documenting challenges and implementation processes. Strong practices for sharing and learning outside of institutional boundaries can help staff to identify ways to overcome resource constraints and institutional hurdles, and provide concrete benefits to projects.

18F has documented how open processes in the Department of Justice, Defense Information Systems Agency, and Department of the Interior provided critical feedback, ensuring that investments were targeting user needs, strengthening software code, and aligning outputs with institutional principles.[47]

Open sharing practices can also provide governments with positive publicity and prominence in relevant networks, building political capital for executives and political appointees. Strong messaging about challenges and successes with digital can in turn build support internally, strengthening institutional cultures for digital transformation.

---

[44] Durr, "U.S. Conference of Mayors & NYU Launch the Mayors Leadership Institute on Smart Cities."

[45] See https://apolitical.co/, accessed 21 October 2019.

[46] See https://www.innovations.harvard.edu/, accessed 21 October 2019.

[47] Refoy-Sidibe, "What Agencies Have to Say about Working in the Open." For 18F's own policy on working in the open, see https://18f.gsa.gov/open-source-policy/ accessed 21 October 2019.

Recommendations

This report has presented perspectives from the frontlines of technology and innovation in government. These perspectives suggest that the digital transformation of government is an incremental and iterative process, in which technological tools and strategies are best considered and applied as instruments to the core work of government and government services.

Three broad characteristics and sets of conditions are likely to facilitate the successful implementation of digital, and support the incremental process of digital transformation. These were described in the preceding section.

This section describes concrete steps that can be taken to establish those conditions, and recommends specific actions for policy makers, practitioners, and external stakeholders.

For policy makers

Policy makers, executives, and political appointees have perhaps the most obvious influence on how government institutions are positioned to leverage digital technology, data, and innovation. While the scope of actual influence will vary across institutions and levels of government, there are a handful of specific steps they can consider.

1. Lead with curiosity. There is often an esoteric quality to the types of tools and strategies referenced in this report. This makes them easy to dismiss, underestimate, or in some cases, it can inflate expectations. Leaders in government should take time to explore and understand the roles, skills and ways of working that are associated with the strategies described here, and the value that they can add to policy and service delivery. Doing so helps to maximize their value, and then signal that value across institutions, while also strengthening coherence across teams and setting realistic expectations.

2. Initiate an explicit institutional discussion. This might take any number of forms, including an audit of existing practices, setting up a task force to review opportunities, or simply asking technical staff to begin holding brown-bag lunches to serve as a forum for conversation. The important thing is to create a space in which new ideas and approaches can be suggested and considered, with a real potential for implementation. The context of this discussion could also vary widely. A good checklist can be drawn from the

"seven lenses of transformation" proposed for defining and benchmarking transformation by the UK Government Digital Service.[48]

3. Budget creatively. The cost of technology can be inhibitive. Engage technical staff to identify ways in which implementing digital tools can cut costs elsewhere. What processes could be automated to free human resources to address more complex challenges? What paper processes can be digitized to eliminate printing and transporting costs?

4. Build cross-functional teams. Identify ways in which to avoid responsive silos of technical expertise by integrating technical and non-technical expertise in teams and processes. Create opportunities for technical and policy experts to collaborate across project cycles, from planning to evaluation, even in projects where technology or data play a minor role. When possible, aim to establish cross-functional and co-located teams in order to strengthen learning and cross-pollination between technical and policy expertise.

5. Demystify technology and cultivate tech-normal institutional cultures. Identify opportunities for trainings, hosting events, or inviting speakers that can communicate the foundational elements of relevant data and technology. Cultivate an institutional environment that values frank conversations about technology and its limits, and that does not fetishize technical expertise at the expense of other expertise.

6. Avoid exploitative procurement. One of the most profound ways to limit the cost of technology programs is to avoid overpaying on technology procurement. Contacting peer institutions that have made comparable investments and conducting more thorough market research can help.[49] It may also be possible to pursue cooperative procurement,[50] modular contracting,[51] or to piggyback on existing contracts with other government agencies or institutions.[52]

7. Foster environments for responsible experimentation. Attention to the novel risks that accompany technology and data often focus on challenges to

---

[48] Vickerstaff and Cunnington, "How to Set up Transformation Projects That Could Shape Our Future."

[49] Brethauer, "Announcing OASIS Discovery: Making Market Research Easier."

[50] See, for example https://www.nigp.org/home/find-procurement-resources/directories/cooperative-purchasing-programs, accessed 21 October 2019.

[51] Jaquith, "Prerequisites for Modular Contracting."

[52] See https://www.coprocure.us/about.html, accessed 21 October 2019.

privacy and consent, but also involve more subtle ethical risks, such as poorly informed policy or the opportunity cost of wasted technology budgets and processes. Explicit institutional processes and attention during planning and analysis phases can help to identify and mitigate these risks, and can be integrated into several of the other recommendations presented here.[53]

For implementers

If the research conducted for this report shows one thing definitively, it is that context matters, and nobody understands context as well as the people doing the work.

As such, there is an inherent hubris in telling the people doing the work what they should be doing. There are, nonetheless, a handful of specific actions that several practitioners argued should be more widely adopted across contexts.

1. Document and share digital and data-driven projects and processes. The demand for storytelling and experience sharing is widespread and consistent across the front lines of digital transformation. Conferences and events provide a much-needed forum for inspiration and "therapy"—as well as learning and education—but there remains a need for technical documentation for the types of projects that are implemented in multiple jurisdictions. Make a point of documenting technical specifications, steps taken, challenges and processes along the way and share it widely.

2. Don't reinvent the wheel, the interface, or the database. There is a significant degree of non-deliberate replication in government technology. Conduct market research to determine what similar platforms and products have been created by others.[54] Modify and adapt open source solutions when appropriate. Produce and share open source solutions whenever possible.

3. Create feedback loops between the public and government. Most digital services imply an opportunity to solicit feedback from users. Leverage this to

[53] For a detailed description of a process-based approach to managing risks associated with government data, see Wilson, 2018. For a collection of applied tools, see the Responsible Research and Innovation Toolkit at https://www.rri-tools.eu/about-rri, accessed 21 October 2019.

[54] The Federal Source Code Policy supports reuse and public access to custom-developed Federal source code, which is published at https://code.gov/about/overview/introduction. Organizations like 18F and Code for America also often publish detailed documentation and descriptions of digital tools (see https://18f.gsa.gov/2016/04/06/take-our-code-18f-projects-you-can-reuse/ and https://www.codeforamerica.org/news, accessed 21 October 2019.). International resources, like the International Development Bank's repository of off-the-shelf technology solutions may also be useful (see https://code.iadb.org/en, accessed 21 October 2019).

collect input for continually improving those services. Ensure that users can see how their input is received and that they feel heard. Look for opportunities to publicly respond to feedback, building confidence and trust in government.

4. Several of the above recommendations for policy makers can also be relevant, especially regarding procurement, creative budgeting, demystification, and responsible experimentation.

For external stakeholders

There are a number of multi-sectoral stakeholders across academia, philanthropy, and civil society looking to support this type of work within government. For traditional funding and philanthropic organizations, as well as organizations looking to provide other types of resources, expertise and support, respondents to this research suggested a number of priorities.

1. Fund the "boring stuff". Grants and resources tend to flow toward what seem to be the most novel and exciting projects, like blockchain and machine learning products, which are often untested, unproven and not what government leaders will say they need most urgently. Often, the kinds of digital and data-driven innovations with the greatest potential to transform government and government services can sound a lot less exciting, and struggle to find support. Developing common data identifiers across agencies or moving data from servers in a closet into a secure cloud environment are examples of work with revolutionary potential, but for which it is difficult to secure funding.

2. Support everyday superheroes. Several respondents pointed out that the most important and transformative work isn't always being done by the "usual suspects" speaking on the civic technology conference circuit. Some of the most impactful support may involve doing research to discover who is already naturally advancing digital transformation in state and local government, without recognition, and what kind of support they need to scale their successes. In the words of one respondent, discussing the limits of support to CIOs, CTOs, and CDOs, "C-suite only gets you so far. You need to focus on the people in the field."

3. Build an ecosystem for social support. Dedicated support to specific projects is important, but much of the work to enable digital transformation involves more sharing and learning across institutions. To the degree that this is already happening, it is happening organically. Gatherings such as the annual Code for America Summit[55] provide prominent fora for digital service

[55] See https://www.codeforamerica.org/events/summit, accessed 21 October 2019.

professionals to gather and share, as do internationally focused events and communities, like those surrounding the Open Government Partnership[56] and the international open data community.[57] The movement of experienced digital service experts through the agencies and institutions they support is also seen as an important, if limited, mechanism for building community and spreading awareness. The digital service delivery community should create more opportunities and modalities for government champions to engage with and learn from their peers, both in person and online.

[56] See https://www.opengovpartnership.org/ accessed 21 October 2019.

[57] Wilson, "Open Data Stakeholders: Civil Society."

Works cited

"A Cross-Cutting Look at Digital Transformation in the Public Sector" ICF, The Spark, 2018.

Adolf, Jason. "Digital Transformation in the Public Sector." Appian.com, 2018.

Anastasoff, Jennifer, and Jennifer Smith. "Mobilizing Tech Talent: Hiring Technologists to Power Better Government," 2018.

Baller, Silja, Soumitra Dutta, and Bruno Lanvin. "The Global Information Technology Report 2016: Innovating in the Digital Economy," 2016.

Blackwell, Theo. "The Leadership Labs: 5 Secrets for Rapid Digital Transformation" Apolitical, 2019.

Bracken, Mike, and Andrew Greenway. "How to Achieve and Sustain Government Digital Transformation." *How to Achieve and Sustain Government Digital Transformation*, 2018.

Brethauer, Nick. "Announcing OASIS Discovery: Making Market Research Easier." 18F: Digital service delivery blog, 2015.

CDW. "The Digital Transformation Insight Report." Vol. 4, 2018.

Chappellet-Lanier, Tajha. "There's a New Select Committee for Modernizing Congress. What Does It Mean for Legislative IT?" FedScoop.com, 2019.

Cherkis, Joel. "Technology Adoption Slower, But Certain In Government -- And For Good Reason." Forbes, 2013.

Cordell, Carten. "Trump Signs Modernizing Government Technology Act into Law." FedScoop.com, 2017.

Corydon, Bjarne, Vidhya Ganesan, and Martin Lundqvist. "Transforming Government through Digitization." McKinsey.com, 2016.

Durr, Sara. "U.S. Conference of Mayors & NYU Launch the Mayors Leadership Institute on Smart Cities." The United States Conference of Mayors, 2018.

Eaves, David, and Ben McGuire. "2018 State of Digital Transformation," 2018.

Eggers, William, and Joel Bellman. "The Journey to Government's Digital Transformation," 2015.

Etheredge, Justin. "Examples of Digital Transformation in Real World Organizations." simplethread.com, 2017.

Grenslitt, Janet. "Digital Counties Survey 2018 – Winners Announced." Government Technology, 2018.

Howes, Sally, and Tess Kidney Bishop. "The Hidden Obstacles to Government Digital Transformation," 2018, 1–109.

Jaquith, Waldo. "Prerequisites for Modular Contracting." 18F: Digital service delivery blog, 2019.

Jukes, Matt. "Solving Civic Tech Challenges at Code for America Summit." Diginomica, 2019.

Knight Foundation. "Trends in Civic Tech," 2016.

Knowles, Hannah. "Colorado Email for Child Abuse and Neglect Reports Went Unchecked for Years - The Washington Post." Washington Post, 2019.

Lapowski, Issie. "Kamala Harris Wants to Give States Millions to Overhaul Tech | WIRED." Wired, 2019.

Meyer, Erie. "User Research Is Not Illegal, Uncle Sam." Medium, 2017.

Mergel, Ines. "Digital Service Teams in Government." *Government Information Quarterly*, 36, no. 4 (2019): 101389.

Mergel, Ines, Noella Edelmann, and Nathalie Haug. "Defining Digital Transformation: Results from Expert Interviews." *Government Information Quarterly*, 36, no. 4 (2019): 101385.

Miller, Ben. "The Club of 50: Data on State Chief Information Officers." Government Technology, 2019.

Mossberger, Karen, Caroline J. Tolbert, and Ramona S. McNeal. *Digital Citizenship. Digital Citizenship: The Internet, Society and Participation.* Cambridge, MA: MIT Press, 2008.

Muñoz, Cecilia, Vivian Graubard, Afua Bruce, Emma Coleman, Sara Hudson, Dipayan Ghosh, Lauren Greenawalt, et al. "Public Interest Technology: Closing out Year One and Looking Forward to Year Two," 2018.

Pandel, Alex, Cyd Harrell, Nicole Fenton, and Nikki Zeichner. "Best Practices in Government Digital Transformation: Preliminary Report," 2018.

Plautz, Jason. "Brownsville, TX and Detroit Top List of Cities with Least Broadband Access | Smart Cities Dive." SmartCitiesDive.com, 2018.

Rami Mourtada, Stephanie Habib, Frank Felden, Alexander Türpitz, and Miguel Carrasco. "How to Supercharge Your National Digital Transformation." BCG.com, 2018.

Refoy-Sidibe, Rebecca. "What Agencies Have to Say about Working in the Open." 18F: Digital service delivery blog, 2018.

Schank, Hana, and Sara Hudson. "Getting the Work Done : What Government Innovation Really Looks Like," 2018.

Smartsheet. "How Digital Transformation Is Revolutionizing Government." Forbes, 2019.

Stephen Twynam. "Enabling Effective Digital Government Transformation." openaccessgovernment.org. Accessed July 19, 2019.

"Transforming Federal IT Procurement through Digital IT Acquisition Training: July 2017 Report to Congress." United States Digital Service, 2017.

U.S Government Accountability Office. "Our New Science, Technology Assessment, and Analytics Team | WatchBlog: Official Blog of the U.S. Government Accountability Office." GAO Blog, 2019.

Vickerstaff, Matthew, and Kevin Cunnington. "How to Set up Transformation Projects That Could Shape Our Future." Apolitical, 2019.

Webber, Alan. "Understanding the Digital Transformation of Government." IDC Government Insights, 2017.

Wilson, Christopher. "Open Data Stakeholders: Civil Society." In *The State of Open Data: Histories and Horizons*, edited by Tim Davies, Stephen B. Walker, Mor Rubenstein, and Fernando Perini, 355–67. Cape Town: African Minds, 2018.

About the author

Christopher Wilson is an applied researcher, methodological nerd and technological optimist. As a Fellow with the Digital Service Collaborative at Georgetown University's Beeck Center for Social Impact + Innovation, his work focuses on using evidence and knowledge to advance the use of digital services and responsible innovation in American government. He is also a Research Fellow at the University of Oslo, where his research focuses on open government, citizen participation, and the influence of international norms on government practice. Christopher provides non-profit organizations with pro bono strategic support for research design and organizational development, and blogs about research and methods for assessing civic technology at https://methodicalsnark.org.

December 2019

beeckcenter
social impact + innovation

37th & O St. NW, ICC 100 | Washington, DC 20057