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HARNESSING THE POWER OF DIGITAL IN US GOVERNMENT AGENCIES

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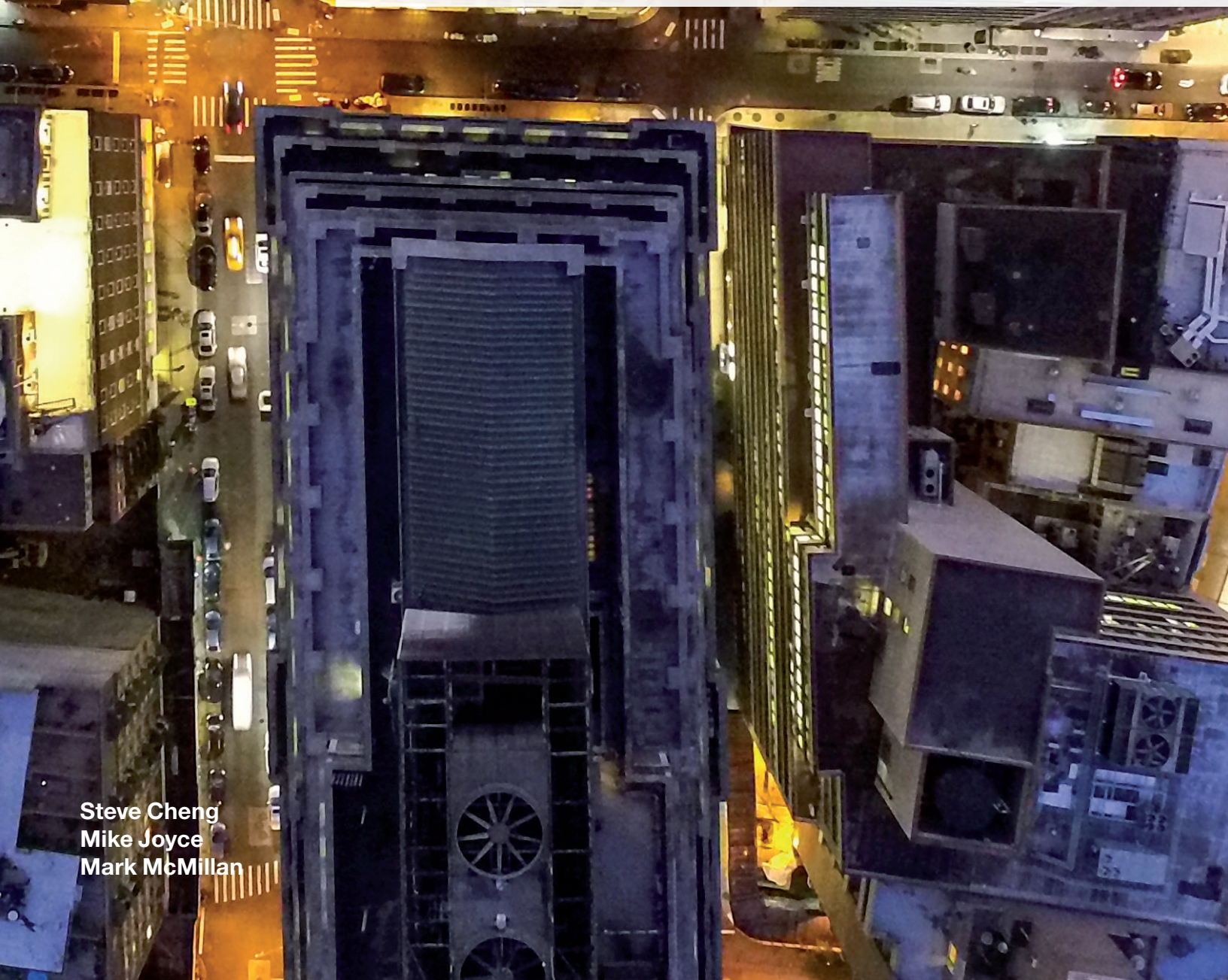

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US state and federal government agencies cannot rely on expanding budgets to keep up with increasing demand for their services. What's more, agencies are being asked to deliver high-quality solutions to increasingly complex problems at an ever-faster rate. To close the gap, they must get more done, and do it better, often without additional resources. McKinsey has estimated that the world's governments could save $3.5 trillion per year by 2021 if they match the productivity gains that leading countries have made in four functions, of which one is digital technology and data analytics.[1]

Digital technology has given federal and state governments the means to fulfill their missions with greatly increased productivity. Through digital transformations, agencies can integrate cutting-edge technologies (such as cloud, mobile, artificial intelligence, and automation) and modern management practices (for instance, agile software development) to dramatically improve services and outcomes for constituents.[2] The United Kingdom's Government Digital Service, for example, reported that initiatives like migrating websites to gov.uk saved £600 million in the five years through April 2016. One US federal agency is on track to complete a large IT modernization effort using only 25 percent of its projected budget by taking advantage of agile development, cloud technologies, and other features of a modern digital approach.

Results like these—greater output, with the same or better quality, produced more efficiently—exemplify the "stacked wins" that are possible with digital applications (Exhibit 1). Just as importantly, a digital transformation establishes systems and ways of working that enable federal agencies to continually adapt to the changing needs of their customers by strategically prioritizing the transformation of services that need to operate with increased efficiency and effectiveness.

Such results are as yet uncommon, though. Overall, US government entities trail organizations in other sectors in adopting digital technologies and approaches.[3] Our experience suggests that digitization efforts in US government agencies typically fall short of their potential for four reasons: cumbersome and bureaucratic internal rules and procedures, scarce funding for technology projects, a narrow perspective on individual functions and customer touchpoints, and a shortage of "digital native" talent.

These barriers are being lowered to some degree by top-down pushes like the creation of the US Digital Service, the passage of the Federal Information Technology Acquisition Reform Act (which strengthens the role of CIOs), executive orders to reduce waste and move technology infrastructure to the cloud, and the *Report to the President on federal IT modernization*. Some agency CIOs are starting to pursue digital transformations by developing strategies to guide technology investments and mandating the use of agile-development principles. In many cases, though, rapid digital transformations are only possible if agencies make fundamental changes to how they operate.

Four changes stand out as especially helpful: establishing a digital nerve center with a clear mandate and singular accountability to drive change; adopting agile project methodologies to increase flexibility and accelerate time-to-market; reimagining end-to-end customer journeys rather than simply optimizing touchpoints; and building a core group of experienced, in-house digital specialists to lead the transformation. In this article, we offer federal and state officials a closer look at these practices, along

[1] For more, see *The opportunity in government productivity*, McKinsey Center for Government, April 2017, McKinsey.com.

[2] For more, see Bjarne Corydon, Vidhya Ganesan, and Martin Lundqvist, "Transforming government through digitization," November 2016, McKinsey.com.

[3] James Manyika, Sree Ramaswamy, Somesh Khanna, Hugo Sarrazin, Gary Pinkus, Guru Sethupathy, and Andrew Yaffe, "Digital America: A tale of the haves and have-mores," McKinsey Global Institute, December 2015, McKinsey.com.

Exhibit 1 **Private- and public-sector organizations can realize significant performance gains following digital transformations.**

20%
Improved customer satisfaction

15–20%
Higher operational efficiency

20–30%
Increased employee engagement

Source: McKinsey analysis

with ideas for how to start digital transformations that deliver powerful results.

The barriers that impede digital transformation

In our experience, the people working on digital projects at large government agencies in the United States must work around organizational barriers that can be just as formidable as the technical challenges they face, if not more so. As we discuss below, the complexity of government projects, the difficulty of coordinating them across departments, and the scarcity of digital talent make digital projects costlier and slower than they ought to be. They can also prevent digitization efforts from having a transformative effect on operations and performance.

The complexity of project execution

Even modest initiatives to digitize government processes or services are typically governed by a welter of guidelines and restrictions, many of which were established for good reasons, such as ensuring that taxpayers' money is well spent. To ensure compliance, agencies typically establish additional procedures, multilevel approval processes, and strict rules, all of which impede progress by requiring tasks to be completed in a particular sequence. It is not uncommon for this type of process to continue for months without building a single function that users can experience and critique. Passing through the litany of gates also requires staff to spend time on planning, process management, and documentation instead of development, design, and testing. Violating these rules can delay a project, add costs, or even bring it to an end, but following them does not ensure success, only long timelines and significant overhead.

When software service providers are involved in digital projects, as they often are, matters become even more complicated. Within agencies, controls on spending and vendor selection also tend to prolong the procurement process—so much so that technology, which is state-of-the-art when first ordered, might be out of date by the time it is acquired and implemented. And if an agency determines that the project requirements have to change, this can lead to delays and additional costs.

Current controls are also often designed around traditional ways of working. This typically means

highly sequential waterfall-based methodologies, on-premise architecture, and closed-source technologies, even though the development world is shifting in the opposite direction (for example, toward agile development, cloud-based architecture, and open-source). While agencies have attempted to alter these controls to add flexibility, few have succeeded in harnessing the power of digital approaches at a significant scale.

Limited flexibility in funding new technology

Most agencies only have a certain degree of flexibility when it comes to paying for the transition from analog to digital. One issue is that, in the era of the Budget Control Act, budgets have remained flat. Another is that federal agencies spend a large majority of their IT budgets on operating and maintaining legacy systems: almost 78 percent, on average, with some agencies spending 90 percent on the upkeep of older systems. The swelling of operations and maintenance expenses during recent years has cut into the proportion of agencies' IT budgets that is available for modernizing systems or developing new ones.[4] (The complex processes and risk-averse development pathways described in the previous section also tend to inflate project costs, so the money that agencies obtain for new digital solutions doesn't go as far as they might like.) Furthermore, agencies' "investors" in the US Congress take a skeptical view of new funding proposals, having seen many IT projects run behind schedule or over budget without achieving their intended objectives. Together, these factors make it challenging for federal agencies to secure the money they need to adopt the latest digital technologies.

Narrow perspective on users' experiences

Often, multiple departments within an agency administer different parts of an end-to-end customer journey. The communications department might run the website while field offices provide in-person customer service and another group manages the call center. In many agencies, these departments are allowed to digitize, or otherwise change, their operations without considering how their changes might affect other stages of the customer journey.

When a customer journey is digitized in piecemeal fashion, the overall experience can become frustrating and time-consuming. Suppose that a person wishes to file an application for a permit. After calling a hotline for help, she visits a cleanly designed website offering a user-friendly application form. But once she has submitted the application, she finds it hard to get a status update from the website. When she calls the hotline again, the representative cannot access the application system and has to transfer her to someone who can. Each individual step in that process might be easy for the customer and for the agency, but the lack of integration among steps means that the entire process is troublesome for the customer. Having to switch from one channel to another makes the overall experience unsatisfactory, according to McKinsey research.

A shortage of digital talent

Government agencies routinely struggle with assembling the right talent to complete digital-transformation projects. Their first challenge is to figure out which skills they need. Senior officials might know they want to explore the applications of big data and advanced analytics. But if they are unfamiliar with the tools and methods used to analyze big data, they might find it difficult to assess candidates for the expert positions they need to fill.

Even if agencies hire software architects or other specialists who can effectively identify and judge technical talent, they must still contend for product owners, designers, and user-interface/user-experience-design experts. These workers command high salaries and are naturally drawn to the culture of innovation and flexibility that companies can offer more readily than government

[4] *IDC Community*, "Legacy system money pits—Our federal IT budget analysis spotlights the problem," blog entry by Shawn P. McCarthy, October 12, 2016, idc-community.com.

agencies. To fill the talent gap, many agencies try outsourcing. But software-service providers, too, must compete for scarce digital talent—talent that can be hard to bring on board when a provider is accustomed to "lowest price technically acceptable" government contracts. And agencies still need enough of the right in-house technical expertise to develop appropriate work orders and manage the collaboration between agency staff and contractors.

Principles for success in government digital transformations

It's typical for government entities in the United States to focus on shifting their operations from analog platforms to digital platforms and neglect the supporting organizational changes: simplifying processes, removing internal barriers, or resetting strategic priorities, to name a few. Such organizational changes can make the difference between a digitization program that delivers breakthrough improvements in efficiency and customer satisfaction, and one that merely retrofits digital features onto structures and systems that could work better (Exhibit 2). Here are four principles that American government agencies can use to plan and carry out truly transformative digital programs.

Set up a digital nerve center to power the transformation

Transforming an organization, whether with digital technology or otherwise, requires consensus about what the organization ought to do differently and careful coordination of the necessary changes. Consensus and coordination are especially important when projects are subject to the sort of complex requirements and controls that we identified as barriers to digital transformation at government agencies. Our experience with US government agencies suggests that a digital transformation proceeds more smoothly when a

Exhibit 2 **A digital transformation produces major changes in the ways that government agencies use digital assets and capabilities.**

Before	After
Digital projects led by IT with business input	Digital projects jointly owned, with business driving design
Waterfall methodology requiring full vision of solution before development begins	Rapid prototyping and development, with changes informed by user feedback
Agency-focused experience design	Citizen-centric experience design
Tightly controlled delivery processes	Team-determined delivery processes
Development in a series of finite projects	Development on a continual basis by a digital factory
Traditional, inflexible technology (eg, ERP[1], custom legacy applications)	Nimble technology that is configurable or open-source
Heavy on-premise infrastructure	Cloud computing

[1] Enterprise resource planning.

Source: McKinsey analysis

senior official is put in charge. The leader of the digital transformation must make sure that the transformation has the support of the agency's leaders, along with adequate funding and staff.

Staff who are assigned to manage a digital transformation will ideally be organized into a single team, or nerve center. Such a nerve center should include members who are capable of redesigning operations as well as technology, coordinating activities across departments, and managing the transformation effort from day to day. A key responsibility of the nerve center will be to conceive low-cost, high-value projects that the agency can pay for without requesting extra funds up front (though the success of initial projects can be used to make the case for more funding later). Focusing on digital initiatives that deliver large benefits at modest expense also helps agencies avoid the cost overruns and missed delivery dates that often occur on government IT projects, particularly projects with large budgets and lengthy implementation periods.[5]

Another responsibility is to ensure that those projects can launch and advance quickly. This may require digital specialists to collaborate with agency leaders on developing alternative ways of working that still conform to the basic principles that govern the agency's operations, instead of obtaining short-lived exceptions to rules. It also involves documenting lessons and refining the transformation process accordingly.

The nerve center will also have to expand the agency's capacity for developing new digital applications. Some federal agencies have set up a digital factory, which is a central development team that begins with a few pilot projects of a similar kind, then gradually adds capabilities so it can handle a wider variety of assignments. Other organizations create a distributed cohort of delivery champions, each of whom joins an existing development team to steer it toward new methods. Either approach can work as long as the organization has a nerve center to guide the scaling process.

Implement agile methodologies

Swift decision making, a clear systems-development road map, and agile processes can all help an agency overcome the organizational complexities that might encumber its digital transformation. Traditional approaches to systems development involve defining all the requirements before coding begins. An agile approach entails forming small, multifunctional teams of business specialists, product managers, and software developers to jointly design and create minimally viable features, expose them to users so feedback can be collected, and then refine them through multiple development cycles.

To realize the full benefits of agile, an agency must also foster collaboration among its product team, finance department, procurement department, and senior leadership, as well as other constituencies. Each group can embrace more flexible ways of working that let it readily adjust to new information. For example, product and procurement teams can prepare contracts that allow specifications to be defined as development progresses (rather than up front, as in waterfall development). A finance team may need to accept greater uncertainty about when and how the funds for the project will be spent. Investments in engineering practices and operations also help with scaling agile development across the organization. The most sophisticated agile development groups follow an "automated everything" approach, in which most testing and deployment is programmed.

Transitioning to agile development is not easy, but the benefits can be significant. The Social Security Administration recently shifted to agile development with the aim of making its $300 million IT-modernization program more effective. The

[5] For more, see *Government productivity: Unlocking the $3.5 trillion opportunity*, McKinsey Center for Government, April 2017, McKinsey.com.

program had faced budget and timeline overruns, and the reigning waterfall methodology caused delays and usability complaints. After implementing agile methods, the program delivered new application capabilities for one-third of the regular cost, while exceeding customers' expectations.

Rethink and reorganize around customer journeys

Federal and state agencies ordinarily put separate departments in charge of specific interactions, or touchpoints, with customers (for example, accepting passport applications online), which understandably narrows their perspective on improving satisfaction. A better approach is to pursue improvements by looking at the customer's journey through a process (obtaining a passport) as a continuous whole. McKinsey research indicates that customers report higher satisfaction with government services when agencies manage journeys well from start to finish.[6] By assessing an entire journey from the customer's perspective as well as the agency's perspective, an agency can better identify possible cost savings, efficiency increases, and satisfaction improvements.

Another helpful practice is to encourage greater collaboration among the departments that support a customer journey. In some instances, agencies might benefit from reorganizing themselves, by putting all the people who work on the same customer journey into a single unit. Greater collaboration also helps agencies make smarter investments in digital technology: rationalizing operations before digitizing them usually means that less money has to be spent on enabling technologies. Agencies can get started by identifying the most frequently used customer journeys and then reimagining them from end to end.

In an ambitious effort to transform its customer experience, one federal program worked closely with internal and external stakeholders to map and redesign eight core customer journeys. The new journeys enabled the program to deliver customer services five times faster than before, resulting in a dramatic improvement in the customer experience.

Build a core of digital change agents and draw on outside talent as needed

Faced with a shortage of digital talent, government agencies need to be creative and resourceful about how they staff their digital transformations. Development teams ideally include a mix of in-house employees, to retain knowledge and build a healthy culture, and flexible contractor support, to provide necessary expertise when it's needed, without adding fixed costs to agencies' tight and relatively inflexible IT budgets.

In-house employees can establish the consistency that teams need to follow modern IT-development methods, such as agile, which involves adapting quickly to new feedback and working on a near-continual basis, rather than until a delivery date. These team members are best used for strategic and management tasks such as working with stakeholders to define a vision for a digital transformation, evaluating and prioritizing projects, building relationships across the agency, defining feature sets, and determining what capabilities are needed. Some agencies have in-house digital teams to handle projects ranging from quick fixes of faulty or outdated systems, to prolonged transformation efforts. Many of the people on the team joined the government from technology companies and offer experience and perspectives that complement those of in-house employees.

When it comes to supplementing their in-house teams with specific capabilities or extra manpower, federal agencies have resources within the government that can help them build capacity and acquire knowledge. The US Digital Service has a broad mandate to help agencies digitize customer-facing services and shared platforms and streamline procurement

[6] Aamer Baig, Andre Dua, and Vivian Riefberg, "Putting citizens first: How to improve citizens' experience and satisfaction with government services," November 2014, McKinsey.com.

processes. It can provide an agency with a valuable bridge to more advanced digital capabilities.

Of course, the modest capacity of the US Digital Service relative to the massive scale of the federal government means that many agencies will continue to rely on contractors for digital services. But new contracting mechanisms like multiple-award blanket purchasing agreements (BPAs) can help agencies meet the changing demands for staff that agile development often creates. With multiple-award BPAs, agencies grant several contractors the option to compete for particular assignments defined in terms of skills, experience, timing, cost, and deliverables. By splitting a project into numerous self-contained parts, agencies can avoid the risk of vendor lock-in, promote competition among the BPA awardees, and contain costs. Over time, the organization can observe how contractors perform and direct more work to the best ones.

Getting started: Catalyzing digital transformations with pilot projects

Digital transformations are most effective when they are reinforced by major organizational changes. The UK government, for example, established an 18-point standard for making its public-facing services "digital by default." This standard covered everything from the structure of the teams supporting government services, to the use of agile methods, to the quality of the customer experience. But such far-reaching changes are prone to arouse skepticism, if not reluctance. One way to convert skeptics to supporters is to rapidly complete a series of digital pilot projects. This approach quickly demonstrates the art of the possible: that a cross-functional team can design improved processes and that modern development tools can increase efficiency.

In our work with government and private-sector clients, we have seen pilot projects generate working prototypes and beneficial process changes in as little as eight to 12 weeks. This creates momentum for the transformation with minimal investment. To ensure the effort doesn't conclude with the pilot projects, those projects should be planned with the ultimate transformation goal in mind, so the agency can apply what it learns from the pilots throughout the organization.

Government entities can develop pilot projects according to the following process. It is built around concept sprints, which are collaborative workshops to rapidly identify improvements that digital initiatives should seek.

Step 1: Establish a transformation aspiration. Successful digital transformations begin with the end in mind. An organization should therefore determine the goal of its transformation—usually a combination of cost reduction, better customer experience, more informed decisions, faster delivery, and more innovative services—then identify high-priority customer journeys as candidates for pilot projects.

Step 2: Stage and launch concept sprints. For each opportunity, the organization should form a small team (typically six to 12 people) to reimagine a customer journey as seamless, efficient, and satisfying. In several cross-functional workshops, the team sketches out new operating processes and supporting technologies for the journey. Concept sprints are typically facilitated using techniques from design thinking, which can promote the creativity and collaboration that lead to transformative ideas. At the end of a concept sprint, teams should have a customer-centric design that engineers can start realizing in code.

Step 3: Build, test, refine—and repeat, using delivery sprints to build a minimum viable product. Based on the new concept for the customer journey, software engineers start coding new features and applications, in close collaboration with functional groups. This agile development approach should allow developers to create interactive functions every two weeks, gather feedback from users, and make refinements,

while functional specialists revise their operating processes and apply changes to other projects. After 12 weeks, the team should have a minimum viable product that customers can use, along with guidance on how the process should work.

After the team has built the minimum viable product, it has effectively piloted product development using agile, design thinking, and a business-led customer-focused approach. During the process, agencies will identify barriers to this new way of delivering digital solutions. Some barriers might be easy to work around; others will require further thought. Following the concept sprints, the agency can come together, under the leadership of its digital nerve center, to craft a tailored delivery process and use these concepts in more of its IT development.

In spite of their desire to improve performance with digital transformation, many federal and state agencies have been unable to realize the full potential of digital technology. The barriers they face are formidable. Complex methods of project management and software development inhibit innovation. Agencies' IT budgets include little money for new projects. Departments optimize their activities without considering whether the overall customer experience is coherent and straightforward. And difficulty attracting the right software designers and developers limits the use of leading-edge solutions and tools. By putting a senior official and a dedicated team in charge of the digital transformation, shifting to agile development and other advanced techniques for executing projects, reexamining their operations in terms of end-to-end customer journeys, and refreshing how they build their digital workforces, government agencies in the United States can maximize the benefits of digital transformations—and ultimately deliver better services. ■

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