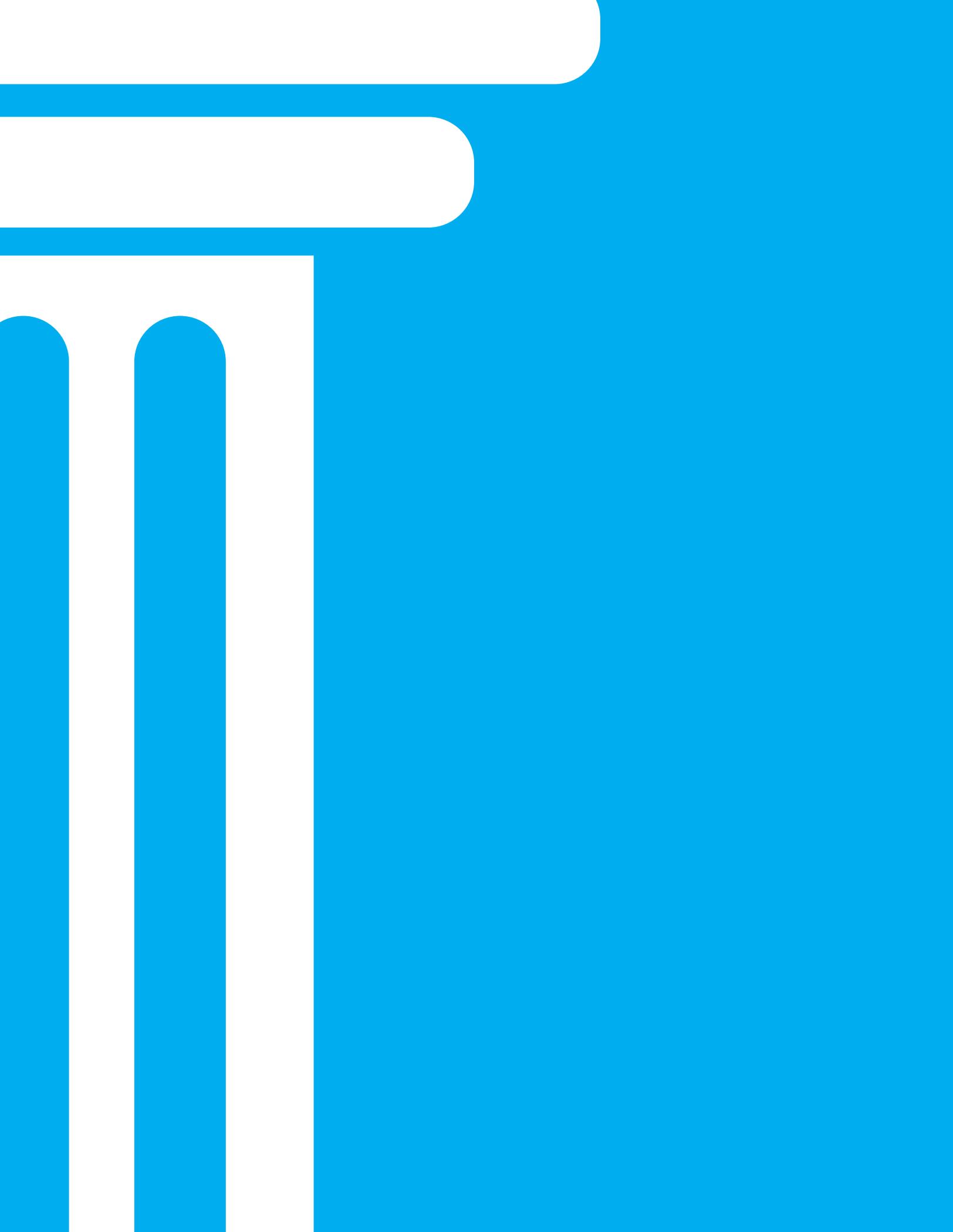


Digital by default:

A guide to transforming government

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Digital by default: A guide to transforming government

By digitizing processes and making organizational changes, governments can enhance services, save money, and improve citizens' quality of life.

As companies have transformed themselves with digital technologies, people are calling on governments to follow suit. The stakes are high: our estimates suggest that government digitization could generate over \$1 trillion annually worldwide.¹

Few if any governments face the same type of competitive pressure that compels businesses and even social-sector organizations to digitize. After all, there's little risk that a government will be displaced by a digital challenger. But that shouldn't give governments an excuse for complacency. The dynamics of globalization mean that countries and municipalities must vie for investment, workers, and knowledge—resources for which digital technology can be a magnet.

By digitizing, governments can provide services that meet the evolving expectations of citizens and businesses, even in a period of tight budgets and complex challenges such as income inequality, geopolitical instability, and aging populations. Not only do citizens prefer digital services and interactions with governments,² but digital services can also empower citizens and broaden their engagement with government. For businesses, too, digital government services are convenient and efficient. Government digitization efforts can also compel businesses to digitize more quickly.

Governments have few, if any, models for public-sector institutions that have been digital from day one, and some governments' initial attempts to digitize have come up short. But governments have begun borrowing approaches from digital business start-ups, established companies that are digitizing, and other governments that are farther along in their digital transformations. And regardless of how digitally sophisticated a government might be—whether it is just beginning to develop digital capabilities or it is rolling out digital services that

rival those of the hottest start-up—it can always take another step forward.

Digitizing a government requires attention to two major considerations. The first is the core capabilities that governments use to engage citizens and businesses and carry out their work: the methods and tools they use to provide services, the processes they implement, their approach to making decisions, and their sharing and publishing of useful data. The other consideration is the organizational enablers that support governments in delivering these capabilities: strategy; governance and organization; leadership, talent, and culture; and technology (exhibit).

These elements make up a framework that governments can use to set their priorities for a comprehensive digital transformation that boosts the efficiency, responsiveness, and quality of government activity and helps improve quality of life. In this article, we offer a detailed look at the capabilities and enablers in this digital-government framework, along with guidelines and real-world examples drawn from our experience helping government leaders seize the opportunities that digitization has to offer.

The core capabilities of a digital government

Governments typically begin their digitization efforts by rebuilding a few fundamental capabilities around advanced technologies. With experience, they can broaden their digitization programs, working toward providing world-class digital experiences to citizens, businesses, and other users of government services. We have grouped government capabilities into four categories—services, processes, decisions, and data sharing—and proposed, for each one, a progression from quick digital wins to transformative efforts that can generate substantial benefits for users.

Exhibit A digital government has core capabilities supported by organizational enablers.

Capabilities: citizen- and business-facing innovations

Services



- Digitization of touchpoints
- Consolidated online-access platforms
- Citizen and business portals
- Messaging platforms
- Payment platforms

Processes



- Automation of transactional processes (eg, grant applications)
- Digital enablement (eg, e-health)

Decisions



- Deployment of sensors (eg, mass transit)
- Advanced predictive analytics
- Large-scale, cloud-based data storage

Data sharing



- Unified, open public registers
- Peer-to-peer sharing of data
- Coreation of solutions with private sector and citizens

Enablers: innovations across government systems

Strategy



- Close connection to broader government priorities
- Bold aspirations translated into concrete targets
- Focus on citizen and business experience
- Attention to needs of marginal populations (eg, elderly)

Governance and organization



- Organizational design mapped directly to goals
- Governance and accountability for pace, scale, and collaboration
- Funding mechanisms for collaboration, innovation, and efficiency
- Regulations that allow open, joined-up citizen experiences

Leadership, talent, and culture



- Leadership commitment and awareness of trends and opportunities
- Technical and implementation talent
- Programs to attract and retain digital workers

Technology



- Two-speed model for rapidly deploying new services
- Agile development at scale
- Analytics platforms to support efforts in big data and open data
- Robust cybersecurity measures and controls

Source: McKinsey analysis

Services

In recent years, some governments have used digital tools and channels to simplify and streamline their interactions with citizens and businesses.³ These improvements are helping governments adapt to the increasing digital savviness of their citizens.

The first step in digitizing the user-facing end of government services is to focus on a small number of high-volume activities. Since the typical government provides thousands of services, a government should set its digital priorities in line with its larger strategic objectives.

Does the government want to become easier for citizens and businesses to deal with? If so, it could conduct research to figure out the biggest complaints of its citizens, analyze the costs and benefits of addressing them, and digitize services that will yield big gains in satisfaction and generate support for further efforts. What if the government sees digitization mainly as a way to lower costs and improve efficiency? Then the focus should be on services that are heavily used or those that account for the most spending. The United Kingdom kicked off its digital-transformation program by digitizing 25 basic services, such as registering to vote and transferring car registrations.

In digitizing services, officials should adopt the user's perspective and look for ways of improving the experiences of citizens and businesses.⁴ This involves challenging long-held assumptions and being willing to remake products, processes, and policies—or phase them out altogether if doing so would improve the citizen experience even more. Norway's tax administration provides citizens with tax returns that have been filled out for them, and more than 70 percent of citizens submit those returns. Governments should be careful, however, not to cover up old services with a digital facade that lets users learn all they want but forces them to visit an office or place a phone call when they want service. Our research shows that citizen satisfaction decreases when citizens need to use more channels to interact with governments.⁵

Once a government has digitized some services, it can move on to building systems that increase convenience for users and bring uniformity and coherence to all its digital offerings. Singapore integrated its digital sign-on system to give each resident a "Singpass ID" for obtaining services from more than 60 agencies. In the United Kingdom, the websites of all 24 ministerial departments and 331 other agencies and public bodies have been merged into a single website, gov.uk.

Finally, governments can add features to their digital services that resemble those provided by cutting-edge digital businesses. Personalized content is one such feature. In Sweden, parents receive regular digital reminders about upcoming health check-ups and vaccinations for their children. Shifting services onto mobile platforms is also important, given that citizens are increasingly demanding digital services via mobile. Some provincial governments in China accept passport and visa applications and provide updates on weather and traffic through WeChat, one of the country's most widely used mobile apps. Artificial intelligence engines can make it easier for citizens to find and obtain the services they need. Enfield, a borough in North London, is launching a digital agent called Amelia to provide citizens with an intuitive, natural-language interface, similar to assistants like Apple's Siri or Amazon's Alexa, on mobile devices.

Processes

Digitizing behind-the-scenes processes offers the most potential for productivity gains in the public sector. It is also the most difficult thing to do right. Many well-intentioned digital efforts have turned out to be costly, effortful, and unhelpful. Examples include large-scale IT transformation projects that resulted in little improvement in performance, and application-development projects that left analog operations in place. To prevent waste, governments should concentrate their digital efforts where they provide the most benefit. They should also organize their digital efforts around improving the experiences of end users, rather than upgrading technologies for their own sake.

Just as governments should digitize their highest-volume services first, they should also digitize their most labor-intensive and expensive back-end processes before others. Sweden's social-insurance agency began its digitization program with five products that accounted for 60 percent of all manual-processing work and more than 80 percent of the agency's call-center volume.

To digitize a process effectively, governments should digitize the entire chain of activities that make it up. Singapore has fully digitized its process for registering a company, shortening the time required to just 15 minutes in most cases and automatically issuing notices of incorporation to corporate secretaries so business owners don't have to look them up.

By contrast, when Denmark attempted to do the same, it found that companies couldn't be automatically classified for tax purposes because national tax laws were too vague. Updating the laws with more precise definitions of tax categories made it possible to classify businesses using an algorithm. Now, more than 98 percent of the tasks involved in registering new companies take place in seconds, with no human intervention. This experience highlights the need for governments to streamline inefficient or hard-to-automate processes before digitizing them.

Once governments have digitized routine processes, they can extend their efforts to more complex ones, including those of finance, human resources, and other functions that rely heavily on people. They can also design new functions and processes to be digital from the beginning. In Sweden's government, a digital-first mandate calls for every new service to be digitized and automated. A far-reaching digitization effort can profoundly change the work that agencies and employees are asked to perform. To ease any adjustments, government agencies should provide workers with training in new skills, as well as assistance navigating what could be a disruptive career transition.

Decisions

One big advantage of digital technology is that it allows organizations to make more accurate predictions and more intelligent decisions by analyzing vast amounts of data. Many companies have transformed their business models to reap the benefits of this capability. The public sector, too, stands to gain from predictive and advanced analytics in defense, social welfare, public safety, healthcare, and fraud prevention. Australia's tax

office analyzed the tax returns of more than one million small and midsize enterprises to develop industry-specific financial benchmarks. It now uses those benchmarks to identify firms that may have underreported their income and notifies them of possible discrepancies.

Beginning to use analytics is a matter of choosing areas where imprecise knowledge or uninformed decision making contribute to serious problems. Germany's labor agency homed in on youth unemployment. It created a job platform that analyzes candidates' profiles, makes personalized job recommendations, and refers suitable candidates to prospective employers. The site attracted 18 million unique visitors a day (compared to 8 million for the leading private-sector competitor) with 1.5 million job offers.

Once governments can gather data extensively—and manage them in ways that respect citizens' privacy concerns—they can invite companies, universities, and other institutions to analyze those data and use them to help solve problems. The US government uses the website Challenge.gov to stage problem-solving contests related to issues such as accelerating the deployment of solar energy and combating breast cancer. One \$60,000 challenge to create “apps for healthy kids” yielded nearly 100 apps and games. Another challenge, to create a tool that would let military veterans download their medical records, resulted in the selection of a developer after six weeks.

The ultimate engine for analytics is a system that integrates data from many sources and uses algorithms to adjust processes and systems in real time and to provide new insights to officials. While no government has such a system yet, Singapore is setting a high standard. Individual agencies there already use their own sensors to collect data on things like air quality and traffic patterns. Now, the government is setting up a nationwide network of sensors that will feed many more data into a single online repository for all agencies.

Data sharing

Many governments have consolidated their stores of information and made them accessible to the public. Although the economic benefits of open data may be hard to measure, greater transparency

can strengthen the public's trust in government and its engagement in civic affairs, as long as the government takes measures to safeguard data (see sidebar "Protecting digital governments: Three cybersecurity principles").

Protecting digital governments: Three cybersecurity principles

As in the private sector, digitizing a government's processes and systems creates risks for information privacy and operational continuity. And governments around the world have had their information systems hacked. A 2007 cyberattack on Estonia, for example, crippled the parliament and numerous government ministries, as well as media and financial companies. Breaches like that incur financial costs and undermine trust in institutions. However, successful defenses are hard to engineer. Indeed, skeptics have argued that governments' own cybersecurity requirements do not necessarily create actual fortitude.

Although cybersecurity is not yet a mature discipline, our experience suggests that following several principles can help governments make their technology systems more resilient against cyber risks. The first of these principles is that it is impractical to protect technology systems from every possible breach. Governments fend off most cyberattacks, but cyber threats are becoming more sophisticated all the time. Building defenses capable of stopping every attack would cost enormous sums of money. What governments can do instead is determine the importance of each of their information assets and set specific targets for protecting those assets.

With those targets in mind, governments can devise and implement controls for their operations and

their technology systems that let them achieve their cybersecurity targets at a manageable cost. This usually means devoting extra resources to protecting the most sensitive and valuable information. A second principle can help when it comes to setting priorities: that careful attention must be paid to the trade-offs among cybersecurity targets, the funds available for security measures, and, less obviously, the willingness of government departments to adapt to new security requirements. Applying protections to technology systems normally involves operational changes. Taking those changes into account, along with their financial costs, can help government officials come up with workable cybersecurity plans.

The need for new protections points to a third principle of effective cybersecurity for government. This principle holds that sharing knowledge and working with the private sector can make cybersecurity plans more effective and practical. Companies and governments face many comparable threats, often from the same actors—and cyber is one arena in which the government does not have a monopoly on the use of defensive force. By exchanging what they learn about cyber threats as well as security responses, and by collaborating on their security plans when it makes sense to do so, public and private-sector organizations can better defend themselves against risks they face in common, and thereby guard the interests of their constituents.

A crucial first step toward sharing data is unifying registries of public information, such as geographical data, real-estate records, addresses, company information, basic citizen profiles, and infrastructure logs. The UK tax authority uses a tool called Connect to link more than one billion data items from 30 sources, including government land and vehicle registers, social-media sites, and trade associations. Since its launch in 2008, Connect has enabled the authority to identify possible instances of tax evasion and claim an additional £3 billion in tax revenue.

Once governments consolidate their data and remove personal information, they can share it publicly. Some have launched open-data websites that make data easy to search and comprehend. Governments can also build data connections that allow citizens and companies to use public data. The open application program interfaces (APIs) of New York's Metropolitan Transportation Authority and Sweden's transport administration Trafikverket let third parties feed transit-system data into their services.

The final frontier in government data sharing is setting up systems that bring together data sets from different agencies. The government of Estonia has a platform, called X-Road, that enables secure data exchanges among the state's information systems. Some companies, such as healthcare providers, can even use X-Road to connect their IT systems with the government's. The government of Denmark administers a master data program that pulls information from multiple registers onto a single platform, open for public access, to which state agencies, municipalities, and private companies can connect their systems.

For many governments, making a system like X-Road work will require new policies and procedures. Some agencies will resist sharing their data. Citizens and businesses may also object to data-sharing programs unless they have strong

privacy protections. To address these considerations, French law requires agencies to secure approvals for sharing data sets that include personal information. Similarly, Australia's government asks ministries to share nonpersonal data with one another at no cost and levy charges only when they need to reconfigure the data to fulfill a request.

Enabling success in digital government

Public institutions with the most successful digital capabilities use four enablers to support and accelerate their transformation efforts. Their strategies reflect the capabilities and opportunities associated with digital technologies. Their governance models and organizational structures are built to handle the new tensions and risks associated with digital capabilities. They recruit and develop workers to manage transformation programs and new capabilities. And they create or acquire technological assets that are suited to the government's emerging digital functions.

Strategy

As we have suggested in describing how governments can digitize their capabilities, digital technology will alter the basic assumptions and choices that a government makes about how to pursue its goals—and may change the goals as well. We have seen two approaches help governments reimagine their strategies for the digital era.

The first approach is to consider the opportunities that digital technology creates and set transformation goals in line with overall government priorities. From 2011 to 2015, Denmark pursued an ambitious digitization strategy that would move it toward fully digital delivery of government services. The organizing concept for this strategy, however, was not digitization, but cost cutting, which was a top concern for the national administration. Designing the digitization strategy to support the broader policy-making agenda helped to speed its execution and led to results that the government had sought.

The second approach is to evaluate regularly whether digital programs are providing the benefits they were meant to provide, and whether those programs should be adjusted to reflect shifts in societal conditions or digital trends. Governments should also be aware that digitizing services can make those services less accessible or usable to certain groups. Singapore has complemented its digital-government efforts with a program to put a computer in the home of every student. Denmark involved the nation's largest organization of elderly people in designing, piloting, and executing digital initiatives.

Governance and organization

Our recommendations for digitizing government operations point to the advantages of consolidating data and coordinating the delivery of services across government agencies and functions. Enacting these approaches, however, is difficult. Many government agencies have a deeply ingrained preference for operating independently. In our experience, most of the organizational barriers that hamper digital initiatives are not formal, but cultural: they arise when officials put isolated, agency-specific priorities ahead of strategic goals that officials are meant to pursue in tandem.

Businesses often look at their activities in terms of how they can enhance customers' experiences, and they either organize themselves along similar lines or form teams of people from different departments to work together. Similarly, digitizing government is more effective when government agencies agree to concentrate on the needs of citizens and businesses. Once such an understanding is in place, responsibility for the digital transformation can be divided across different levels of government.

At the uppermost level of a government, a single department or unit can be put in charge of setting strategies, ensuring that operations are standardized, supporting talent development, and assigning responsibilities to other agencies. In the Australian state of New South Wales, central

units support some government transformation programs by helping multiple departments work together on improving services to citizens and on tracking their performance.

Other countries take an approach that is slightly less directive but no less centralized. For example, Denmark and Estonia set ambitious and specific targets for change programs and then allow departments to come up with their own plans for how they will pursue those targets.

Individual agencies and departments often assign responsibility for digital-transformation programs in two ways. The planning is usually handled by a pair of senior officials or administrators, one with operational responsibilities and one with technology or digital responsibilities. Once a transformation plan has been set, cross-functional teams can be formed to carry it out. At Sweden's social-insurance agency, the leaders of specific social services organize and direct teams of people from the agency's departments to digitize those services.

Forming teams of people from relevant departments to steer a digital project can also help ensure that the purpose of the project remains intact from the concept phase through development to launch. Digital efforts can sometimes become disjointed: a department defines the requirements for a project, then gives them to developers as the basis for functional specifications. As development progresses, though, compromises can creep in, causing the finished product to stray from the original vision. The Danish Business Authority keeps its digital projects on course by assembling project teams of business and IT professionals, along with vendor staff, and basing these cross-functional teams in one place to facilitate communication.⁶

Leadership, talent, and culture

The Danish Business Authority's experience with organizing cross-department teams to manage digital-government projects underscores the

importance of human capital as an enabler for these efforts. To increase the chances that their digital imperatives will succeed, government leaders should set their priorities accordingly, make sure that agencies have the right talent, and promote innovation and risk taking.

As the stewards of digital-transformation efforts, government leaders need to show that their top priority is to endow their departments or agencies, and the government as a whole, with digital capabilities that will increase the quality and efficiency of services. Such an outlook has two demonstrable components. The first is leadership commitment. This involves engaging in the planning and implementation of digital initiatives by taking charge of decisions, reinforcing priorities through frequent communications, and closely monitoring the progress of digital initiatives toward established goals. When the Danish Business Authority initiated a major digital program, the chief information officer rearranged his priorities to devote more time and attention to the program, and the CEO joined the governance team, chairing the weekly meetings it held to review progress, bring up challenges, and come up with solutions.⁷

The second part of leadership in digital transformation is awareness: government leaders need to be informed about digital technologies and trends and attuned to the opportunities these create. New Zealand introduced its senior leaders to digital and innovation concepts with a full-day executive class that covered topics such as digitization best practices and hiring digital talent. It also included a live hackathon that let the participants redesign and digitize a series of citizen interactions, using agile methods. Small gestures help, too: the prime minister of Singapore won widespread praise after making a Facebook post to share the computer code he had written to solve Sudoku puzzles.

Mobilizing the right talent should be the second priority for governments as they undertake digital

transformations. Broadly, government should draw on two pools of talent to build their digital capabilities. The first is specialized technical talent such as data scientists, cybersecurity experts, and machine-learning programmers. The second comprises professionals with the skills to plan and execute a strategic digital agenda. Such professionals might include user-interface designers and software engineers, along with people who have experience in supply-chain management, marketing, and business development.

To assemble talent from these two pools, governments must be resourceful and nimble. After determining which professionals are crucial to a given project, a government can invest in developing its own human resources or finding people outside government to provide the needed support. Singapore launched its Smart Nation fellowship to attract and develop technical talent. Offering the opportunity to innovate for the public good, the fellowship invites participants to take on short-term assignments and to propose and design their own projects. More governments are staging hackathons, not only to solve problems but also to attract talented digital workers.

Important as it is for governments to deepen their in-house digital talent, they can also gain access to best-of-breed capabilities through external partnerships. Estonia has set up a network of private-sector cybersecurity professionals, which it calls the Cyber Defense League, so it can quickly get help during national cyberemergencies. Similarly, the Danish Business Authority is cultivating long-term relationships with a small number of digital-transformation partners.

Diversified approaches such as these also help governments avoid becoming too dependent on any one vendor. While external advisors can help set the direction for a digital transformation and inject fresh ideas, and temporary hires can perform specific tasks for which there is a passing need, relying heavily on outside resources over a long period has drawbacks.

It is expensive, and it can slow the rate at which governments gain experience with digitization.

Gaining experience with digitization requires governments to experiment, celebrate their successes, and learn from their failures. Few governments have workplace cultures that reward risk-taking of this sort. The ones that do not should consider promoting a gradual but widespread change in mind-set. In the United Kingdom, the Government Digital Service (GDS), responsible for leading the digital transformation of the government, was founded on many of the same principles that inform technology start-ups. It also exhibits many of the hallmarks of the technology industry, from agile project-management methods to cutting-edge hardware and a stylish office in East London. In helping other departments with their digital transformations, the GDS has spread its open, experimental ethos more widely throughout the government.

Technology

Most governments are burdened with legacy IT systems that can be risky to replace with new ones. To overcome this challenge, governments as well as companies are opting for what is known as a two-speed IT model: a reliable and low-risk foundation of familiar systems, plus a more flexible digital layer that accommodates the rapid creation and deployment of new services.⁸ Although the advantages of such a model are widely recognized, putting it into place is not entirely straightforward. From our experiences with various public-sector institutions, we have found that three tactics can help.

The first tactic is to develop a single blueprint for enterprise architecture that clearly defines the major components of the architecture and divides them into “fast” (digital front-end) and “slow” (legacy back-end) components. This high-level blueprint also spells out overarching design considerations and the functional objectives for individual components. For example, a blueprint might

specify that new citizen-facing digital services for a particular agency should be deployable in less than three months, using mobile interfaces by default.

Defining practical rules to guide the day-to-day development of all digital solutions is the second tactic. These rules make it possible for software engineers assigned to different projects to develop functional solutions that work together within the broader enterprise architecture. Without these rules, the blueprint could take shape as a collection of components that work well individually but cannot be integrated into a well-functioning system.

The last tactic is to avoid major architecture changes or system replacements—unless legacy systems pose critical risks or costs. Sometimes, digitizing services and other capabilities can be done just by making incremental adjustments to a government’s enterprise architecture. When large components of the enterprise architecture require significant change, then governments should consider whether to replace them entirely or modify them slowly. Even though old systems can be expensive and complicated to maintain as they age, replacing them can be even more costly and difficult, especially since the costs and the work involved tend to overrun the up-front estimates.

We see promising opportunities for governments to share knowledge and borrow one another’s technology systems so they do not have to build them from scratch. Finland is experimenting with Estonia’s X-Road system for exchanging data among government agencies, and Estonia and the United Kingdom have established a partnership called TechLink to exchange knowledge of cybersecurity, digital government, and smart-city development. Agencies within the same government are also consolidating their infrastructures in the cloud, which lets them deploy new services more easily and increase their purchasing power.



Getting started: Five questions for leaders

To begin a digital transformation, or reevaluate one that is under way, government leaders should consider five main questions:

1. If we were redesigning the government, with no legacy structures or systems to start from, what would it look like, and what would its top priorities be?
2. What are the biggest differences between that vision and the government as it is today?
3. What capabilities would the government have to acquire to make up those differences, and what existing structures and systems would it have to abandon?

4. How do our government's current digital-transformation efforts compare with the changes that we identified in the third question?
5. What new priorities must we set for our digital transformation to bring it into line with our overall vision for improving the government?

By mapping the answers to these questions onto the framework of capabilities and enablers we have proposed in this article, government leaders can set priorities for a powerful and lasting digital transformation.

The digital transformation of a government is challenging but ultimately rewarding for citizens and government workers alike, as many public institutions have discovered. Committing to a comprehensive, ambitious vision of a digital government is the first step (see sidebar “Getting started: Five questions for leaders”). This vision should define specific priorities such as increasing citizen engagement, enhancing government productivity, or spurring economic growth. Leaders then need to develop and carry out plans for digitizing the government's capabilities and establishing the strategy, governance, talent, and other organizational enablers that will support their priorities. Governments that transform themselves in these areas can expect to ease the strain on public budgets and improve their citizens' quality of life. ■

³ “Making government for the people,” June 2016, McKinsey.com.

⁴ Emma Dudley, Diaan-Yi Lin, Matteo Mancini, and Jonathan Ng, “Implementing a citizen-centric approach to delivering government services,” July 2015, McKinsey.com.

⁵ Aamer Baig, Andre Dua, and Vivian Riefberg, “Putting citizens first: How to improve citizens' experience and satisfaction with government services,” November 2014, McKinsey.com.

⁶ Sverre Fjeldstad, Martin Lundqvist, and Peter Braad Olesen, “From waterfall to agile: How a public agency launched new digital services,” March 2016, McKinsey.com.

⁷ Ibid.

⁸ Martin Lundqvist and Peter Braad Olesen, “Digitizing the delivery of government services,” March 2016, McKinsey.com.

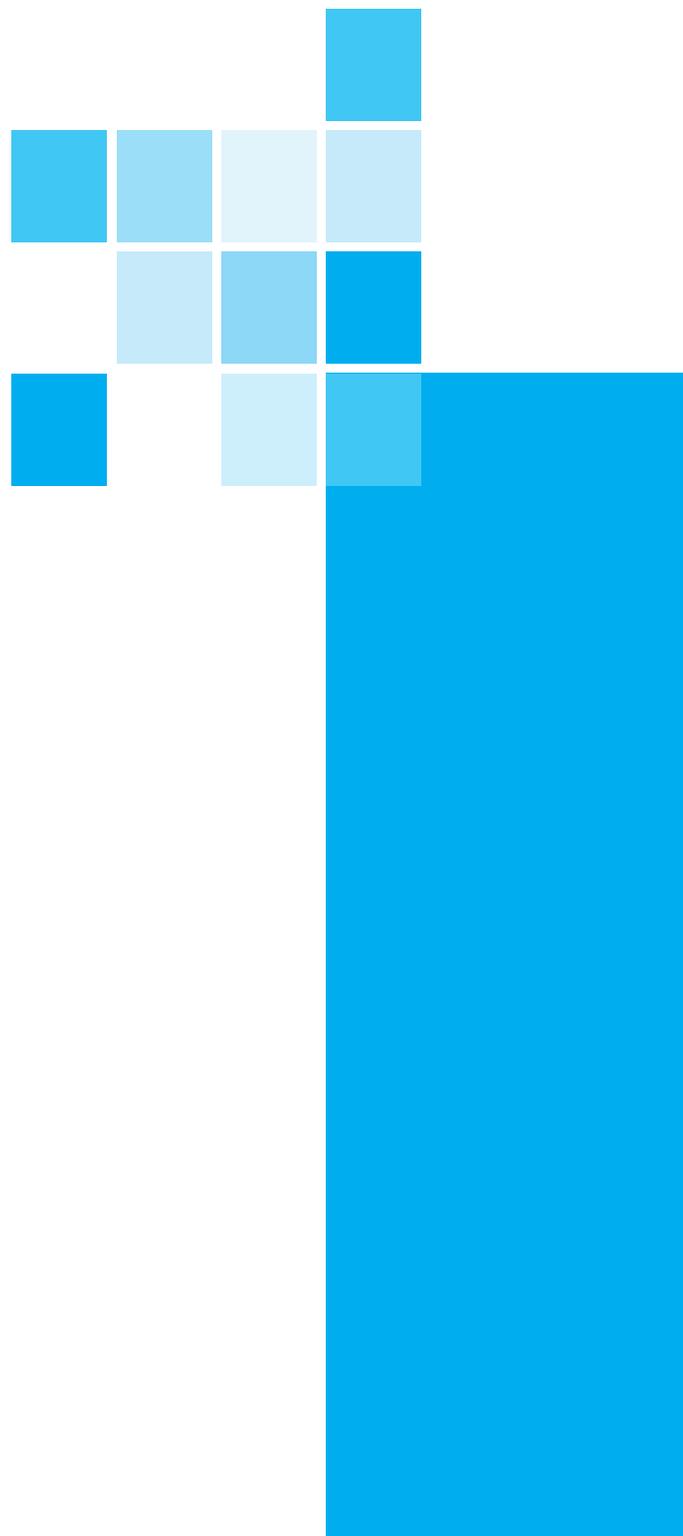
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¹ For more, see “Disruptive technologies: Advances that will transform life, business, and the global economy,” McKinsey Global Institute, May 2013, on McKinsey.com.

² Aamer Baig, Andre Dua, and Vivian Riefberg, “Putting citizens first: How to improve citizens' experience and satisfaction with government services,” November 2014, McKinsey.com.



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