

Public and Social Sector Practice

How public-sector tech leaders can speed up the journey to the cloud

Moving to the cloud is fraught with challenges. By answering five questions up front, public-sector leaders can ease and accelerate the journey.

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Governments around the world are increasingly recognizing the benefits of cloud-based technologies, particularly in light of the COVID-19 pandemic. The true value of the cloud is not just lower costs but also access to innovative offerings from cloud vendors and greater resilience and scalability of technology (see sidebar “Making the move to the cloud: Results from the field”). Many early adopters have shown encouraging business benefits (Exhibit 1). The long-term difficulty of maintaining on-premise data centers, the inability to scale (for testing environments, for example), and reliability-related concerns set the perfect impetus for public-sector organizations to consider the case for the cloud.

Before the COVID-19 pandemic, worldwide investments in public cloud and IT infrastructure were on track to grow 20 to 25 percent a year from 2019 to 2023.¹ The pandemic has only accelerated this movement; as a result, in the past few months, many public-sector organizations have made aggressive plans for cloud migration.² In some cases—driven by the urgency to carry out certain

activities (for example, contact tracing) and increased demand for certain services (for example, processing unemployment claims)—government officials have redeployed existing funds to investment in the cloud.

But even accelerated migration projects need to be well thought out, and there are many challenges to address. For an organization to capture the benefits of the cloud and meet its specific needs and goals, its technology leaders can begin by gaining a better understanding of the nuanced challenges of the endeavor. They can then follow a proven recipe for approaching a cloud transformation, starting with developing the vision of the end state.

The challenges of cloud transformation in the public sector

The promise of cloud-based technologies is immense, but public-sector organizations considering migrating to the cloud often face a wide range of organizational and operating-model challenges. Despite the new urgency, many organizations still

¹ International Data Corporation, “Worldwide public cloud services spending will more than double by 2023, according to IDC,” July 3, 2019, [idc.com](https://www.idc.com).

² Sarah Chaney, “Amazon, Google help states as coronavirus boosts unemployment claims,” *Wall Street Journal*, May 12, 2020, [wsj.com](https://www.wsj.com).

Making the move to the cloud: Results from the field

Cloud can unlock numerous business capabilities, and potential benefits can include cost savings, increased agility, and higher technology resiliency.

At one government agency, analysts were completely overwhelmed by data and were struggling to manage it manually. The agency decided to move data and applications to the public cloud—and ultimately shut down its data center. This transition reduced the manual work for analysts by 98 percent, reduced costs by 70 percent, and reduced the time spent conducting postmortems on critical

incidents from as much as three weeks to—in some cases—one day.

One US state’s department of transportation deployed snowplows based on standard weather-forecast models, leaving the state to weigh the expense of potentially unnecessary trips against road safety. To address this problem, the department deployed a cloud-based app that collects data on road conditions and weather through roadside telemetry stations and truck-mounted sensors. The data are immediately uploaded to the cloud, where

they are analyzed and used to create a dashboard showing current, hyperlocal road conditions. Information is always up to date, allowing the department to make better snowplow-deployment decisions. Since transitioning to the app, the state has seen 80 percent fewer snow-related accidents and has required 26 percent fewer resources to achieve the same level of road safety.

Exhibit 1

Early cloud adopters have seen encouraging results.

**90%
reduction**
in time to market
for selected services
and features

**10 to 20%
reduction**
in net costs

**50%
reduction**
in outages

find it difficult to secure the required resources for migration. In addition, there are perceived privacy and security concerns—including overcompliance with the US CLOUD Act³ and the European Union’s GDPR.⁴

Technology leaders not only have to choose the right cloud service provider (CSP) partner but also need to choose relevant offerings from a wide portfolio of options from CSPs. This may seem like the “luxury of choice,” but it also poses a challenge for technology leaders: many are not well versed with the choices and don’t have experts around them

to guide their decision. After choosing a CSP, they must also determine how to organize and shift their existing workforce to a model that can capitalize on the benefits of moving to the cloud.

Individual government agencies often face additional practical constraints as cloud transformation at the individual-agency level can have a subpar outcome. This is, in part, because many agencies have relatively small budgets and few staff members with sufficient cloud expertise—particularly expertise for managing security and remediating applications (see sidebar “Taking a unified approach to the cloud”).

³ The Clarifying Lawful Overseas Use of Data (CLOUD) Act, a 2018 US federal law, allows federal law enforcement to compel US-based technology companies to provide requested data stored on domestic and foreign servers.
⁴ The General Data Protection Regulation (GDPR), a 2016 EU legal regulation, addresses the protection and privacy of individuals’ personal data.

Taking a unified approach to the cloud

One way to address the issue of individual government agencies’ relatively small sizes, scant resources, and limited technology capacities is to bring together multiple government agencies in the same state to pursue an “enterprise-wide” transformation to the cloud. This unified approach has the benefit of reduced costs owing to economies of scale and holds the promise of a single, standardized, high-end infrastructure for the entire organization that is flexible and can be scaled up or down as demand

varies. Such a unified environment creates opportunities for agencies not only to unload legacy baggage and achieve long-awaited modernization¹ but also to retrain and redeploy talent to use newer technologies.

An enterprise-wide platform could also create new opportunities for data sharing across multiple agencies and spur them to use advanced analytics to better understand public needs, customize agency services accordingly, and make

informed, data-driven decisions. A coordinated approach also relieves each agency of the need to evaluate cloud options and to assess, procure, negotiate with, implement, and manage cloud vendors on its own.

¹ See Nagendra Bommadevara, Andrea Del Miglio, and Steve Jansen, “Cloud adoption to accelerate IT modernization,” April 12, 2018, McKinsey.com.

The following approach to cloud transformation has proved to be helpful to technology leaders.

A recipe for approaching the cloud transformation

Before launching a cloud transformation, public-sector leaders can consider five questions to identify the areas in which moving to the cloud could have the most impact (Exhibit 2). Asking these questions enables leaders to think through organizational and operating-model challenges that likely have held them back from successfully achieving their cloud ambitions. By developing thoughtful answers to these questions, they can ensure that their organization's key stakeholders understand the benefits of the cloud—and, as a result, rally around the common cause.

1. What is our end-state vision?

When embarking on any large-scale technology effort, including cloud transformation, an organization is well served to begin by defining its vision. This involves where it wants to go and why (establish priority use cases); how it will get there (draw a road map); and what it will need for the journey (expertise, funding, and time). The importance of this step is often underestimated—and underinvested in. But a grounded understanding of the organization's strengths and desired end state will help its technology leaders identify areas that require more focus and investment than others and assess a reasonable pace of change.

Since public-sector organizations have a complex stakeholder landscape, both internally and externally, it is important to have a thorough understanding of the role of each stakeholder all along the transformation journey. By carefully considering which stakeholders need to be involved at each stage and by involving the right ones while defining the future state, transformation leaders can carve out a robust plan to achieve the desired end state.

A public-sector organization can adopt a fit-for-purpose cloud strategy that balances business needs and architectural constraints against a limited investment budget. For instance, many organizations adopt a cloud-first approach and develop all new applications directly on the public cloud. Existing applications that require business agility and have limited architecture constraints can be virtualized, containerized, or moved to a different platform to accelerate cloud migration. However, choosing this option requires existing applications to be assessed on a case-by-case basis for whether and how they should be migrated to the cloud.

2. What is the cost-benefit case, and why does the cloud make sense for us?

Occasionally, a public-sector institution that moves to the cloud in hopes of reducing its infrastructure costs builds its viability case on cost efficiencies alone. For certain uses, such as computing-intensive analytics and storage backup, hosting costs can indeed be reduced. However, a cost efficiency-based business case is usually limited to a handful of

Exhibit 2

Organizations embarking on a cloud journey can ask themselves five critical questions.



What is our end-state vision?



What is the cost-benefit case, and why does the cloud make sense for us?



How will we decide what to put in the cloud, and what is the appropriate approach to scaling up?



How should we change our operating model and talent-management approach?



Who are the right partners for our needs?

use cases and falls short of the true potential of the cloud. To ensure proper stewardship of public funds, the cost-benefit case for cloud should be comprehensive and account for what is, in our experience, the real value of the move:

- agility, or faster time to market for products and features
- innovative features from cloud providers, such as artificial intelligence and machine-learning modules
- cybersecurity, which is increasingly difficult for many organizations, particularly those with expanding digital footprints, to manage internally
- efficient scalability to meet surge demand
- more resilient and reliable technology

Given the nature of the journey, it is essential for the case for change to be solid, and, most importantly, well understood and backed by the various stakeholders. To show how value is created, the organization should also consider establishing a set of the most important metrics to be tracked throughout the journey. One approach to capturing potential savings is for organizations to build a top-down business case based on their infrastructure products, subproducts, and applications and then assess which workloads can be moved to the cloud over time. This approach can help organizations pinpoint the savings related to the migration of specific workloads at the product or subproduct and application level, thereby providing full financial transparency and savings traceability as they transition to the cloud.

Similarly, finding ways to make the cost-benefit case stronger (for example, through a unified approach to cloud for interconnected business units) is another approach for public-sector organizations to consider. For instance, a US mental-health agency that was looking to move to the cloud decided that its cost-benefit case was much stronger if it could combine

child, youth, and family services with behavioral health services.

3. How will we decide what to put in the cloud, and what is the appropriate approach to scaling up?

Before a public-sector organization can begin its cloud journey, its technology leaders should have an in-depth understanding of its overall technology portfolio—that is, a catalog of the organization's applications, platforms, security technology, data footprint, and underlying infrastructure.

With this technology portfolio as a starting point, the organization then needs to understand the business requirements from these applications (such as high agility, resilience, or low cost), and assess whether cloud can help achieve these business requirements. For example, an agency may already use customer-facing applications that require high agility and faster time to market; these applications might be good candidates for an initial wave of cloud migration. Other applications, such as those that are mission-critical, may be better suited for subsequent waves.

Organizations also need to actively balance their cloud aspirations with architectural and security constraints. In our experience, the biggest hindrance in cloud migration is related to legacy technology and associated architectural and security constraints.

After an organization determines cloud migration candidate applications, it can establish its scale-up approach. Rather than proceeding with a large-scale migration, some successful organizations choose to start with a select set of easy-to-migrate applications, such as those used for analytics. Another approach is to start the migration with use cases that could be employed to demonstrate early success or build consensus in the organization. Alternatively, one can start with the use cases that are easiest to migrate so that the organization can learn from those early efforts, build a solid foundation, and become comfortable with cloud migration. The organization could then scale up migration across the targeted portfolio.

4. How should we change our operating model and talent-management approach?

Cloud transformation in a public-sector organization requires its IT-infrastructure team to change its operating model and acquire a new level of maturity. IT-infrastructure teams usually are organized by either technology towers (for example, a compute team, a storage team, and a network team) or according to a plan-build-run construct.⁵ Both of these approaches require ticket-driven workflows and handoffs among several groups on the infrastructure-technology teams.

Successful cloud transformation requires the IT-infrastructure team to be more integrated with the organization and to operate in an agile way. For example, the team could replace its ticket-driven workflows with an automated model or one driven by microservices and application programming interfaces (APIs), which developers can use to access the services they need. Developing these APIs requires cross-functional and dedicated teams to reduce handoffs and operate in an agile manner.

Many organizations have found success by adapting their performance-management system to a system based on objectives and key results. This approach helps the organization align on and set clear priorities and establish a rhythm for achieving its objectives. Economic pressures caused by the pandemic, such as anticipated reductions in government budgets, only underscore how such a performance-management system can better ensure that capital on technology projects is prioritized correctly.

An organization may also need to consider taking a different approach to talent management to scale the cloud. Few public-sector employees are conversant in cloud technologies, and training takes time and sustained investment. By determining its resource and skill needs up front, an organization can align its talent strategy with its implementation road map. Talent strategy is often a mix of upskilling select internal people, hiring new employees, and augmenting the workforce with contractors who, over time, could train and upskill internal employees. Special attention must be paid to ensure that all

employees understand the organization's unique mission and specific technical environment. Some public-sector organizations have been able to forge bold solutions, such as public-private partnerships, to bring in the talent for short implementation bursts while also using an upskilling program to build their own capabilities for the long run.

5. Who are the right partners for our needs?

For public-cloud adoption, organizations typically lean on three types of partners: CSPs, system integrators, and an ecosystem of cloud-centric management-tool providers and partners that manage the cloud program end-to-end—including the program's setup and governance, with an emphasis on value creation and business transformation.

An agency can choose from multiple CSPs based on which vendor's unique offerings and strengths best fit the organization's strategic needs and end-state vision. Criteria such as required functionality, vendor support, total cost of ownership, ability to integrate with existing systems, ability to provide bespoke tools for cloud management, and other services can help the organization choose its primary CSP. Successful organizations often start with a single CSP while building guardrails to avoid vendor lock-in. After gaining real-world experience and achieving a certain level of maturity, these organizations often develop relationships with additional CSPs in order to gain scale and reduce their supplier risk.

System integrators also play a critical role in migration because they provide expertise, experience, and flex capacity as needed. These partners can help accelerate the cloud journey. However, such partnerships hinge on an understanding of the implementation partner's incentives and contractual structures that protect the organization and ensure that the capabilities and capacity of the organization's workforce are built up to eventually reduce dependence on the implementation partner. It is also important for the relationship to be truly symbiotic—the contracts are structured for the implementation partner to have skin in the game.

⁵ See Himanshu Agarwal, Nagendra Bommadevara, and Allen Weinberg, "Using a plan-build-run organizational model to drive IT infrastructure objectives," December 1, 2013, McKinsey.com

Finally, our research shows that most organizations struggle to manage large IT programs, and large IT programs have a small likelihood of success.⁶ Reducing the risk of cloud programs through effective program management, governance, vendor management, and change management—and by enabling the organization to realize the value that was identified in the cost-benefit case—is critical. Such risk reduction often includes filling in critical gaps in leadership and providing systematic risk management.

A large western US state embarked on a journey to consolidate its case management systems and reduce costs through modernization, cloud adoption, and business-process design (for example, reducing recovery time objectives to less than one hour). It was operating multiple, disparate case-management systems and spending more than \$300 million in annual maintenance and operations costs. The state leveraged an ecosystem of partners and effectively drove change management and governance to save about 30 percent on its annual maintenance spending. In addition, it was able to increase transparency, exert better control on its spending, and improve its resilience.

As some government organizations have limited experience with cloud migration—and with CSPs in particular—they can evolve their vendor-management function early in the process. This evolved vendor-management function can foster an in-depth understanding of cloud services and the pricing structure (such as consumption-based) of contracts with vendors—including the frequent changes in pricing and introduction of new services.

Delivering on the agency's mission and citizen experiences in the future will require public-sector technology leaders to look for ways to actively advance their cloud agenda. Public-sector technology leaders who work through these five questions will help ensure they are pursuing a cloud strategy that takes the organization's existing talent, legacy infrastructure investments, and future aspirations into account. By taking this thoughtful approach, they can position their organizations to reap the benefits of cloud migration today and well into the future.

⁶ See Michael Bloch, Sven Blumberg, and Jürgen Laartz, "Delivering large-scale IT projects on time, on budget, and on value," October 1, 2012, McKinsey.com.

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