Digital Transformation Checklist

Using Technology to Break Down Innovation Barriers in Government

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Notices

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Abstract

Innovation requires many ingredients: a great idea, creativity, persistence, the right data, and technology. Governments around the world are taking advantage of the cloud to reduce cost and transform the way they deliver on their mission. The expectations of an increasingly digital citizenry are high, yet all levels of government face budgetary and human resource constraints. Cloud computing (on-demand delivery of IT resources via the Internet with pay-as-you-go pricing) can help government organizations increase innovation, agility, and resiliency, all while reducing costs. This whitepaper provides guidelines that governments can use to break down innovation barriers and achieve a digital transformation that helps them engage and serve citizens.

Introduction

Digital transformation is more than simply digitizing data. It requires evolving from rigid, legacy platforms to an IT environment that is designed to adapt to the changing needs of an organization. It calls for innovation, in addition to changes in policy, procurement, talent, and culture, to take full advantage of new opportunities that come with new breakthrough technologies.

Governments around the world are embracing the cloud to deliver services faster to citizens and to spur economic development. At the same time, this transformation can help them better cope with budgetary and human resource constraints.

This whitepaper offers a checklist of strategies and tactics governments worldwide are using to break down innovation barriers and tackle mission-critical operations with the cloud.

Transforming Vision

True digital transformation employs an innovative approach—one that combines technology and organizational processes for developing and delivering new services. This requires a clear vision of where to start. Active participation in the definition of a cloud strategy makes it easier to implement new ideas on an ongoing basis.

Establishing a new mindset is also critical in the digital transformation process. Updating technologies is not enough. To improve citizen engagement and staff productivity, and accelerate service delivery, this change is essential across all levels of the organization. It's about rethinking the approach, and how new technology can help it materialize. An agile development environment, cultural shift, and the right technology model can help governments further their modernization efforts.

Checklist

☐ Communicate a vision for what success looks like.

☐ Define a clear governance strategy, including the framework for achieving goals and the decision makers responsible for creating them.

☐   Build a cross-functional team to execute activities that support the strategy and goals.

☐   Identify technology partners with the expertise to help meet these goals.

☐   Move to a flexible IT system that supports rapid change.

Shifting Culture

The idea of change can be daunting. To successfully navigate a digital transformation, it is imperative to reshape the culture accordingly. This starts with shifting the organizational structure from traditional hierarchies and silos to smaller teams that are empowered to make decisions. Collaboration between development staff, IT, and other strategic units eliminates the "throw it over the wall" mentality, and can ultimately translate to improved public service.

> **Note**   To keep up with the changes in technology, it's important to build an IT workforce that understands the latest trends and help them stay ahead of inherent learning curves.

Innovation works best with a bottom-up approach, where incentives are structured to recognize teams, rather than individuals. And by rewarding experimentation, you can remove barriers and eliminate the fear of failure. To drive cultural change, do the following:

Checklist

☐   Reorganize staff into smaller teams to empower decision-making.

☐   Train staff on new policies and best practices.

☐   Give *permission* to deviate from traditional rules.

☐   Build a cloud development environment that exists as a place to *play* and build confidence with new skills.

☐   Shift to a short-term planning mindset and continuously iterate on the plan (agile project management).

☐   Consider hiring consultants to help with initial projects.

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Change the Cost Model

Small budgets can drive innovation, because teams will take creative steps to build new processes to address problems. Cloud services can positively impact cost with the ability to modernize infrastructures without substantial capital investments. Circumventing the long, up-front procurement process makes it possible to undertake more projects through immediate access to compute resources. In addition, cloud computing provides the option to spin up and spin down instances, to accommodate seasonal services and dev/test cycles while only paying for the compute resources that you use.

Approach the cost model incrementally. Start with cost containment, shift to cost avoidance, and then focus on cost reduction. With a pay-per-use model, it's possible to return long-term budget back to the organization, and reallocate funds to new projects.

Go Cloud Native

While some organizations prefer to initially move individual licenses and projects to the cloud, others opt for a cloud-native approach. Developing and running applications in this manner takes full advantage of the cloud computing model. And by using DevOps processes that promote collaboration across small teams, it's possible to accelerate the delivery of new services with greater reliability.

DevOps tools provide sustainable processes through infrastructure automation, continuous integration and delivery, monitoring, and auto remediation. With a DevOps model, it is possible to eliminate disparate development stovepipes and drive efficiencies.

Checklist

☐ Adopt the philosophy of a cohesive unit across developers and operations, and quality assurance and security functions.

☐ Encourage an ownership mindset throughout the entire development and infrastructure lifecycle, irrespective of roles.

☐ Provide your team with standardized DevOps tools and training.

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☐ Build a unified code repository.

☐ Add built-in security.

☐ Perform frequent but small updates to remain agile and make deployment less risky.

☐ Create an automated solution (drives consistency, regardless of workflow or service).

☐ By adopting a DevOps model, organizations have more flexibility to experiment and develop solutions to long-standing challenges, creating a culture that enables future innovation.

Track Progress

During the digital transformation journey, it is essential to establish metrics to track progress. With early indicators in place, it's possible to take immediate action if something goes wrong or needs to be corrected.

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☐ Create a data-driven metrics system.

☐ Evaluate improvements and progress toward goals.

☐ Assess whether the organization is planning and delivering consistently on goals within specified timeframes.

Data-Driven Civic Innovation

The AWS engine of innovation has long been embraced by the startup community. They are now joined by governments who seek to power innovative solutions for large societal problems. As government data becomes more widely available, more people can use AWS compute and big data analysis services to tackle problems that were, until recently, exclusively the domain of government projects. Scientists, developers, and curious citizens are more equipped than ever to find forward-thinking and new solutions to some of the world's biggest challenges. These opportunities for innovation are improving lives and creating opportunities for a new class of civic tech entrepreneurs.

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Create the Environment for Digital Transformation

Drawing from Amazon's own experience as an innovator, AWS helps guide organizations toward techniques and tools to create a forward-leaning digital enterprise. But cloud computing is only half of the answer—the other half comes from an organization's commitment to making a change.

So, what else should governments be thinking about on the road to digital transformation? The following sections provide a framework for leveraging AWS in your organization.

Deliver an Exceptional User Experience

High user satisfaction results from ready access to information, when and wherever needed. However, an agency's user experience should not just focus on citizens—it has to start with its own staff.

Self-service web applications enable your users to find information without human intervention, regardless of time zone or operating hours. For example:

- Citizens can conduct business on their time, remove dependence on service centers with long waiting periods to reach representatives.

- Employees gain access to convenient, on-demand information from any location, which makes it easy to share data with coworkers.

- Governments can leverage expertise from private companies and other governments to accelerate innovation with new services.

- Organizations can collect, analyze, and predict trends based on how web services are used.

With a flexible system, it's no longer a hassle to modify services to better meet the demands of users.

How AWS Delivers

Governments are leading the way in driving innovation for citizens. The cloud offers not only cost savings and agility, but also the opportunity to develop breakthroughs in citizen engagement.

Whether through open data initiatives, public safety modernization, education reform, citizen service improvements, or infrastructure programs, more government organizations are increasingly turning to AWS to provide the cost-effective, scalable, secure, and flexible infrastructure necessary to transform.

With a focus on delivering value from taxpayer dollars, all levels of government look to manage costs while maintaining the performance and capacity citizens require. In a cloud computing environment, new IT resources are just a click away. This reduces the time it takes to make those resources available to developers from weeks to just minutes. Trimming cost and time for experimentation and development results in a dramatic increase in agility for the organization.

With cloud computing, it's not necessary to make large upfront investments in hardware or in time spent managing it. Instead, it's possible to provision exactly the right type and size of computing resources necessary to test new ideas or operate the IT department. You can access as many resources as needed, almost instantly, and only pay for what gets used.

Collaborate for Improved Worker Productivity

Agencies can quickly achieve business goals by leveraging experience across multiple organizations. By facilitating real-time communication to share information between teams, efficiency increases. In addition, the sharing of information fosters a culture of trust and innovative thinking. And with improved access to information, workers are able to make better-informed decisions to achieve business results.

Checklist

☐ Pool limited resources to reduce cost and redundant efforts.

☐ Evaluate whether incremental changes produce higher-quality results.

☐ Be specific about how to improve communication.

How AWS Delivers

AWS provides a host of services that can integrate into your existing processes and help transform the workplace into a collaborative environment.

Amazon WorkDocs

[Amazon WorkDocs](#) is a fully managed, secure enterprise storage and sharing service, offering strong administrative controls and feedback capabilities. Users can comment on files, share them with others, and seamlessly upload new versions. Users have access from any place or device, including PCs, Macs, tablets, and mobile devices. IT administrators can integrate with existing corporate directories, enjoy flexible sharing policies, and control where data is stored.

Identity and Access Management

[AWS Identity and Access Management](#) (IAM) enables secure, controlled access to AWS services and resources for users. IAM creates and manages AWS users and groups, and provides permissions to give them access to AWS resources.

DevOps and AWS

Rapidly and reliably build and deliver citizen services using [AWS and DevOps practices](#). These services simplify provisioning and managing infrastructure, deploying application code, automating software release processes, and monitoring application and infrastructure performance.

Running development and test workloads on AWS enables the elimination of hardware-based resource constraints to quickly create developer environments and expand testing machine fleet. It offers instant access to machines with flexible configuration, while only charging for what is used. This enables faster onboarding of new developers, the ability to try out configuration changes in parallel, and run as large a test pass as needed.

Built-in Security

Government agencies are stewards of citizens' data, and it is imperative to have the right controls in place to maintain availability and integrity of that data. Cloud security at AWS is the highest priority. AWS customers can benefit from a data center and network architecture built to meet the requirements of the most security-sensitive organizations. With built-in security, it's possible to:

- React to incidents quickly.

- Run security scans daily.

- Monitor and track systems.

- Receive alerts if any changes are made to systems or services.

Data Protection

Highly resilient disaster recovery is often viewed as complex and cost prohibitive, but it's affordable and easy to use in the cloud. Agencies are using the AWS Cloud to enable faster disaster recovery of their critical IT systems, without incurring the infrastructure expense of a second physical site. If an incident occurs, AWS provides rapid recovery of IT infrastructure and data to ensure business continuity.

Expedite New Service Delivery

Speed and agility have become basic requirements for conducting business. Today, agencies must design flexibility into new services from the start to make it easy to adapt as the mission evolves. This is also paramount for transforming IT infrastructure. Moving to an on-demand computing environment delivers the requisite flexibility and scalability to support a collaborative work environment. This approach minimizes costs and reliably adapts resources to meet the needs of the business.

How AWS Delivers

The [AWS Cloud Adoption Framework](#) offers structure to help agencies develop an efficient and effective plan for their digital transformation. Guidance and best practices prescribed within the framework offer a comprehensive approach to cloud computing across the organization, throughout the IT lifecycle.

Agencies no longer need to plan for and procure IT infrastructure (that is, network, data storage, system resources, data centers, and supporting hardware and software) weeks or months in advance. Instead, it's possible to instantly configure and launch hundreds or thousands of servers in minutes and deliver results faster.

Global Reach

By combining expertise across agencies to work on common problems, organizations around the globe can share best practices, take advantage of economies of scale to reduce costs, provide better quality, deliver more effective services, and reduce risk.

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How AWS Delivers

AWS is organized into AWS Regions and Availability Zones that allow for high throughput and low-latency communication. This design also enables fault isolation. An outage of one AWS Region or local Availability Zone does not affect the remaining AWS infrastructure.

Each Availability Zone has an identical IaaS cloud services system that enables mission owners to cost-effectively deploy applications and services with great flexibility, scalability, and reliability.

Key Takeaway

Digital transformation requires strong leadership to drive change, as well as a clear vision. Organizations are experimenting with and benefiting from cloud technology to achieve digital transformation. The result of this transformation is a more resilient and innovative government that can deliver services to citizens through the medium they now demand, and can help retain innovative talent within agencies. As an added bonus, this creates job opportunities because new talent is needed to solve new problems, and the entrepreneurship this brings can spur economic development. Whether it is transforming how individuals collaborate, or the way in which organizations execute large-scale processes, digital transformation offers significant upside for all agencies, regardless of their size or mission.

Contributors

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Further Reading

For additional information, see the following:

- [How Cities Can Stop Wasting Money, Move Faster, and Innovate](#)

- [AWS Cloud Adoption Framework](#)

- [10 Considerations for Cloud Procurement](#)

- [Maximizing Value with AWS](#)