Managing Innovation to Sustain Growth and Prosperity

How local governments can spark technology innovation while mitigating risk
Innovation is thriving in today’s cities, counties and regions. From education and citizen engagement, to public safety and infrastructure management, local governments are tapping emerging technologies to create new services and capabilities. Many localities are appointing chief innovation officers and chief data officers to identify and guide these solutions. Cloud, mobility, data analytics, Internet of Things (IoT) and other technologies not only offer myriad opportunities to spark innovation, but also empower individual agencies and programs to take initiative in developing solutions aimed at improving government services and efficiency. However, to ensure adequate compliance and risk management, such activities require an effective governance approach. This white paper discusses the need to balance innovation spark with technology sprawl, and offers suggested tools and techniques that help ensure proper governance.
Future cities and regions: Path to sustainable growth

Innovation is a means to stay ahead. The goal is to create prosperous localities that attract thriving businesses and productive citizens with high-quality education, jobs, healthcare, safety, responsive government and other amenities that fuel sustainable economic growth.

Innovation also is needed to help local governments:

- Better understand citizen needs and build services around those needs
- Increase connectivity between people, places and things
- Create flexible, adaptive and inclusive systems
- Increase opportunities for collaboration
- Share and reuse government assets and services
- Promote open data

Achieving these goals requires the wise use of scarce public resources, particularly when budgets are constrained and governments face global competition to attract new businesses and workers. Moreover, success can put even greater strain on local governments, because the influx of businesses and jobs increases demands on schools, roads, public transportation, utilities, police, hospitals and other services.

As local governments use digital technologies to help meet these demands, cloud computing has been foundational to spurring innovation by enabling the rapid development of new applications. The cloud also helps governments collect and analyze large volumes of data that generate new insights for addressing the challenges of growth. When combined with other technologies—such as mobility, virtualization and advanced sensors and analytics for IoT—the cloud supports numerous additional opportunities for innovation.

Consider these innovation examples being used in today’s cities and regions:

- Analytics guiding deployment of police at potential crime hotspots
- Sensors that signal when trash containers are ready for pick up
- Smart grids enabling more efficient distribution of energy
- Sensors and cameras that monitor and improve traffic flow
- Community policing through safety networks between citizens, police and municipalities
- Use of social media channels for rapid reporting and repair of roads and lighting
- Learning platforms that connect teachers, students and parents anytime, anywhere
- Remote management of public assets, including lighting automation to reduce energy consumption
- Mobile health and safety inspectors, case workers, construction crews, etc., connected with central data and systems
THE GROWING CHALLENGE OF UNMANAGED INNOVATION

Unfortunately, the same capabilities that allow innovation to flourish can also create security and management risks. A common example is employees using cloud-based file-sharing services that are not compliant with agency security policies, compromising government data and networks. Additionally, as silos of innovation projects multiply, departments and agencies may miss opportunities to negotiate optimal prices or service-level agreements reflecting enterprise-wide needs. Uncoordinated deployment of applications also increases complexity that can eventually overwhelm chief information officers (CIOs) and their staffs. As a result, IT departments struggle to balance two competing goals: How can we ensure the transparency and processes needed for compliance and risk management without stifling the innovation essential to creating a sustainable future for our locality?

The freedom to develop and test new solutions is essential to fostering a culture of innovation, but a CIO who controls the IT environment too tightly could smother innovation. Yet, insufficient management and governance can open the door to uncontrollable “shadow IT”—software and hardware deployed outside of the agency’s enterprise IT framework.

“Shadow IT” is not new. It is just that today the cloud offers so many easy avenues for employees to deploy new potentially risky applications without meeting numerous agency standards or requirements. A common danger is that employees can place sensitive data in unknown and possibly insecure clouds.

They can also deploy new applications quickly without coordinating their efforts with the IT staff. While such deployments may provide valuable operational capabilities and services, they also create multiple points of security vulnerability, especially as workers and citizen services are increasingly mobile. The new capabilities also may be inconsistent with a local government’s enterprise architecture and technology roadmap. Such added complexity can eventually slow networks and services, hamper information sharing and drive up IT management costs.

A survey of global commercial and government organizations by the Cloud Security Alliance (CSA) underscored this point: More than 70% of respondents said they did not know the number of “shadow IT” applications in their organizations, although they wanted to.1

In some respects, today’s innovation “sprawl” shows that government employees are passionate about improving operational efficiencies, enhancing citizen services and strengthening mission capabilities. But it can also give rise to shadow IT that increases complexity, costs and security risks, ultimately undermining the benefits. Innovation thrives when given freedom and support, but it will strangle itself amid chaos and disorder.

A COMMON CHALLENGE ACROSS GOVERNMENTS

The innovation explosion also is occurring at the federal and state levels. U.S. federal initiatives such as Cloud First, the Big Data Research and Development Initiative and U.S. Digital Services Playbook are designed to help agencies leverage digital technologies to transform operations and services.

Both state and federal agencies are using the cloud to develop, test and deploy new applications more rapidly. They are tapping expanded sources of data to conduct analytics that provide insights for improving operations and citizen services. Additionally, an increasingly mobile workforce has agencies reengineering business processes to facilitate innovative ways to perform missions and services anytime, anywhere and on any device.

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1 “Cloud Adoption Practices & Priorities Survey Report,” January 2015, p. 8
In all of this, state and federal leaders face the same challenge as their local government counterparts: Maintaining governance and security while allowing experimentation and encouraging the creative search for new solutions.

EMBRACING INNOVATION WITH “SHALLOW IT”

Many local government CIOs recognize that, even as they need to gain control of “shadow IT,” they nevertheless must give business users some freedom to experiment and try new solutions. When the IT department becomes known as the “No” department, employees start looking for ways to go around it.

To address this challenge, some local governments are using the concept of “shallow IT” which:

• Acknowledges that value-added innovative activities may occur outside of the IT department
• Allows other people and departments to test new technologies that can lead to new benefits
• Provides a path for functions developed outside the IT department to be brought into the fold 2
• Occurs with the knowledge of IT managers.

The applications and services in such efforts typically are not connected to critical or core systems, which have established management processes. Thus, stops and starts, or even failures, will pose little risk to critical processes. This allows the “shallow IT” projects to use agile methodologies, DevOps, or other processes that support innovation. As such projects are refined and demonstrate their value, they can be more fully integrated into enterprise systems and processes.

HOW CGI CAN HELP

With experience serving hundreds of local governments around the world, CGI has seen many CIOs and administrators struggle with the challenge of fostering innovation while ensuring new solutions are secure, well managed and operating seamlessly within the larger IT environment.

1 Ibid.
Drawing on our front-line experience in migrating and managing cloud services, we developed our CGI Unify360 hybrid IT management suite. It offers the services, platforms and dashboards needed to provide visibility into and governance over technology innovation initiatives across the enterprise. It also offers integration into existing infrastructure as well as private, community and public clouds with the ability to add additional services. CIOs and their staffs can identify rogue operations and monitor such activities, not necessarily to quash them, but to ensure they operate within the correct IT management and security umbrella. Providing the necessary governance allows agencies to create a secure environment that both nurtures and manages the innovation needed for economically vibrant, flourishing communities.

CONCLUSION
Modern technologies enable governments—and their employees—to become catalysts of change. As a result, today’s localities have become laboratories of innovation and leaders in using digital technologies to transform their operations and services. Projects conducted outside of the agency’s enterprise IT framework can disrupt business processes, increase IT complexity and create huge management, security and compliance risks. CGI’s Unify360 hybrid IT management suite offers services tools and techniques to help local governments put the necessary governance and transparency in place for sustainable innovation.

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Founded in 1976, CGI is one of the largest IT and business process services providers in the world, delivering high-quality business consulting, systems integration and managed services. With a deep commitment to providing innovative services and solutions, CGI has an industry-leading track record of delivering 95% of projects on time and within budget, aligning our teams with clients’ business strategies to achieve top-to-bottom line results.

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