

A light blue line-art graphic of a dome, resembling a classical building's roof, is positioned in the upper left background.

WHITE PAPER

# The future of public sector ERP: Agile Cloud-Enabled Services (ACES)

The landscape for public sector enterprise resource planning (ERP) system deployments is changing dramatically. Governments are moving away aggressively from highly customized, on-premises solutions toward shared platforms and cloud-enabled managed services. In response, ERP solution providers must offer unprecedented flexibility to meet varying government needs for customization, control and cost containment. Solution providers must also ensure that ERP software, implementation and ongoing operations are tightly integrated to maximize efficiency and accountability. This paper describes the evolving market for public sector ERP deployment models and advocates the need for a flexible ecosystem, named Agile Cloud-Enabled Services (ACES), to serve the diverse requirements of governments of all sizes. We can all use a few more aces in our hand.

## INTRODUCTION

While effective ERP systems are needed to manage the business of government, many systems in place today do not have the deployment versatility to deliver adequate functionality.

Much attention is now focused on how to deploy modern ERP capabilities in the most efficient manner. Growing numbers of state and local governments are turning to secure, cloud-enabled services for ERP software, platforms and infrastructure so they can stay focused on their mission of serving the public and spend less time managing technology. For example, Maine's move to cloud-enabled ERP has allowed the State to reallocate staff to focus on strengthening policy management as well as internal and fiscal controls on a statewide basis.<sup>1</sup>

The next wave of the ERP deployment evolution must allow governments to choose where and how each function is best located—whether with the government or a managed services partner. It must also provide a tightly integrated approach to the software and all services required for implementation, operation, hosting and management. Without clear lines of accountability, solutions too easily are derailed.

CGI believes that a flexible and integrated deployment ecosystem is required to meet the future needs of public sector ERP.

## CLOUD ACCEPTANCE, LEGACY SYSTEM CHALLENGES, AND IT SKILL SHORTAGES ARE INFLUENCING ERP DEPLOYMENT DECISIONS

Factors influencing the migration to cloud-enabled ERP deployment are reflected in the priorities of CIOs at both the state and local levels. These priorities include taking advantage of cloud services, modernizing legacy systems, and finding and retaining top talent.<sup>2</sup>

### Cloud growth and acceptance

A Center for Digital Government survey reported that 46 percent of state and local government IT professionals said they “are planning or are currently engaged in cloud computing endeavors due largely to the potential hardware and software capital and maintenance cost savings.”<sup>3</sup> At the same time, cloud-enabled ERP solutions continue to mature. Over the next 10 years, Gartner predicts that, “Instead of having on-premises core solutions that are complemented by innovation or differentiating processes being supported in the cloud, some organizations will move all their ERP functionality to the cloud ...”<sup>4</sup>

### Legacy system challenges

Many government ERP systems are heavily customized, inflexible and costly to maintain. All too often, system upgrades have been underfunded, delayed or skipped entirely.

Replacing these systems with robust modern technology will bring comprehensive functionality, but also will require significant, new investment. Even as public sector budgets start to return to “new normal” levels, IT project funding backlogs continue, particularly for programs with limited constituent visibility.

<sup>1</sup> “Public Sector Cloud Computing: the Good, the Bad and the Ugly,” Computerworld, May 9, 2012

<sup>2</sup> “Technology Forecast 2014,” National Association of State Chief Information Officers (NASCIO) and the Public Technology Institute

<sup>3</sup> [Cloud gaining traction as state and local cost-cutter,” GCN, Oct 16, 2013](#)

<sup>4</sup> [Gartner Says By 2016, the Impact of Cloud and Emergence of Postmodern ERP Will Relegate Highly Customized ERP Systems to “Legacy” Status](#)

## Recruiting and retaining IT talent

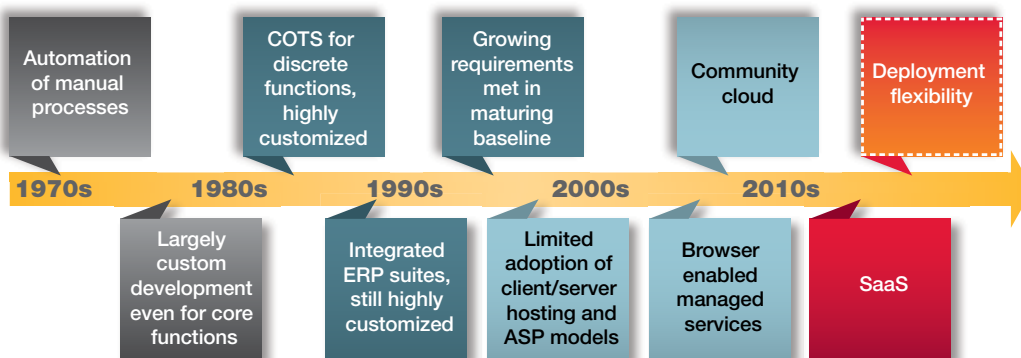
State and local governments are struggling to find and keep skilled IT talent due to retirements, growing IT skills gaps, and competition with the private sector as the economy recovers. In a KPMG survey of government ERP project stakeholders, roughly half of respondents cited staffing challenges and admitted that “project teams were chronically understaffed. The most commonly cited barrier to adequate project staffing was identifying, attracting and retaining individuals (either employees or contractors) with the requisite skill sets.”<sup>5</sup>

Modernization itself creates internal skills gaps because many in-house staff supporting legacy systems do not have the requisite technology skill sets or experience to support rapidly-evolving, web-based solutions.

## THE FUTURE OF PUBLIC SECTOR ERP DEPLOYMENT

Before looking forward, it is helpful to determine what can be learned from the past.

### Evolution of Public Sector ERP Models



As shown above, early government ERP solutions were dominated by heavy customization. The next phase in the evolution was characterized by a move toward standardization with commercial-off-the-shelf (COTS) technology and more requirements built into baseline software. This phase was followed by growing use of managed services, starting slowly with the application service provider (ASP) model and progressing rapidly with the advent of browser-based and cloud-enabled services.

Over time, technology has become exponentially more complex and costly to manage. Each transition from mainframe to client-server to web-based technologies has occurred twice as fast as the one before.

<sup>5</sup> “ERP and the Public Sector: Useful Implementation Insights from Peers That Have Been There Done That,” KPMG / Shared Services and Outsourcing Advisory - Public Sector / May 2011

The number of technologies required in each phase also has more than doubled. This rapid rate of change presents growing risks for governments that manage their own ERP systems.

Based on these trends and more than 38 years of experience in public sector ERP, CGI believes the next wave in this evolution is the Agile Cloud-Enabled Services (ACES) ecosystem.

## THE AGILE CLOUD-ENABLED SERVICES (ACES) ECOSYSTEM

The ACES ecosystem features flexible use of three delivery models:

- **Government-owned private cloud**, where the government provides the infrastructure on which the software provider deploys and manages the solution.
- **Community cloud**, where the software provider owns, operates and maintains the entire infrastructure and application “stack,” including the operating system and database, and is responsible for security, disaster recovery and backups.
- **Software as a Service (SaaS)**, where the software provider owns, operates and maintains the entire infrastructure and application “stack” as in the community cloud, but deploys a single instance of the software for multiple clients.

The compelling value of this ecosystem is the ability of government to choose among, and move between, these models without having to make a singular decision for all ERP functions in the system. In other words, government should be able to deploy any ERP function in any model, even when a function is part of an integrated solution suite.

## ERP DEPLOYMENT MODELS

Following are the features and benefits of the three cloud-enabled ERP deployment models of the ACES ecosystem:

### Government-owned private cloud

In this model, the government provides the facilities and hardware infrastructure on which the ERP software provider deploys and manages a unique instance of the software. Some governments prefer to operate their own private clouds to support multiple systems, one of which could be part of an ERP deployment. This model can be used by a government that is mandated to host certain ERP functions in-house. It could also be driven by a small number of ERP functions that are obtained independently by select organizations, such as an eProcurement module. While government-provided infrastructure enables greater operational control, it does require greater capital investment and increases total cost of ownership (TCO).

### Community cloud

In this model, the ERP solution provider owns, operates and maintains the entire hardware and software “stack,” including the operating system and database, providing secure ERP deployment across primary and disaster recovery sites. Deployments are specific to each client and therefore can be tailored to meet discrete requirements. Many governments seeking to reduce their data center management responsibilities will increasingly turn to a community cloud model for enterprise applications.

*Government should be able to deploy any ERP function in any model, even when a function is part of an integrated solution suite.*

The community cloud model offers the advantages of better access to product expertise, higher standards of service, lower comparative TCO through optimized and scalable solutions, and insulation from capacity management. Collectively, this shifts risk from government to provider.

Cloud-enabled managed ERP services also can improve an organization’s ability to ensure adequate, ongoing investment under a longer-term provider commitment and thus mitigate a government’s propensity to defer investments in maintaining and upgrading its ERP solution. This benefit was a key reason the States of Colorado and Michigan, as well as Maricopa County, Arizona, chose CGI’s community cloud solution for ERP called Managed Advantage.

### SaaS

In the SaaS model, the ERP solution provider owns, operates and maintains the entire infrastructure and software “stack,” but has multiple clients using a common instance of the software application (often with data managed separately). For ERP functions that do not demand customization—whether for smaller organizations or more standardized functions like talent management—the SaaS model is highly effective and rapidly gaining acceptance.

With SaaS, governments benefit from the advanced capabilities built into the solution at a fraction of the cost of selecting, licensing, implementing, operating, upgrading and maintaining the software on their own. However, it is important to note that the entire solution lifecycle is driven by the provider, with upgrades rolled out to all clients at the same time. For this reason, a large organization with core ERP functions that require extensive change management during upgrades likely would not move to this model anytime soon. The SaaS model also adds complexity to planning efforts since the government no longer independently controls when new functionality is introduced to its users.

## Agile Cloud-Enabled Services (ACES)

	CLOUD-ENABLED, PROVIDER-MANAGED SERVICES		
Deployment	Client On-Premises (Private Cloud)	Community Cloud	Software as a Service (SaaS)
Software Instance	Discrete	Discrete	Shared/Multi-tenant
Data	Discrete	Discrete*	Discrete or Centrally Managed
	Shared Infrastructure	Shared Infrastructure and Platform	Shared Infrastructure, Platform and Application
Example: module mix for large government	eProcurement	Finance, HR and Payroll	Recruiting, Talent Management
	HIGH COMPLEXITY/ TIME TO IMPLEMENT / TCO LOW		

\*Data could be centrally managed but unlikely if software instance is discrete.

Choosing a deployment model in the ACES ecosystem will be influenced by governments' varying needs to:

- Customize the software
- Control the software lifecycle and upgrade schedule
- Reduce costs (costs reduce as the standardization exercised by the provider increases)
- Revert to in-house deployment at some point in the future.

### **One size does not fit all**

While the traditional ERP software licensing and maintenance model is declining, it will continue to exist for some time for larger governments with continued needs for customization and control.

A government could decide to run more agency-specific functions such as financial or human resources management on a community cloud-based platform, but choose the SaaS model for a standardized function such as talent management. As an example, Wake County, North Carolina, follows this approach.

Some governments also may have reasons to operate their own private clouds and choose to host some ERP functions in those clouds.

Gartner predicts that a hybrid approach combining cloud point solutions with a smaller "core" of on-premises ERP functions will be the norm within five years.<sup>6</sup>

### **THE INTEGRATED SOLUTION IMPERATIVE**

Whatever the deployment model, the ERP solution must be tightly integrated across the software, implementation, operations and hosting. Traditional ERP implementations often have several third-party providers performing various roles. Multiple handoffs and lack of role clarity can cause lapses in communication, resulting in higher project costs, schedule delays and issues with quality.

As the market moves to more flexibly coupled software and services, additional integration challenges will follow, further increasing the desirability for a single point of accountability.

Achieving a seamless offering requires a cohesive vision spanning all areas of responsibility, and is only truly possible when driven by a single solution provider. In fact, the ability for a solution provider to offer multiple ERP deployment models requires that the software be designed at its core with all of these models in mind.

Organizations attempting to "layer" custom integration and technology on top of an ERP solution they do not control will fall short. TCO and time to market will increase when new software releases require a systems integrator to rebuild or update the integration code before the client deployment can be upgraded.

*Gartner predicts that a hybrid approach combining cloud point solutions with a smaller "core" of on-premises ERP function will be the norm within five years.*

<sup>6</sup> [Gartner Says By 2016, the Impact of Cloud and Emergence of Postmodern ERP Will Relegate Highly Customized ERP Systems to "Legacy" Status](#)

## CONCLUSION

Traditional ERP deployment models are giving way to more efficient, managed services that are supported by cloud-enabled technology. A one-size-fits-all approach is a thing of the past. ERP software and delivery strategies must converge to address the growing demand for flexible deployment options by function, even when part of an integrated ERP suite. CGI believes the time is right for an Agile Cloud-Enabled Services ecosystem that gives government the versatility to balance control, customization and cost when deploying modern ERP functions without locking them into a single deployment model.

## HOW CGI CAN HELP

CGI is unique in offering true Agile Cloud-Enabled Services for ERP. Unlike other providers, we combine our purpose-built CGI Advantage® ERP software, secure cloud infrastructure and extensive implementation experience to deliver flexible, seamless solutions. Having provided ERP solutions to government for more than 38 years, our track record of success includes 300+ state and local implementations. CGI's Managed Advantage services can be used on client premises or hosted in our secure community cloud. Our CGI Advantage360™ SaaS offering provides robust, "out of the box" ERP capabilities at a lower cost of ownership. Only CGI has evolved its ERP product strategy to support government's future needs for deployment flexibility and provider accountability.

## ABOUT CGI

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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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