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BUYING POWER

Technology is fundamentally transforming government. Can procurement keep up?

PETER KELLY, CHIEF DEPUTY DIRECTOR OF THE CALIFORNIA HEALTH AND HUMAN SERVICES AGENCY'S OFFICE OF SYSTEMS INTEGRATION

INSIDE:

VOL 30 ISSUE 6 / A PUBLICATION OF e.REPUBLIC / GOVTECH.COM

50% of surveyed legislators say their state has an inadequate number of cybersecurity personnel.

Download the Cybersecurity Policy Guide at:
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NATIONAL CYBERSECURITY ALLIANCE

Produced by: GOVERNING INSTITUTE

September 2017

CONTENTS

Vol 30 | Issue 6

COVER STORY

COVER PHOTO BY JESSICA MULHOLLAND

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Small jurisdictions get creative in the battle against threats.

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A look inside Georgia's new multi-agency Cyber Innovation and Training Center.

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By Noelle Knell / Editor

Paying for It

On the road to digital transformation, government is confronted with a number of roadblocks that represent traditional business processes. These methods were developed during a time when technology was just viewed as a back-of-the-house enabler of public programs. Systems just had to work — speed and convenience (and — gasp — innovation) would largely come later. Processes were imperfect, and a certain amount of downtime and related business impact was expected.

There's perhaps no better example of a legacy process than procurement. Rules and regulations relating to spending the people's money, crafted with the best of intentions, are largely relics of an earlier time. Leading jurisdictions ran into this friction between procurement and the new age of IT several years ago. And they haven't been sitting on their hands.

In this issue, we focus on many facets of IT procurement that government has struggled with, in the hopes of providing some useful examples of states and localities that are making changes that respect the intention behind traditional buying rules while supporting more modern service delivery.

Good Stewards (p. 16) is our big-picture look at the state of IT procurement today, offering perspective from a handful of former CIOs, industry groups and trade associations. Together, they provide a look at several approaches that can improve the process, as well as tips from practitioners who have been in the thick of the journey to modernize.

That old and oft-cited definition of insanity comes to mind in *Picking Up the Pace* (p. 28) — the one that defines insanity as doing the same thing repeatedly while expecting a different result. We examine several recent efforts to turn procurement on its head in the name of innovation. Smart new approaches are reaping interesting new outcomes. Take Ohio's recent analytics RFP, written to lure a new class of respondents into the mix by lowering some of the barriers that normally keep smaller companies from bidding in the first place. They didn't do the same thing they always did, and the considerable effort paid off. The state qualified 50 companies for exploratory analytics projects across 14 different disciplines.

In *Agile Acquisitions* (p. 22), we explore updates to procurement brought on by the dramatic uptick in agile development across the government IT landscape. The more nimble approach, with its short sprints and evolving outcomes, clearly clashes with a contracting process that bids once, with all outcomes strictly prescribed at the outset. Many states are developing internal partnerships that include procurement staff to make needed adjustments to purchasing in light of agile. The update to the California Child Welfare Services Case Management System demonstrates that there's reason to be hopeful that procurement and agile development can successfully coexist.

"There was no regulation that we couldn't work within the confines of, and no policy so tight we couldn't work through it," Peter Kelly, chief deputy director of the California Health and Human Services Agency's Office of Systems Integration, told us. "Most people initially assumed this was a nonstarter." gt

RAISE YOUR VOICE

Your opinions matter to us. Send comments about this issue to the editors at **editorial@govtech.com**. Publication is solely at the discretion of the editors. *Government Technology* reserves the right to edit submissions for length.

Missouri Launches Its PDMP

It was the last state to enact a wide-ranging **Prescription Drug Monitoring Program (PDMP),** but Missouri's top health official said its use of private-sector data could inspire others. The state's PDMP is envisioned as a companion vehicle to expanding local efforts spearheaded by St. Louis County that began earlier this year. County efforts, which have expanded to include around 30 counties and more than 60 percent of the state's population, are more focused on patient data. By contrast, the state will work on identifying physicians who may be overprescribing and potentially alerting medical boards or law enforcement.

Biz Beat

There's a lot happening in public safety tech right now, and **Responder Ventures** wants to get in early. The Florida-based venture capital firm this summer was in the process of raising money for its first official fund. With an **estimated $7.6 billion market for public safety tech,** Responder thinks now is a good time to invest in new ideas. The firm is interested in newer, smaller players looking to get into the government space, and is focusing on startups in the Series A range, those whose products are already built out.

Using Data to Feed Schoolchildren

Mississippi's Department of Education (MDE) has turned to hard data to put a stop to a trend of schoolchildren going hungry. Until recently, despite a free or reduced-cost lunch program, a portion of students in the state were going unfed during school hours. Rather than look to schools to solve the problem, MDE established a partnership with the Department of Human Services and its data on the **Supplemental Nutrition Assistance Program (SNAP).** By taking the SNAP data and matching it with student information, MDE could identify which kids were going without lunches. Not only were they able to match 97 to 98 percent of the student database and feed more students, improving program efficiencies resulted in millions of dollars in additional federal funding per year.

WHO SAYS?

"Companies don't disrupt, cities don't disrupt. People disrupt."

Govtech.com/quoteSeptember17

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2,062 VIEWS

tech/bytes

11%

of Philadelphia's bids for work come from businesses owned by women and minorities, up from 1 percent before the city instituted its electronic bidding process.

30

The number of days of the Hawaii Annual Code Challenge — far longer than the usual 24- or 48-hour hackathon.

$10M

The amount civic data startup LiveStories raised in a Series A round.

19

U.S. states have passed legislation relating to autonomous vehicles.

IF YOUR CITY USES THESE

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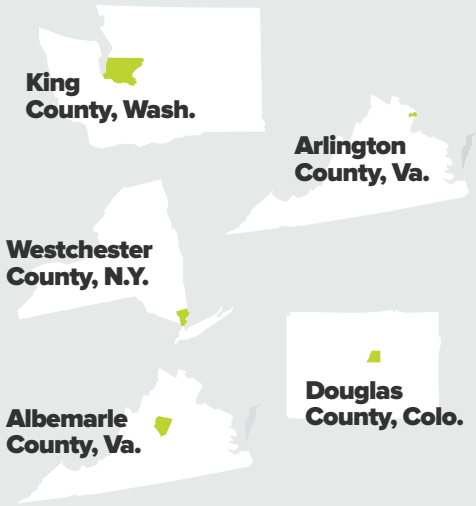
How Digital Are Counties?

The 2017 Digital Counties Survey from e.Republic's Center for Digital Government* assesses how effective America's counties are in using technology to deliver services and guide internal operations. Here are some top-level insights that reveal the IT priorities of the country's digital leaders. See our full story and analysis at govtech.com/DigitalCounties2017.

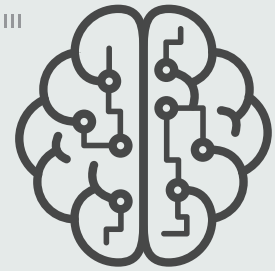
They're No.1

These counties earned the top spot in their population category.

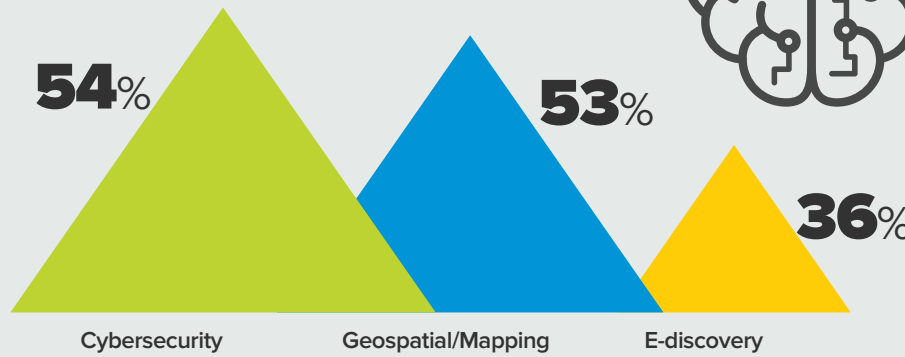


Artificial Intelligence (AI)

52% of respondents are currently using artificial intelligence



Top AI Uses Today



County CIO Priorities

1. Cybersecurity
2. IT Staffing
3. Mobility; and Transparency/ Open Data/Data Governance (tie)
4. Disaster Recovery/Continuity of Operations
5. Citizen Engagement/Experience

Top AI Uses Coming Soon

(within the next 18 months)

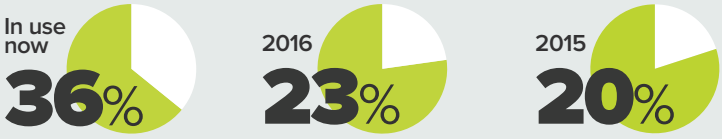
1. Predictive Analytics
2. Predictive Policing
3. Chatbots/Contextual Self Service/Natural Language Processing

Inching toward IoE

Percentage actively considering the Internet of Everything (IoE) in strategic planning:

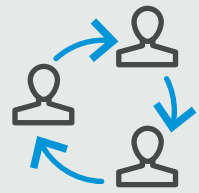
On the Rise

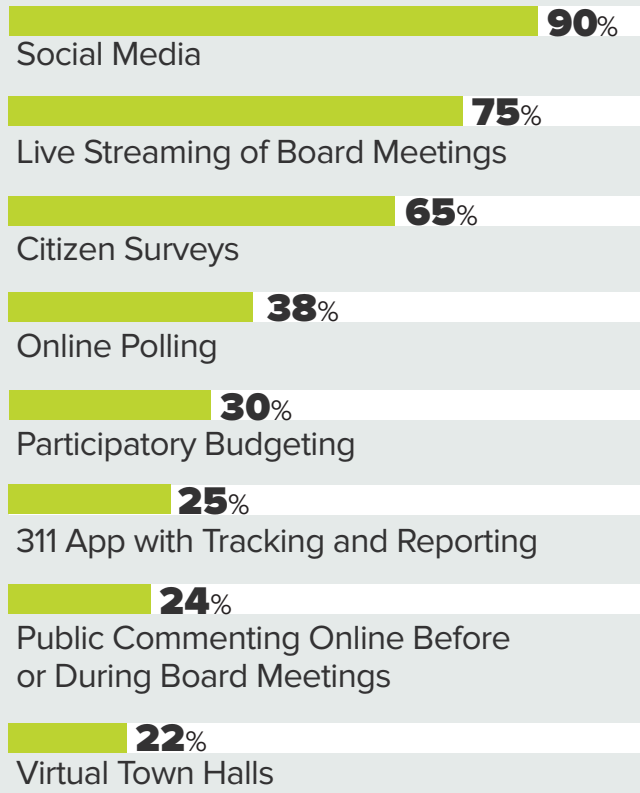
Software-Defined Networks



Business Intelligence/Data Analytics

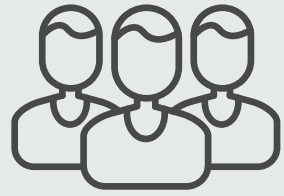
Most Used Citizen Engagement Tools





Staffing Up

Percentage of counties with at least one dedicated employee in:



77%
Cybersecurity
(Up from 62% in 2016)

46%
Privacy
(Up from 36% in 2016)

45%
Business Intelligence
(Up from 37% in 2016)

*The Center for Digital Government is part of e.Republic, *Government Technology's* parent company.

 By Stephen Goldsmith

Gamifying Government

Nudging resident behavior through friendly competition can boost engagement.

Developing public-sector initiatives that engage people — whether they are public employees or residents — involves even more than radically changing the traditional government experience. It also requires turning the boring into the interesting.

Gamification can accomplish just that. Games are fun — the rules are well defined, the process is engaging and the payoffs are immediate. For this reason, governments have begun transforming community involvement, like participating in a community improvement project, commenting on a piece of legislation or even just visiting a city website, into a game. In doing so, they have encouraged residents to participate in activities with social value, while simultaneously improving people's relationship with government — a difficult task to accomplish.

Gamification is essentially one type of nudge: an initiative informed by psychology that changes the context in which people make decisions in order to influence their behavior. Through gamification, government transforms the activity itself to make it more appealing to residents.

Here are a few ways gamification can improve your city's operations:

Nudging residents toward healthy behavior.

As with other types of nudges, gamification has great potential to encourage residents to partake in healthier behaviors. For example, Santiago, Chile, has gamified its campaign against childhood obesity in order to get more people eating healthily and exercising. As a part of the Bloomberg Mayors Challenge in 2016, the city has developed a neighborhood-level competition in which teams of 10- to 12-year-olds in local schools compete to earn prizes like a class trip to a pool or new playground equipment. Each team earns points toward those prizes through healthy behaviors. And, beyond engaging local children, the community hopes to get parents involved as well by encouraging them to do activities with their children and pick healthy food options to help their kids earn points.

Promoting civic engagement.

Civic participation is particularly tricky to galvanize, as many feel that their individual voice cannot make a difference. However, gamification can change this by assigning a direct value to each instance of citizen activity.

The city of Salem, Mass., launched a game called "What's The Point" to encourage local participation in neighborhood revitalization plans. Developed by Emerson College's Engagement Game Lab, the game sought resident ideas for neighborhood improvements and rewarded posts with virtual coins. Users could pledge these coins toward causes in their community, and the top three causes won real money. Residents felt that each of their contributions could at the very least benefit these causes, and as a result the city was able to gather valuable feedback.

Bringing departments together.

Hawaii has used gamification for a less obvious reason: as a means of unifying often-siloed departments. Hawaii gamified its online services, enabling users to create one profile in order to access services from every department. The new site provides users with badges that show how much time, paper and mileage they have saved by completing government transactions digitally, and includes a community board that allows residents to compete against the aggregate savings of others. When someone finishes paperwork for one department, the site then prompts them to go to another in order to maximize savings, improving digital access across government.

Beyond improving resident engagement, gamification makes experiences with government more personal and appealing, a critical step in establishing a committed community. At the end of the day, all work and no play makes City Hall a dull place. gt

Stephen Goldsmith is a professor at Harvard Kennedy School and director of the Innovations in American Government Program and Data-Smart City Solutions. The former mayor of Indianapolis, his latest book is *The Responsive City: Engaging Communities through Data-Smart Governance.*

Chris Bousquet, a research assistant/writer at the Ash Center for Democratic Governance and Innovation at the Harvard Kennedy School, co-authored this column.

4 ways GIS can help cities take a smarter approach to IoT

Internet of Things, meet the Science of Where: How spatial analytics enables connected communities

The Internet of Things (IoT) – a term used to define internet-connected sensors, lights, meters and other devices that collect and analyze data – can improve cities in a broad number of ways. But cities that use IoT coupled with advanced spatial analytics, or smart GIS, can do even more.

For instance, the Planning and Development Services (PDS) department in Kenton County, Ky., uses GIS and IoT sensors to collect data on topics such as walkability and sidewalk connectivity, traffic congestion, the urban tree canopy, solar energy potential and a plan to widen a state highway in northern Kentucky. The data lets PDS create "story maps" to help drive problem solving and smart urban planning. Because the county already uses GIS, officials there launched the project in just a few weeks. The county now plans to expand the project, using it as a jumping-off point for additional smart city initiatives.

Smart city initiatives are sprouting up across the globe. Some of the best examples come from Europe. Cities like Copenhagen use sensors to monitor bike traffic in real time, providing data that planners use to improve bike routes (40 percent of Copenhagen's residents commute by bike each day). And last year, London officials said they will test a smart parking project designed to reduce urban traffic congestion by helping drivers quickly locate open parking spaces.

U.S. cities have trailed their European counterparts, but they'll catch up. Given that more than 80 percent of the U.S. population is concentrated in urban centers, it's only a matter of time before U.S. cities widely adopt IoT to improve everything from traffic flow and energy efficiency to public safety.

Building a Foundation

As U.S. cities adopt IoT-based smart city initiatives, GIS will play an important role in planning and developing critical infrastructure to support sensors and other connected technologies, as well as the data they will collect. This foundational planning will be the key to smart city success.

What happens if planning is inadequate? A valuable example comes from the U.S. wireless industry. In a rush to capture market share, wireless companies built their infrastructure without a comprehensive plan or coordinated standards. As a result, wireless networks overlapped in some areas, while missing other areas completely. Other countries took a more methodical approach. As a result, many of them created smarter networks with less overlap and more efficient designs that have stood the test of time, while parts of the U.S. are now rebuilding outdated wireless infrastructure.

The IoT will require the same sort of planning that cities devote to transportation systems, electrical grids and other critical pieces of infrastructure. A well-devised IoT backbone and a solid transition plan position communities to maximize value from smart city initiatives. For example, sensors can be placed in a manner that prevents duplication and overlap. Emerging technologies such as drones can be anticipated and integrated into the smart city vision.

Cities also need a plan for managing data and making it actionable. Smart city initiatives will harvest vast amounts of new information, and cities that lack a strategy for using that data won't fully capitalize on the potential of the IoT.

Leveraging GIS Resources

Many government agencies already use Esri mapping and analytics to manage and monitor wide collections of city assets – everything from sewers and electricity infrastructure to locations for planting trees. For these cities, GIS can serve as a fundamental component for building IoT infrastructure to support smart city initiatives. Cities can leverage GIS technology they already own to launch IoT-driven projects faster and more economically, and scale these efforts more effectively.

HERE ARE FOUR WAYS ESRI CAN HELP CITIES GET THE MOST OUT OF IoT:

1 CONNECT

GIS can help cities connect to streaming data from sensors or build new connections to those sensors. Using Esri's ArcGIS Server, cities can connect to virtually any type of streaming data feed and transform GIS applications into frontline decision apps, providing city personnel access to the latest data and information as it occurs. GeoEvent Server includes connectors for common data streams, including in-vehicle GPS devices to provide a common operating picture of what is happening in the field in real-time. For example, a police department may want a real-time map of where all the police patrols are and their current status: in-service, out-of-service, busy, available, etc. Or an organization could publish a map that accurately shows the last known pollution levels or weather across a region.

2 FILTER AND ANALYZE

City personnel can easily be overwhelmed with the amount of data collected via IoT sensors. Using GIS, cities can enable automatic, real-time filtering and analysis of data to remove "noise" and focus on relevant information to make more informed decisions and respond faster.

A city can filter data by attributes or by geography. For example, GeoEvent Server accommodates multiple streams of data flowing continuously through filters and processing steps that the city defines. City personnel can then perform real-time analytics on streams of data to identify patterns important to the organization. Additionally, GeoEvent Server can notify people of relevant events as they happen. For example, emergency responders can use the current location of field crews to determine which one is closer to an incident. Or, a city can track the routes snowplows follow during a storm. The tracked route can then be logged for further analysis, indicating if a plow stopped for a long period of time or deviated from its initial assignment.

3 ALERT

Automatic alerts can be set to advise city personnel when certain events occur. City personnel can keep records of such events for legal purposes, or program systems to provide automatic feedback to sensors with instructions to perform an activity when certain parameters are reached. For example, a valve in a city's water department can be automatically programmed to close when a specific situation occurs or a certain capacity is reached.

When locations change, patterns of interest are detected or specified criteria are met, GeoEvent Server can automatically and simultaneously send alerts, update maps, append databases and interact with other enterprise systems. Alerts can be sent across multiple channels such as emails, texts and instant messages to those who need them, wherever they need them.

4 ENABLE BETTER DECISION MAKING

Esri's executive dashboard capability enables city personnel to monitor assets in real time for better decision-making. Using IoT sensors and GIS, city personnel can track dynamic assets that are constantly changing location, such as vehicles, aircraft and vessels, or stationary assets such as weather and environmental monitoring sensors. In addition, city personnel can get real-time situational awareness for coordinated field activities. The combination is powerful. For example, the Iowa Department of Transportation uses Esri GIS and IoT for snowplow management, scheduling and optimization of routes. Rather than send snowplows out based on best guess or history, the city now deploys them in a manner that clears the most impacted areas quickly and keeps traffic moving.

REAL-TIME DATA PROVIDES A SMOOTHER RIDE

Real-time data and alerts can be powerful tools for easing highway gridlock and improving citizen mobility. For example, Esri and Waze, a community-based traffic and navigation app, recently announced they are collaborating to help local governments alleviate traffic congestion and analyze congestion patterns through a partnership called the Waze Connected Citizens Program. The program enables local governments that use the Esri ArcGIS platform to exchange publicly available traffic data with Waze (Waze has more than 65 million monthly active users worldwide). Connecting Esri and Waze data allows cities to easily share information about road conditions with drivers, while drivers anonymously report accidents, potholes and other road condition information back to cities. Local governments can then merge that data into existing emergency dispatch and street maintenance systems.

Government agencies also use Waze as a platform to disseminate information about road closures. Because Waze reroutes drivers around road closures, it reduces associated congestion. If there's a major traffic jam in an unusual area, a traffic management center operator might be prompted to examine that area further. For example, Boston recently used Waze data to identify traffic prone intersections in its Seaport district.

The partnership between Esri and Waze has the potential to enable long-term traffic and congestion improvements by giving governments new insights into where crash-prone intersections and congested areas exist. More comprehensive data sets will help governments determine exactly when, where and how to make infrastructure changes to alleviate such problems.

Preparing for an IoT Future

Gartner recently predicted 21 billion IoT devices will be used globally by 2020, outnumbering laptops, smartphone and tablets. And IDC predicted spending on hardware, software, services and connectivity that enable IoT will reach almost $1.4 trillion by 2021. Clearly, IoT will play a large part in the future of many cities.

The time to prepare for the IoT-based future is now. Leveraging geospatial information and analytics will help cities launch IoT projects faster and build them more effectively. Just as important, GIS will help cities make sense of the data they collect by filtering out the noise, turning raw information into intelligence for better decision-making. As cities move toward a new hyper-connected, IoT-powered world, GIS will play a vital role in unlocking the power and value of these new resources.

This piece was developed and written by the Government Technology Content Studio, with information and input from Esri.

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*Visit **go.esri.com/IoTwithArcGIS** to learn more about building a successful Internet of Things strategy.*

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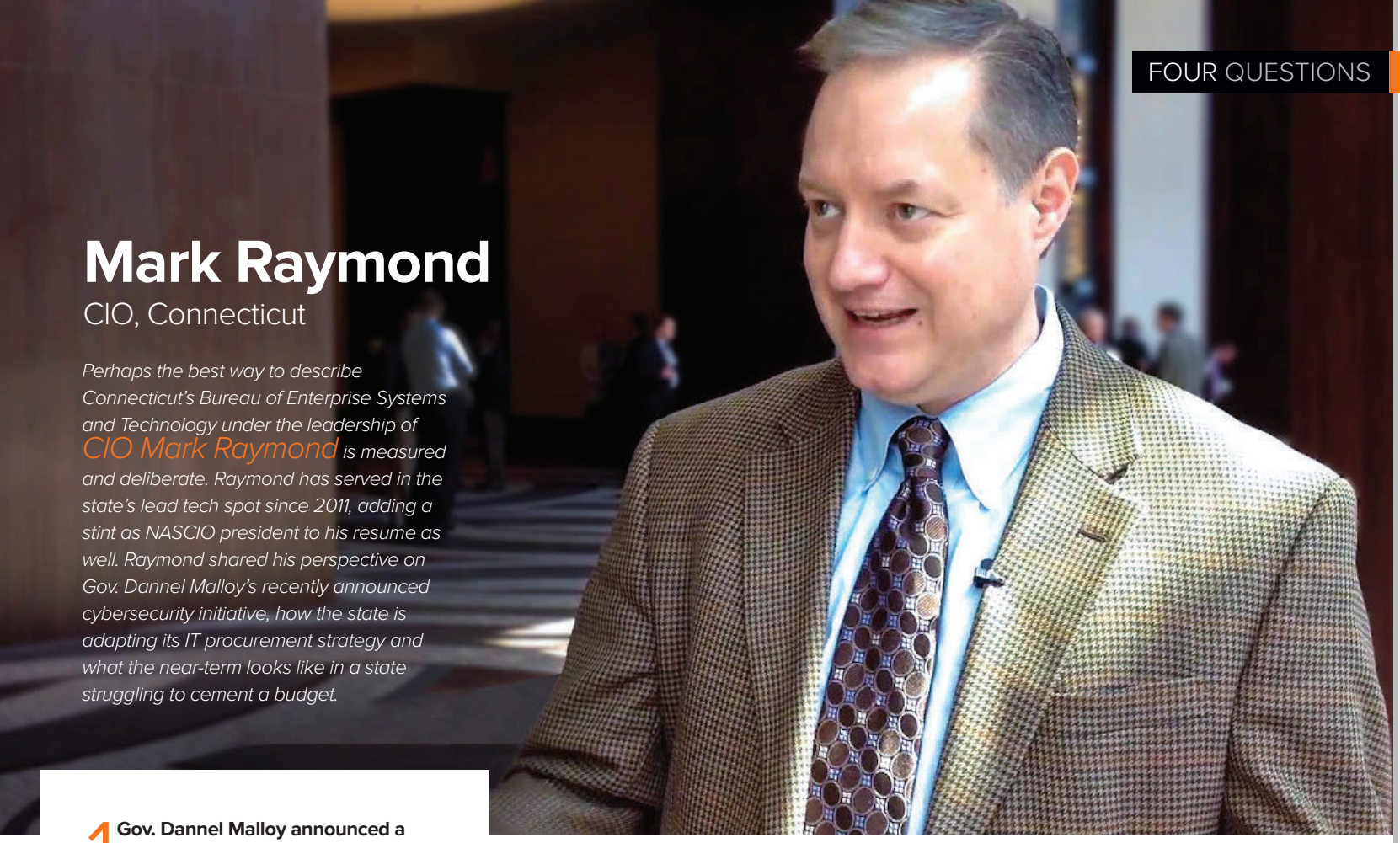

Mark Raymond

CIO, Connecticut

Perhaps the best way to describe Connecticut's Bureau of Enterprise Systems and Technology under the leadership of CIO Mark Raymond is measured and deliberate. Raymond has served in the state's lead tech spot since 2011, adding a stint as NASCIO president to his resume as well. Raymond shared his perspective on Gov. Dannel Malloy's recently announced cybersecurity initiative, how the state is adapting its IT procurement strategy and what the near-term looks like in a state struggling to cement a budget.

1 Gov. Dannel Malloy announced a sizable cybersecurity initiative in July. What will it mean for the state? The strategy called for seven principles that we believe are required for the state to improve its cybersecurity posture, and then outlined the need for an action plan. Specific things that we are working on: The first is agency cybersecurity risk assessments and scorecards to share with agency heads and the governor's office. We have an identity management strategy underway to synchronize how we deal with citizen identities and digital identities. Part of the philosophy is that we need to improve identity proofing and security and get rid of user IDs and passwords and add greater degrees of authentication, whether that is multifactor authentication or other methods. Making sure we have a clean view of the citizens and what their multiple touchpoints or interactions are will enable us to improve identity proofing related to government services.

2 How is the state innovating around procurement, a traditional pain point for government? Our purchases are actually pretty efficient. In the Department of Children and Families, we've moved to replacing our child welfare system and we're doing it in an agile fashion. We changed how we procure to enable a multi-vendor, iterative delivery process. We just selected the final set of vendors and are selecting the individual contracts that will allow us a mini-pool of folks all capable of implementing different sprints for our child welfare system.

3 Which initiatives are top of mind for you today? In the Department of Social Services, we have an integrated eligibility system. They have six go-live dates by offices. Five of them are done and the system is running great. The sixth office will come on board in September, so we will be wrapped up with that implementation, which is close to a million citizens and all of the health and human services benefits.

In the Criminal Justice Information System, we have a far-reaching and innovative program to collect and improve the workflow and data-searching capabilities across our entire criminal justice community, from local police officers to the courts to the state police and prisons and parole, making information more available to people at the time that they need it. The first of three releases of that application are live, and the remaining releases will be wrapping up by February 2018.

4 Where does Connecticut stand on its cloud migration journey? We have our first agency moving to Microsoft cloud … so we are still early on that, but a year from now we should have a substantial amount of work done.

We're pursuing [the cloud] where it makes sense. What we've found is that because we've been very efficient and frugal on how we spend on technology, for some of the things we do it would actually be more expensive to move to the cloud. Given that we don't have a budget yet — we're operating under the emergency powers of the governor — we're in no position to spend any more on anything. We look at cloud, software-as-a-service and productivity tools, but where it remains more cost-effective for us to run it internally, we do so. We don't have a cloud-first strategy; we are looking to find the absolute right solution for each one of the problems that we have. gt

— Eyragon Eidam, Assistant News Editor

A government technology Case Study: ORACLE

BECOMING AMERICA'S MOST INNOVATIVE CITY

HOW THE CITY OF SAN JOSE USES ORACLE SERVICE CLOUD TO TRANSFORM CITIZEN INTERACTIONS

Providing municipal services to citizens efficiently and cost-effectively has always been a challenge for large cities. But it's more difficult today as the number of communication channels has expanded well beyond the telephone to include mobile phones, email, websites, apps and social media.

Having so many different ways for citizens to initiate service requests can be a double-edged sword. On the one hand, it potentially improves service to citizens, which is a priority for many cities. However, cities that haven't built the right infrastructure and integrated systems to coordinate these requests find themselves unable to meet citizens' expectations for prompt and timely service response and delivery.

BECOMING A SMART CITY

This was the challenge faced by the city of San Jose, Calif., in 2016. San Jose is the nation's 10th largest city, with approximately 1 million residents and more than 50,000 businesses spread across 180 square miles. San Jose is also the epicenter of Silicon Valley, home to many of the world's most innovative and technologically savvy entrepreneurs and companies.

The city's goal is to become America's most innovative city by 2020. One of San Jose Mayor Sam Liccardo's priorities since he was elected has been transforming San Jose into a "smart city." This means using game-changing technologies that enable people to engage their city government in ways that help make it safer, more inclusive, sustainable and user-friendly.

"Our Smart City Vision contemplates making City Hall as innovative as the incredible Silicon Valley community we serve," he says.

Until recently, San Jose had no true 311 system to route citizen service requests for things like removing abandoned vehicles, responding to illegal dumping, fixing potholes, repairing street lights and cleaning up graffiti. San Jose residents ranked those five service types as their priorities in community budget meetings.

"We wanted more from our CRM solution than just an app and portal that sprays service request emails around the organization," says Rob Lloyd, San Jose CIO. "That's not a solution that truly improves our operations or community experience."

San Jose aspired to create an omni-channel solution that allows people to engage the city by phone, online, by chat and by app. A high bar was set to integrate with work systems across the city, so that service requests directly connect to the work crews in charge of responding. And the city built its solution requirements around user-centric design, community participation, audience dashboards and the ability to assemble a single data source to allow use of artificial intelligence tools to improve services.

INITIATING PROJECT ACE

Near the end of 2016, San Jose hired AST Corporation to implement Oracle Service Cloud as the centerpiece of what it dubbed Project ACE, or Amazing Citizen Experience. "The goal of Project ACE is to provide an awesome experience for San Jose residents, businesses and municipal staff," says Chris Mills, San Jose's enterprise product lead tapped to head the effort with the CIO. The Oracle Service Cloud platform provides robust features that align with the city's vision:

- Advanced 3-1-1 features to process requests and data
- Dashboards
- Oracle Integration Cloud to connect systems in the transportation, utilities and parks departments
- Artificial intelligence tools

"By integrating with our back-office systems, the platform-based approach of the Oracle solution automatically routes citizen service requests to the right municipal department," says Mills.

"Implementing the Oracle Service Cloud platform transforms the city from being reactive to providing a more knowledge-centered service environment," says Desiree Jafferies, San Jose's customer contact center manager. "We are excited how this will enable us to take future actions and make decisions based on real-time data and analysis. And this, in turn, will provide citizens with a better customer experience since it allows for greater service efficiency and visibility."

Providing proactive service also generates enthusiasm and a renewed sense of pride among city staff, Jafferies adds. "The staff feels like they are better able to engage with and help our citizens."

LAUNCHING THE *MY SAN JOSE* APP AND PORTAL

In July 2017, the city went live with *My San Jose*, a mobile self-help platform built on Oracle Service Cloud. The city-AST team jointly completed the project in six months with a user-centric design approach that involved staff, volunteer UX designers from local firms, community tech groups and residents, totaling almost 200 individuals. The team alpha and beta launched from May through June and totaled over 22,000 service requests.

Citizens now use *My San Jose* to initiate service requests, which are then communicated directly to city work crews. Real-time status tracking enables citizens to follow the progress of their service requests.

Residents can download *My San Jose* on their mobile devices or access it through an online portal. They can report their service requests anonymously if they prefer by withholding their personal information. The app also includes *My Home Services*, a feature that allows residents to input their address to receive personalized neighborhood service information like street sweeping, waste collection and water service providers.

"The launch of the *My San Jose* app will enable us to improve the cost-effectiveness of our services and respond to the rising expectations of our residents for the kind of on-demand, seamless customer experience that private sector services typically provide," says Mayor Liccardo.

My San Jose enables citizens to upload GPS-tagged pictures of incidents as part of a service request, a feature which has boosted its popularity. Citizens don't have to spend time typing in a description of the location when completing a service request," says Amit Ganguly, vice president of CX for AST. "Citizens often hesitate to initiate service requests because it's too time-consuming, but with this feature, it can be done in a few seconds. This is a huge benefit that has increased adoption considerably."

Lloyd says citizen response to Project ACE and *My San Jose* has been overwhelmingly positive. "Citizens are thrilled that we can respond to service requests so much faster," he says. "For example, two citizens told us they entered service requests that were handled in less than an hour, compared to the weeks that it might have taken in the past. Crews happened to be working nearby when the request came to them. Another commented on how modern, clean and easy the navigation on the app is. Their remark was 'it's the best thing for San Jose since the internet.'"

The city took a phased approach throughout the implementation of Project ACE to ensure staff adoptability and public use of the mobile app and web portal.

"The project scope included only those service requests that already had a work order system in which to integrate," says Jafferies. "There was much collaboration across multiple city departments, beginning with procurement, requirements, creating the service orders and functionality."

The implementation of Oracle Service Cloud in the city of San Jose represents an immense transformation in the way the city provides service and information.

"Our approach was to focus on providing an amazing customer experience. We realized early on that the key to success was empowerment for both our staff and our citizens," Mills adds.

The Oracle Service Cloud solution implemented by AST helped San Jose expand civic engagement while accomplishing the other objectives the city had for its 311 system, Lloyd says. "The Oracle solution is a key tool to our goal of becoming America's most innovative city by 2020."

AN OVERVIEW OF PROJECT ACE

San Jose's primary goals for Project ACE were:

- **Increase citizen service engagement with the city through a wide variety of channels**
- **Support hyper-efficient city service requests across phone, online, chat and app**
- **Improve resolution rate of single contact incidents and inform citizens the moment their service request is fulfilled**
- **Identify duplicate requests and reduce redundancy**
- **Increase management intelligence**

The city of San Jose's Project ACE, which implemented the Oracle Service Cloud platform, includes the following:

- Oracle Cloud Service
  - Contact Center Dynamic Agent Desktop
  - 25 contact center users/350 non-contact center users
  - 3 interfaces for required languages (Spanish, Vietnamese, English)
- Oracle Integration Cloud Service
- Data Visualization Cloud Service for managers

This piece was developed and written by the Government Technology Content Studio, with information and input from Oracle and AST.

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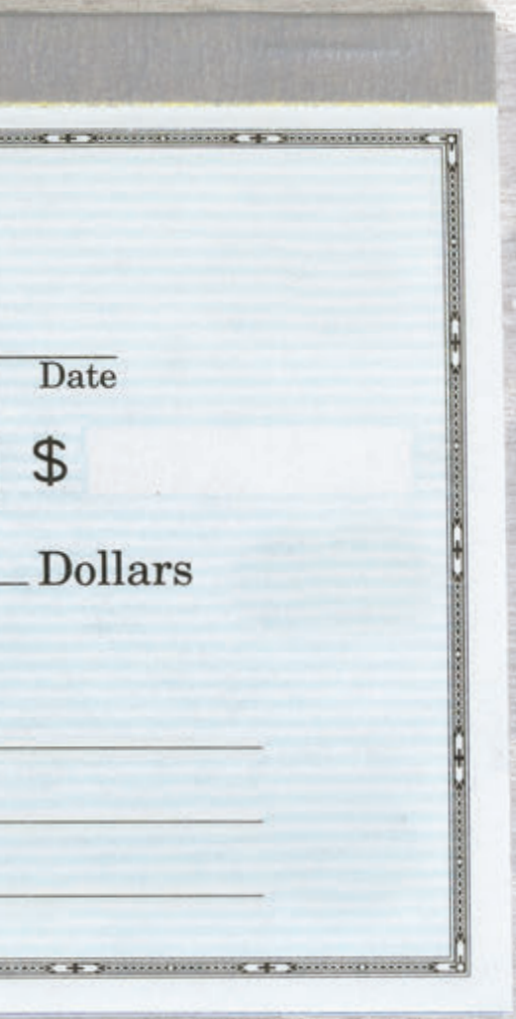

By Adam Stone

Buying with public money is difficult by design, but are there fair ways to fix it?

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Greg Veatch just wanted to buy some software. How hard could that be?

As senior legal technology specialist in the Ohio Attorney General's office, Veatch needed digital tools to better enable review of legal documents in the discovery process. Procurement took nine grueling months.

"I came into this from the private sector where all you'd do is say, 'Hey, I need this!' and you got it. I thought that was a practical approach," he said. "This is really, really too long."

Government purchasing is notoriously slow, especially around technology. The same safeguards that ensure open competition, all the rules and regulations that guarantee taxpayer dollars are wisely spent, also cause the gears to grind.

Systemic problems worsen this issue. The latest survey from the National Association of State Procurement Officials (NASPO) found that 74 percent of state procurement officials report increased procurement responsibilities are not being matched by additional staff. A recent Governing Institute survey found that only a third of government buyers have up-to-date spending information and market metrics in their databases, even though nearly two-thirds cite such areas as critical to success.

Despite such hurdles, government technology leaders say that much can be done — and is being done — to make government IT buying more efficient. Need it now, and not next spring? We asked top gov-tech leaders for their most effective procurement strategies. They gave us 11 ways to speed up the process while still protecting the public interest.

"We can all be very successful technicians, but to do this we need to ascend beyond our specialized roles."

Cooperative purchasing

When Steve Emanuel served as New Jersey CIO, he teamed up with Massachusetts to cooperatively purchase hardware and services. In this scheme, one state vets vendors on behalf of the cooperative, saving others the need to run redundant RFPs. "When you have commodities, cooperatives can be very strong. It can save a year or two years of individual RFPs to acquire the same thing your neighbor two blocks down the road just purchased," said Emanuel, now an adviser to IT service provider TenFour.

It's not a foolproof system: When a service provider dropped off the Massachusetts list, Emanuel had to rebid the work through Pennsylvania's co-op. Still, he said, it was faster than had he gone after those services on his own.

Strategic sourcing

One way to speed procurement is to tailor the RFP. Get beyond the generic and fine-tune IT requests to align them with the actual landscape of products and services. Former Oregon CIO Dugan Petty calls this strategic sourcing.

"You look at how much you are spending and what you are spending it on. Then you focus on how that market actually works," said Petty, now a senior fellow at the Center for Digital Government.* "So instead of putting out the same RFP you use for office supplies, you address those markets differently."

Maybe you can still buy PCs the way you buy staplers: It's a mature, commodity-style market. But for more sophisticated IT needs — managed services, cloud products, Internet of Things — you need to hone the process. "This needs to involve the business owner," he said. Deeper engagement over system requirements may demand more conversations up front, but it will lead to a smoother, swifter process overall.

Internal work groups

In Utah, Jaron Janson manages Salesforce use statewide for the Governor's Office of Economic Development, where he recently acquired Conga Contracts as a tool to enhance the software's contract management capabilities. He says the way to efficiently procure current software is to tap the user base.

"We formed a Salesforce user group for the state public sector where we discuss the different needs we have. That gives us buying power; we can vet each other's needs and identify solutions together," he said. "That's cut down on acquisition time

DAVID KIDD

because we can discuss pros and cons up front, [and] talk about the pitfalls we've run into. That helps us identify new vendors and speeds up implementation on the back end."

Buy solutions, not specs

As Arizona state procurement administrator until 2014, Jean Clark found that procurement tended to slow down when IT leaders focused too precisely on the specs. The way to shake things loose, she said, is to view procurement through a wider lens.

"What are we trying to achieve and what do we want the outcomes to be?" said Clark, now president of the National Institute of Governmental Purchasing (NIGP) Commodity/Services Code practice at Periscope Holdings. "Government still has a tendency to be extremely prescriptive on how things need to happen, versus focusing on the larger outcome. The specifications can get extremely detailed, when the real question should be: What do we want the outcome to be? If we want to increase our processing by 20 percent, that is how the RFP should be worded."

Set standards early

Buying technology will be slow and painful if you have to start from ground zero every time. IT leaders can speed up the process by defining terms and standards around emerging technology, creating a common parlance that can be used anytime government buys such services.

As Colorado CIO, Kristin Russell led a process to align the vendor community and multiple state CIOs around policies and contract language for cloud and other newer technologies. "We did this so that we as state CIOs could go back to our legislatures with a standard contract. That made it more fluid, so that not every contract was new and starting from scratch," said Russell, now global president of Arrow Intelligent Systems.

By forging consensus early on, it's possible to write RFPs with the assurance that they will find a receptive market. "The vendors can say what they will accept and what is reasonable, and you do that before there is even a deal on the table," she said. "If we can get more standard language between the vendor and state government, that's a big deal in terms of cutting the acquisition time."

Two sets of rules

As Emanuel watched the rise of cloud and service-based IT offerings, he saw that the standard procurement process didn't always apply. The classic sticking point: unlimited liability. Government contracts hold vendors infinitely liable; cloud suppliers can't play that way, because of the many variables that are outside of their control.

Emanuel's solution: Craft two sets of rules, one for regular stuff, another for next-gen IT offerings. It was no small thing to pull off. "We knew most state organizations didn't want to have two different sets of terms and conditions, but that's what was needed," he said. To make it fly, he built what he refers to as his internal United Nations. "I spoke technology, my procurement person spoke procurement, my legal person spoke legal," he said. "Together we learned to speak the language of the people we needed to convince, to help all the different decision-makers understand what was needed."

Build procurement muscle

Procurement is wonky. It's an insider's game best played by experienced professionals, and yet many of the most seasoned veterans are leaving as part of the baby boomer retirement wave. "Even when they get good replacements they still have to retain them, they have to pay them competitively, which in turn puts tremendous pressure on training," Petty said.

Efficient IT procurement requires a savvy workforce. Michigan state officials have coordinated with the university community to develop a supply management curriculum. In Oregon, state and local procurement officials participate in robust, certification-based training. "That way we could be sure that the people who exercise procurement responsibilities have the competency to do that work," Petty said.

"States can bring in interns, they can work to create relationships with major universities. All that helps to bring a fresh view into the organization," he said.

Centralized contracting

Here's one scenario: Every time you need something, put out another RFP. Here's a better plan: Contract with a single vendor for a wide range of IT services. Let that vendor vet the others and then buy off their list. That's how Janson got his latest Salesforce upgrade, buying Conga through reseller Carahsoft.

"In the past it was very splintered. We would do an individual RFP and an individual contract with each vendor," he said. "Now we have one contract with Carahsoft and they have relationships with all the different vendors, so they can do all the bidding and contracting. That allows us a lot of flexibility to bring on new applications and new vendors immediately."

In the case of Conga, "we found this vendor that was offering the perfect solution for us, and instead of having to go through an RFP with all the vendors who offer a similar solution, we were able to get the whole process done in a month and a half," he said.

74% of state procurement officials report that increased responsibilities don't come with additional staff.

SOURCE: NATIONAL ASSOCIATION OF STATE PROCUREMENT OFFICIALS

Public accountability requires the government buyer to still research each vendor individually to ensure suitability — Janson doesn't give carte blanche to the central entity. Even so, he says, it's a lot faster than issuing individual RFPs.

Leave it open

Sometimes a successful RFP gets you part of the way there. An IT need gets filled, but the project expands or an ancillary need arises. In the conventional procurement model, it's back to the drawing board, with news specs and new bids.

Periscope's Clark proposes an alternative, structuring contract language so that services offered under the initial RFP can still be on the table and available, even after an award is made. One vendor takes you part way to the goal line, then another steps in to carry the ball. It's legally doable, but it takes some finesse.

"You have to identify it in the original solicitation and you have to have the policies and procedures to support it. You have to have that legal foundation," Clark said. IT can look to social services for cues here. RFPs around group homes and foster care often will leave open the possibility of double-dipping, since the government need and the vendor supply do not always sync up on the first try.

Make e-procurement holistic

State and local entities typically have some form of e-procurement in place. For many, it may be time to revisit these systems and consider streamlining.

"Many times you see organizations where finance or IT has driven the solution for e-procurement. As a result, they may fall short from a contract management perspective or even from a business intelligence and reporting perspective," she said. Such systems may lack transparency, integration or ease of use.

To get the most out of e-procurement, it makes sense to take a more holistic approach. "You want to ensure it is a system that addresses things from the lowest to the highest levels, from requisition through invoicing. You want it as seamless as possible," she said. Procurement cuts across multiple jurisdictions; e-procurement should do the same.

Centralize buying

In Colorado, Russell helped build the Statewide Internet Portal Authority (SIPA), a centralized buying entity for state, county and local authorities. SIPA pre-qualifies a range of IT products and services, allowing government to buy without issuing an RFP.

The General Services Administration (GSA) does much the same at the federal level. Russell says there is value in bringing that model down closer to home. "The complaint I always heard about GSA is that it wasn't relevant to what people were looking to do, and they didn't think the GSA prices were as aggressive as what they could negotiate at the state level," Russell said.

A consolidated source like SIPA can speed procurement, but it takes care and feeding. "It's not one of those things that is just one-and-done, you sign up a vendor and they are golden forever," she said. "There has to be governance in place so that you are constantly protecting the interests of the state and also the vendors."

All these strategies can help to move the needle when it comes to technology procurement, but it takes a certain amount of nerve. Government buying is excruciating for good reason: All that foot-dragging aims to protect the public interest. It takes courage to do it differently. Many find it easier to take the plunge when those further up the chain are also willing to dive in.

"Flexibility is key, and that goes all the way to the governor's office and the legislature," said NASPO Executive Director DeLaine Bender. "If the legislature and the governor agree that there can be room for innovation in state government, then you get a whole new atmosphere in terms of the way that agencies can function."

It helps, too, if IT leaders and procurement professionals can learn to think outside their areas of expertise.

Those who succeed in speeding procurement "are the people who try to understand the goals and challenges of the entire organization, not just what is going on in their department," said Brent Maas, executive director of business strategy and relationships at NIGP. "We can all be very successful technicians, but to do this we need to ascend beyond our specialized roles."

Finally, a word about integrity. It seems important to note that every gov-tech leader we talked to for this article began the conversation by stating a firm commitment to the rationale behind clunky government buying. Open competition, transparency, sensible stewardship of taxpayer dollars: It is clear that as much as these professionals may want to see procurement sped up, they are unwavering in their belief that it must always be done right. gt

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**The Center for Digital Government is part of e.Republic, Government Technology's parent company.*

Peter Kelly, chief deputy director of the California Health and Human Services Agency's Office of Systems Integration

JESSICA MULHOLLAND

AGILE ACQUISITIONS

State IT contracts are undergoing big changes as agile development takes root. **By David Raths**

For years the state of California has been doing multi-year, multimillion-dollar software projects, only to find that many of them don't produce the results the state had hoped for. They take too long to plan and execute, and cost more than expected. "Customers have one consistent thing they tell us: You gave me what I asked for, but it is not really what I wanted," said Peter Kelly, chief deputy director for the California Health and Human Services Agency's Office of Systems Integration (OSI).

Determined to break out of that cycle, the state looked for a significant project to which it could apply agile project management methodology and develop software more iteratively. Agile development breaks software projects up into short "sprints" of a few weeks, while business officials and IT teams work closely on refinements. The traditional and linear software development approach is referred to as "waterfall." Each phase of a project is completed before moving to the next.

In late 2015 the Health and Human Services Agency decided that the replacement for a 20-year-old Child Welfare Services case management system would be the test bed for agile adoption. Did that require rethinking how to do procurement for the project and what type of RFPs would be developed? "It required rethinking everything," Kelly said, "and procurement was definitely at the spearhead of the effort."

Changing Requirements

Federal, state and local government IT departments are gaining more experience with agile processes and are starting to develop staff competencies to work in a more iterative fashion, but among the transition challenges, many have identified procurement as a particular stumbling block. In 2017 Accenture partnered with the National Association of State Chief Information Officers (NASCIO) to survey state CIOs and agency heads. From 53 completed responses, 70 percent said procurement was not set up for agile projects.

Keir Buckhurst, Accenture's managing director for the public service industry, said that in traditional waterfall project procurement, you have three sides to a triangle: time, resources and requirements. The requirements are fixed, and you can have variations in time and resources. "With agile, we are switching it to say time and resources are fixed, but the requirements can change and evolve. Therefore, how you contract is very different. That is the toughest thing for people to wrap their heads around."

Another challenge is getting the executives at authorizing agencies to understand that how they will be asked for funding is changing. "They are used to somebody saying, 'I am going to need exactly this much money because I am going to deliver exactly this functionality on exactly this date,'" said Buckhurst. Now, project teams tell them how much they are going to spend, but not exactly what the solution will look like or when it will be done.

Some states are not just training IT and business teams about agile, but also doing that same training for their contract and procurement staff. In fact, executives in the state of Washington's IT procurement office went through "scrum master" training. (The agile framework for iterative change is called "scrum," and the person leading the collaborative effort is called the "scrum master.") They are working to not only procure for agile software projects but also to make the procurement process itself more agile, according to Scott Smith, the state's IT procurement director.

> **"Our staff are so used to agile in terms of how they conduct an IT development project, they wouldn't know what to do other than agile.**

"You can't be good at evaluating a vendor and their ability to do agile software without understanding agile yourself," Smith said. "You are not evaluating what they are going to create. You are evaluating the how. For me, that is the big difference."

Agency executives and legislatures have to learn to give up the illusion of control over software projects, he explained. "You thought you had control with waterfall, but you really didn't. The idea that change is bad contributed directly to waterfall projects' failure. In an agile environment, we use change to a customer's competitive advantage."

Smith gave one example of how he would like to procure differently for agile: Often, with software projects, you get to a point of diminishing returns. In other words, the internal customer looks at the rest of the work to be done and says, "Never mind, we can live without those." In a traditional waterfall environment, both parties are contractually obligated to finish those out, which is probably a waste of time and effort for both parties, he said.

The vendor is not providing value in the customer's eyes and the customer is paying for something they don't care about, according to Smith. "I would like us to accelerate to that point as quickly as possible," he said. "We could negotiate with the vendor and say if you get to that point early, you can have 50 percent of what is left on the table for doing no work. That incentivizes the vendor to get to that point as quickly as possible, which is to the customer's advantage. That is the contractual nuance we are thinking about from a negotiation perspective."

The fact that the Office of the CIO in Washington is promoting agile has made a huge difference for the procurement team, Smith said. "We and our customer agencies were on the same maturity path to understanding how to do these projects, and as my team has ramped up, the customers have come to recognize the value. It has been good for us not to be too far out in front of them, but having the CIO's office driving it was important."

Rethinking Procurement for Big Projects

In California, several agencies have been experimenting with agile on smaller projects, but the Child Welfare Services case management system was the first place the state got behind this approach on a major capital investment. Hoping to learn from past failures, the agency wants to break the large project into smaller pieces and deliver value more iteratively, rather than spend years on procurement and development.

Breaking up such a huge project meant rethinking procurement. For one thing, if you are going to engage in multiple procurements, there is no foregone conclusion that the same vendor will win all of them, Kelly noted. If the project involves multiple vendors, that has implications for systems integration. OSI had a 13-year history of bringing in a single vendor to be the systems integrator but decided to play the role of systems integrator itself for this project, which required adding new skill sets.

OSI sought consulting help on procurement from 18F, a federal office housed within the U.S. General Services Administration, and Code for America, a nonprofit that augments local governments' efforts involving technological innovation.

Kelly said Dave Zvenyach, an 18F official, "led a conversation for a day and a half with more attorneys and acquisition specialists than I could count. Going through laws, policies, regulations and statutes, he helped debunk their notions that agile procurement couldn't work."

It turned out that in order to make the major shift to iterative procurements to do agile work, not a single law had to be changed. "There was no regulation that we couldn't work within the confines of, and no policy so tight we couldn't work through it," Kelly said. "That was a real surprise to California. Most people initially assumed this was a nonstarter."

But even with legal questions set aside, the state had to create a mechanism to procure faster. "If you are going to do lots of small procurements, you can't work on a 12- to 24-month time frame," Kelly said. "It doesn't work."

California chose to follow 18F's example and create a pool of vendors pre-approved to do agile work who could respond quickly to smaller procurements. In 2016 the state gave vendors a problem to solve using software with examples of what they wanted them to demonstrate. They had 30 days to reply. More than 20 companies made submissions, and 11 vendors, both big and small, qualified based on the state's criteria.

As work ramps up on the child welfare system, the procurement process has shifted away from language around specific products the agency wants vendors to build and more toward how the agency wants to work, according to Kelly. "The 'how,' for me, is so important. It is a shared ownership, a shared responsibility. It is a gigantic paradigm shift for all parties involved. The last year for us has been as much about establishing how we work as it has been about what we are building."

Less-Than-Agile Vendors

For most states and localities, the issue around agile procurement is getting started and then scaling up. Joshua Karstens is in charge of transitioning Maine's IT projects from waterfall to agile. As director of the project management office in Maine's Office of Information Technology, he has overseen agile used for smaller projects. "We are looking at how to do it with much larger projects where we have to do RFPs and contract with vendors," he said. "We usually spend months on these RFPs creating long lists of requirements, and they end up being inaccurate because the project changes as we move through it." Now, the goal is to get the RFPs down from 200 pages to 10 pages and with a quick turnaround.

4 TIPS FROM AGILE PROCUREMENT PIONEERS

1. **Peter Kelly, chief deputy director of the California Health and Human Services Agency's Office of Systems Integration:** Don't assume legislation or regulation blocks you: "There was no regulation that we couldn't work within the confines of, and no policy so tight we couldn't work through it," Kelly said. "That was a real surprise to California. Most people initially assumed this was a nonstarter."

2. **Keir Buckhurst, managing director of Accenture's public service industry:** Spend less time in negotiations on requirements and more on governance and communications. Be clear about roles, responsibilities and communication. Define how long sprints are and what decision-making is allowed at the team level. "If a project is really going to be agile, you can't have a process in which decisions get escalated to a steering committee that meets only every two weeks," he said. "Decisions need to be made at ground level."

3. **Scott Smith, IT procurement director of Washington state:** If you do create a pre-approved vendor pool, recognize that you need to refresh it often. "Resumes can move from company to company. If you can't react to that quickly, the value of the pool diminishes. That is a problem we are trying to solve now."

4. **Ron Baldwin, CIO of Montana:** Beware the agile definition gap. Not all vendors can execute on agile, despite what they might say in proposals. "Not until you get the team on the ground will you really find out whether they possess those skills or not — or whether their idea of agile and yours are the same. We have found ourselves having to train the vendor on how we execute a project in agile."

Karstens has his eye out for a large project that would be a good fit for agile. "If we are going to have hard lessons from it, I want the risk to be low," he said. "If we are going to do RFPs in a new way and award contracts and statements of work for each iteration, we don't want a lot of risk associated with it."

But an even bigger issue is finding vendors who have the experience to work in an agile environment. The state of Montana has years of experience with agile methodology internally, but mixed experiences working with outside vendors on agile projects. The situation has forced agencies to rethink how they pay for application development.

The state's Application Technology Services group has been doing agile exclusively for eight years, said Audrey Hinman, the group's bureau chief. Her team creates memoranda of understanding with its internal customers, and agile has definitely changed the way they are written. "The memorandum puts more of the responsibility for watching the budget and timeline on the agencies themselves," said Hinman. "We don't do fixed bids anymore. We do give a detailed scope of the project and estimate what cost we think it will have, but all the terminology just refers to estimates. We put the responsibility for prioritization of the backlog and watching expenditures and timelines on the agency project manager," she explained. After the fifth or sixth sprint, we are usually delivering usable code, but they could shut development off at any time after that fifth or sixth sprint."

Montana CIO Ron Baldwin said he believes that using agile exclusively helps attract and retain talent. "Our staff are so used to agile in terms of how they conduct an IT development project, they wouldn't know what to do other than agile," he said. "Most of them recognize that it is a modern methodology that is working to reduce the risk of projects and making customers happy because they are delivering more sooner, and the ultimate product is much more in line with what the customer expected for the budget they established in the first place."

But now, Montana is finding an agile gap exists with the technology firms that are supposed to build and deliver the tech solutions it needs. "Vendors, particularly those that have teams that have been delivering a particular solution for years in their area of expertise, don't necessarily bring the agile skills you would think they would bring," Baldwin said. "They can say they will do it when they respond in proposals, but not until you get the team on the ground will you really find out whether they possess those skills or not — or whether their idea of agile and yours are the same. We have found ourselves having to train the vendor on how we execute a project in agile."

Hinman said Montana still sees large vendors not fully committing to agile. "They say they are going to do it, but half the methodology is still waterfall," she said. gt

draths@mac.com

SNEAK PEEK:
GENERAL SESSION SPEAKERS

(at time of printing)

Simon T. Bailey
CEO
Simon T. Bailey International

Monday, October 22
OPENING KEYNOTE ADDRESS:
Leadership Brilliance: Breaking the Sound Barrier of Your Organization

Etay Maor
Senior Fraud Prevention Strategist, IBM Security

Tuesday, October 23
GENERAL SESSION:
Getting into the Mind of a Cybercriminal

Robbie K. Melton, PhD
Associate Vice Chancellor of Mobilization Emerging Technology for Tennessee Board of Regents

Tuesday, October 23
GENERAL SESSION:
Innovations of Smart Emerging IOE Mobile Technologies for Global Digital Equity Transformation

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PICKING UP THE PACE

THREE IT AGENCIES WORK TO BRING PROCUREMENT INTO A NEW ERA.

BY THEO DOUGLAS

SHUTTERSTOCK.COM

Public agencies have been working to improve how they find and purchase technology for decades, and yet one of government's most sensitive pain points remains, in the words of San Francisco Chief Innovation Officer Jay Nath, "procurement, procurement, procurement."

Much public-sector technology today is unrecognizable from that of the mid-1990s, when streamlining IT procurement could mean quickening the purchase of a half-dozen PCs from six months to two weeks. But while the pace of technology innovation has grown exponentially since then, timelines for procurement haven't kept up.

In an IT public procurement practice standard released earlier this year, authors at NIGP: The Institute for Public Procurement said the typical RFP process remains too traditional to be effective at purchasing technology hardware, software and services.

"The RFP process, as it has evolved, does not always allow enough creativity and flexibility for the effective procurement of IT," NIGP wrote. "Rigid terms and conditions directed toward the purchase of traditional products inhibit IT procurement, now more of a service than a product."

The organization pointed out that the National Association of State Chief Information Officers (NASCIO) and the National Association of State Procurement Officials (NASPO) have called for changes to process and policy "to better integrate the flexibility and agility necessary to align with the rate of innovation and the services aspect of IT."

Brent Maas, NIGP executive director of business strategy and relationships, told *Government Technology* that public agencies are historically reluctant to go first with untried technologies and ways to purchase them — but that, he said, should and will change.

"No one wants to be the guinea pig, but I think that has to change, and potentially from a generational perspective it will change because anything technology-based is driving day-to-day life," Maas said.

Observers of state and local purchasing agree IT procurement has yet to be modernized in many agencies. The specialized task of buying IT still often falls to busy mid-level staffers; and asymmetrical or out-of-phase projects potentially run afoul of budget and election cycles.

Resolving governance and financing questions remains an issue for many agencies. But some have managed to move past more basic questions to focus on redefining IT procurement by uniting like agencies in a single request; prequalifying bidders; or carefully scrutinizing contracts for signs of age or ineffectiveness.

These agencies, in turn, may face more exciting challenges that lie closer to the heart of IT procurement, said Rick Howard, research vice president at Gartner. Chief among them, he said, is the issue of scalability — ensuring solutions have sufficiently broad application to find wide usage.

"Modular contracting, blanket agreements, pre-qualified vendor lists — they're all vehicles that help you achieve the end, and it really is situational," Howard said, referring to working solutions.

Scaling new creations into production-level apps remains uncommon, he said, but should be a focus for agencies that have not achieved it — noting that in some cases, deconstructing monolithic solutions into their components can reveal common applications.

"You abstract out that business function as a service that has to interoperate with, say, the core true differentiated functions of any one of these large systems, that's where you're trying to go," Howard added.

How many days do government RFPs spend "on the street"?

22	21	19
State	County	City

Source: Center for Digital Government

A similar issue, standardization, is key for San Francisco, Nath said, "so that we are really being more equitable and allowing for smaller businesses to participate in the process."

A long-term goal for his agency, standardization could enhance scalability of procurement processes "so that a contract in San Francisco is essentially the same for Austin and for others across the U.S."

Ohio CIO Stu Davis said that qualifying newer, smaller vendors is also a concern for his agency, one officials addressed in an early 2017 RFP aimed at streamlining the process by reducing the liability burden and work history requirement for smaller vendors.

"The challenge in some cases is to refocus the culture on being a trusted procurement adviser as opposed to a procurement jailer," Davis said. "Sometimes procurement views themselves as trying to keep you out of trouble instead of trying to get you what you need. Yes, you're supposed to keep us out of trouble, but we still need to get what we need."

Davis, Nath and Joel Munter, statewide group procurement manager for Arizona's technology and IT team, agreed IT procurement must change with the times, becoming quicker and less onerous while still addressing basic concerns shared by virtually all governments. And all three have agencies that could provide models for other jurisdictions looking to make a similar move.

ARIZONA

Each of the Arizona state procurement office's five teams — units focused on commodities, professional services, construction, technology and IT, and "category," which Munter described as a "catch-all bucket" — faces a similar challenge: keeping up with changing technology.

"The technology is changing so rapidly, and I think we need to be nimble. We need to establish contracts of the right duration and renew them as often as needed to make sure that they're aligned with how technology is changing," Munter said.

THE STATE BUYING CYCLE

Q1 (JULY–SEPT.)

- ✔ 46 states have a new budget
- ✔ Projects kick off
- ✔ Planning starts for next year

Q2 (OCT.–DEC.)

- ✔ This year's spending kicks in
- ✔ Governor reviews next year's spending

Q3 (JAN.–MARCH)

- ✔ Legislature reviews next year's spending

Q4 (APRIL–JUNE)

- ✔ Fiscal year ends in 46 states
- ✔ Biggest state buying quarter
- ✔ "Use it or lose it" spending
- ✔ Next year's budget is passed

Source: Center for Digital Government

Arizona's communication on procurement is generally good, with regular meetings and discussions, he said, but a key issue is educating state agencies about potentially money-saving statewide contracts.

Chandler Unified School District, Munter gave as an example, recently proposed doing an RFP around media and public relations — areas where Arizona may already have a statewide contract in place.

"Because we're somewhat decentralized, we're writing things from the state procurement office, we're doing things on behalf of the other agencies, but getting them to fully utilize the benefit of those contracts can be a challenge at times," said Munter, who joined the state in October 2016. "And I think that's true for everything, not just technology."

A second issue, he said, is making procurement more nimble, potentially developing new RFPs where ones might not have been needed in the past — and possibly renewing contracts more frequently than the customary two years to keep technology fresh.

The job of procurement, Munter said, is to anticipate agencies' needs and be ready with a new contract should one be needed. He characterized the relationship as a cooperative "dialog" between agencies and the state procurement office.

This extends to the area of cloud procurement, where Arizona — which takes a hybrid approach to cloud and has few direct contracts — is scrutinizing NASPO ValuePoint for cloud options. The IT procurement manager said 32 vendors were awarded on the national cooperative contract, and in reviewing their coverage, he's identified several gaps.

Arizona has signed as many as nine participating addendums to address gaps in these contracts and may seek to negotiate others, possibly in coverage areas dealing with platform- and infrastructure-as-a-service, said Munter.

"There are benefits to the state by having this hybrid approach that will have a limited number of direct contracts and also look at the national contracts where appropriate," Munter said.

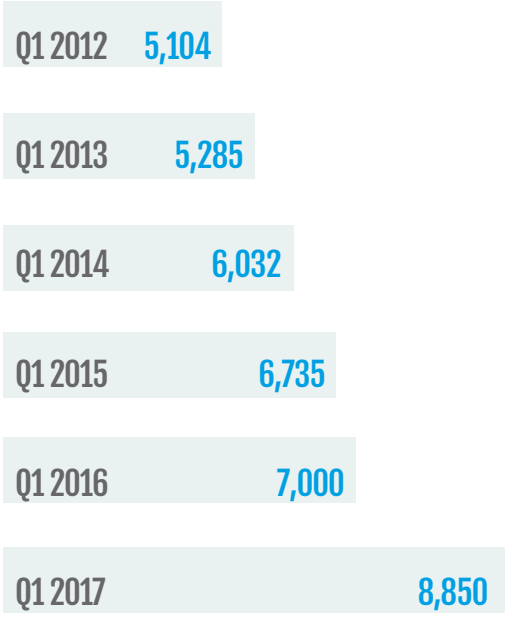
OHIO

Inspired, like San Francisco, by federal General Services Administration innovators, officials in Ohio released a data analytics RFP on Jan. 5 that targeted new, smaller companies for what the state describes as "expert-level analytics exploratory projects."

Six months in, officials have made 50 awards and planned to release statements of

NUMBER OF STATE AND LOCAL IT PROCUREMENTS

(First Quarter Analysis 2012-2017)



Source: Center for Digital Government

work later in the summer and receive proofs of concept in the year's fourth quarter.

A key issue, state CIO Davis said, is the sheer cost of doing business with the state — anywhere from $800,000 to $1.5 million just to respond to a complex RFP. Revising terms and conditions on a trial basis and simplifying RFP response requirements generated more than 70 proposals, and attendance of more than 500 at a pre-bid conference held via Skype, a state first.

"We could have made them come to Columbus. We wouldn't have had 300 folks. We wouldn't have had the opportunity to convey to that broad of an audience," Davis said.

Updating its IT procurement process has reinforced to state officials the importance of looking closely at so-called mandatories, and making sure, Davis said, "they pass the logical sense" test.

Agencies should also make sure their evaluation criteria align closely with their statement of work, to ensure they get responses to RFPs that match what they're looking for. Failing to do so, Davis said, increases the likelihood an agency will not get the response it's seeking "because it's not clear enough."

Terms and conditions should be looked at, and potentially reduced to seven or eight non-negotiable "holy grails," he said.

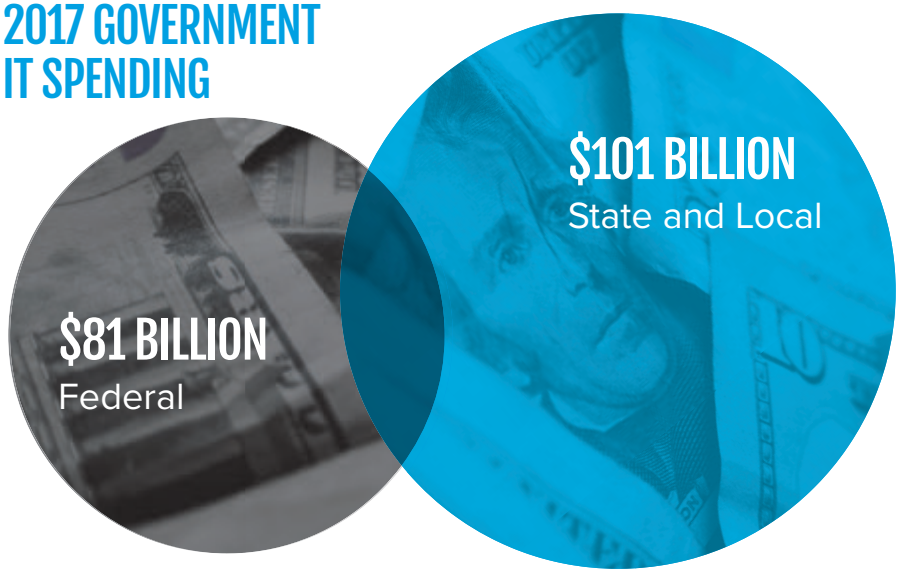
Public agencies contemplating transforming their own IT procurement processes should also consider speaking to officials elsewhere who have already done so, and hosting what Davis called a "competitive dialog" between agency heads, procurement officials and potential vendors prior to developing an RFP or statement of work.

The underlying issue motivating transformation, the CIO said, will likely remain.

"We're always going to be in a challenge because the technology is changing so rapidly," Davis said, noting that many agencies are trying to identify "the best way to procure agile application-development-type solutions." (See *Agile Acquisitions,* p. 22)

"We're going to have to figure those kinds of things out, and we need to be able to in a way that provides a quick response so that we can get moving on these projects," he added.

2017 GOVERNMENT IT SPENDING



Source: Center for Digital Government

SAN FRANCISCO

Spreading government investment to ensure local and smaller and medium-sized tech businesses are included, as well as focusing on innovation, is key, said Nath, chief innovation officer of the consolidated city-county — noting that failing to do so means agencies can lose funding as well as forward-looking ideas.

"How do we create better solutions for government, for our partners, our nonprofits and for society? When you think about how quickly technology evolves, the desire for local governments to really create a growing ecosystem of entrepreneurs or startups — I think there's a big opportunity," Nath said.

With those goals in mind, last year the city-county created an "RFP bus" — a stripped-down, accelerated batching of RFPs that replaces highly prescriptive rules with simpler challenge statements written by participating municipal and county agencies that focus on needs.

The idea grew out of San Francisco's Startup in Residence (STiR) program, one of the most recent change movements in IT procurement, that embeds young tech companies within government to deepen their understanding of government's problems, resulting in more effective public-sector-facing products. The idea, which has expanded in recent years, helped create products like a navigation system for the visually impaired at San Francisco International Airport — but proved deeply frustrating when RFPs took more than two-and-a-half years.

Similar to San Francisco's counterparts in Ohio, federal GSA innovators 18F were "an outsized influence," Nath said — but so was the Defense Innovation Unit Experimental (DIUx), called the "Pentagon's so-called 'embassy to Silicon Valley'" by *Business Insider,* which has taken technology from solicitation to contract in 60 days.

San Francisco's RFP bus has the same timeline and is moving at scale, incorporating a cohort of cities that share transaction costs.

"By having the RFP bus ... you have a schedule of when it's starting and stopping, and having that certainty that it'll be complete by this time creates a lot of confidence and predictability, and allows for better coordination," Nath said.

He pointed to the company Binti, which used STiR to develop software that speeds the approval process for foster parents, as a success story for its work automating manual processes for San Francisco's Human Services Agency.

The agency, Nath said, is "extremely happy with the outcomes from that partnership."

GOVERNING

GUIDE TO FINANCIAL LITERACY

Volume 4

P3 Governance: Ensuring Public-Private Partnerships are Built to Last

P3s are a core part of state and local government infrastructure. But what makes a P3 more likely to succeed for the long-haul? The answer is simple: a robust governance process.

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Turning the RFP on Its Head

Despite hurdles, startups are working to simplify public-sector procurement.

By Zack Quaintance / Staff Writer

BOBBY BURCH

Mention the request for proposal process and you're likely to elicit groans from both sides of government procurement — the public servants who craft the documents and the private vendors who must respond to win contracts.

RFPs, with all their regulations and laws and hyper-specificity, can contain hundreds of pages of highly detailed, often dense information. Such documents are familiar ground for some companies that work with government, especially larger ones with years of experience and vast resources. But what about startups trying to break in for the first time? And what about forward-thinking municipal innovators who want more vendors and a wider selection of ideas?

Many of these stakeholders agree a simpler RFP process would connect more technologists to the public sector, while also making government more efficient, potentially saving hundreds of staff hours needed to write monster RFPs.

A number of significant obstacles, however, remain, according to many who work in government procurement. For one, government RFPs are inherently lengthy. Also, in order for a disruptive innovator to change the way RFPs are done, that same company must first navigate existing government RFP processes.

In spite of these hurdles, a diverse group of companies still seek to make RFPs, as well as overall government procurement, simpler. An executive at one company, however, was quick to point out that new solutions tend to pop up regularly, before struggling and ultimately fading away, leaving the time-tested practices. With all this in mind, *Government Technology* has profiled several companies currently operating in the space. Some are new to the scene, while others have been standard bearers for more than a decade.

RFP365 — Kansas City, Mo.

RFP365 encapsulates the potential many see in streamlined government RFPs. The company grew out of a government effort, going through the Innovation Partnership Program hosted in 2015 by the city government in Kansas City, Mo., before then going to work to help the same city government. RFP365, however, is also an example of why reworking government RFPs is such a challenge.

RFP365's software speeds up the RFP process while simultaneously helping organizations learn best practices, especially those related to fairness and transparency, and the company currently works with a handful of public agencies — Kansas City, the California Community Colleges Technology Center and the Illinois Criminal Justice Information Authority — but David Hulsen, co-founder and business director, said RFP365 no longer actively reaches out to new government business. The reason is simple: Private-sector clients are better adapters to tech, making for more productive relationships that lead to renewed services instead of eventual losses.

"We have had other governmental clients who signed up, paid for the software, went through training, but never did any projects," Hulsen said. "We continue to be concerned with some existing clients, as they are showing the same reluctance to really get going. Surely, any new technology can be intimidating, but we see our private-sector clients much more willing to jump in feet first with their new investment."

The company's attempts to work with government have long been rocky. Prior to RFP365's participation in Kansas City's Innovation Partnership Program, Hulsen tried to breach local government for some time, with no success. At the local county courthouse, he was not even allowed to discuss his RFP software unless an RFP had already been issued for it.

"The irony of waiting for an RFP for RFP software didn't escape the elected officials I spoke with," Hulsen said.

When the city hosted its Innovation Partnership Program, Hulsen eagerly applied, gave his pitch and received a commitment for a pilot. For RFP365, a tech startup with software to fix government problems, this was an ideal scenario. Less than two years later, the company now works with several agencies in Kansas City, and earlier this year Chief Innovation Officer Bob Bennett pointed to RFP365 as an exemplary story during a conversation about bridging the gap between government and startups.

Hulsen said it's possible RFP365 could return to actively pursuing public-sector clients. Its first priority, however, is survival as a young business.

"We know the RFPs are there," he said, "and probably aren't going to decrease anytime soon."

David Hulsen and Stuart Ludlow, founders, RFP365

Periscope Holdings Inc. — Austin, Texas

Periscope Holdings, founded in 2001, is an old software company in the government procurement space, with roots that extend even further back.

The company was born when Brian Utley, current president and CEO, stopped running political campaigns to purchase an Austin-based government procurement company, which he described as having good fundamentals but old tech. Utley sought to streamline bloated and decentralized procurement processes, thereby improving government efficiency.

"I'm not on the right, I'm not on the left," Utley said. "I'm a centrist. I believe government needs to do some things, and when they do them, they better do them really well."

Periscope manages the entire RFP cycle — "soup to nuts," said Utley — for public agencies, and also provides access to a database of about 900,000 vendors. Basically government decides which direction it wants to go, and Periscope guides it there, allowing agencies to manage the process electronically: posting prices, asking questions of vendors and progressing to the actual award of business. Periscope also trains vendors on its corresponding portal.

Periscope started out working with local governments, school districts and counties. In 2010, it won the state of Arizona, and today it handles procurement for Michigan, Maryland, New Jersey, Massachusetts and Oregon, with Nevada a likely next addition.

Drawing from 14 years of government experience, Utley stressed the importance of efficient government RFPs and procurement, saying ongoing budget crises have led to cuts in education and other services, while money can be freed up by getting this right.

He pointed to his home state of Texas as an example, saying the state's decentralized procurement practices were inefficient, costly and outdated, making it hard for vendors to figure out how to do business, which reduces variety and often raises cost. This is a difficult concept for the public to grasp, let alone discuss with elected officials.

"Nobody wants to talk the ugly truth about procurement," Utley said. "Government is still far behind in procurement. You'd be surprised at how many people still use paper."

Govlist — San Francisco

Govlist was co-founded by Liam Dorpalen, who was doing management consulting at Deloitte when he saw a need for an improved procurement process, especially as it pertains to RFPs.

In working with Deloitte, which does much government contracting, Dorpalen wrote RFP responses at the federal, state and local levels, while also coordinating with vendors.

"I've seen the RFP process from both sides and understood the pain points in the process," Dorpalen said.

He pinpointed RFPs as the most underserved area of government procurement, noticing they were often done through Microsoft Word and an email review sent to major stakeholders. Govlist offers a complex RFP writing tool that automates much of the process, while also meeting compliance standards and creating high-quality documents that maintain consistency, which is much appreciated by private vendors.

"A big part of what we want to do is help procurement teams be a great partner to the business so that they're viewed as an ally in that process," Dorpalen said.

While Dorpalen declined to go into specifics about clients, he did say Govlist's software is yielding results, partially by aggregating and collecting existing RFP data and making it accessible to civic leaders through a dashboard.

Onvia — Seattle

A little over a year ago, Onvia, a data intelligence company focused on the vendor side of government procurement, started Onvia Exchange, an initiative to give public agencies access to its vast database of procurement info. Today, Onvia Exchange is used by more than 1,000 government bodies across the country.

Essentially, said Ben Vaught, director of Onvia for Government, companies that sell to government pay Onvia for data that helps expand sales pipelines, and Onvia makes any relevant info available to government for free to facilitate efficiency on the public end of the procurement process.

Aware that government agencies are often not as tech savvy as vendors, Onvia also makes data easily searchable through an interface similar to that used by Amazon or Google.

In the year Onvia Exchange has been live, Vaught has been surprised at the ways government has used it. For example, it has become a resource for piggybacking, or finding a similar agency and copying its RFPs with a few small tweaks for specificity. There is a long list of additional features the platform offers users, including pricing data, tracking time spent on procurement and more.

Like many in the space, Onvia points to the pre-bid RFP process as the top challenge in government procurement, and it hopes Onvia Exchange is a first step toward an easier RFP process for all.

"The hope and the dream is that the more governments use Exchange, the better they're able to write RFPs, and the better written their RFPs, the better it is for vendors to respond to," Vaught said. gt

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IoT innovation in Oakland County reduces costs, increases security

The Road Commission for Oakland County's adaptive traffic system eases congestion while protecting data.

Oakland County is one of the richest counties in the nation and has added more residents than any other county in Michigan, especially since the early 1990s. Although a testament to the county's success, its fast-growing population has also resulted in congestion and tangled intersections on local roads. Oakland County leaders knew they needed a long-term solution.

"We realized we could not build our way out of congestion," said Ahmad Jawad, signal systems engineer and ITS manager of the Road Commission for Oakland County (RCOC). "We needed to find a smarter way to push more cars through our roads."

Leaders at RCOC began looking for technology to help manage traffic flow. After reviewing several options, the county chose the Sydney Coordinated Adaptive Traffic Signal (SCATS) system. SCATS manages the dynamic timing of traffic signals, attempting to find the best phasing for the current traffic situation to help move vehicles more effectively and efficiently.

RCOC has been using SCATS since 1992. The county started the system in the city of Troy with 28 intersections and then rapidly expanded it. Within a few years, SCATS was at work in hundreds of intersections throughout the county.

But as the system grew, a new challenge emerged. At the heart of any adaptive signal system are two critical elements: detection and communication. To manage communications, RCOC worked with longtime provider AT&T to set up traditional copper lines that ran to each of the SCATS intersections.

This worked well for close to 20 years, but as the technology aged, the system became problematic. "Our engineers were spending a lot of time maintaining the system and traveling to sites to troubleshoot issues," Jawad said.

A New Approach

The Road Commission for Oakland County once again turned to AT&T, which suggested moving from a wired environment to a wireless solution. An important factor was to ensure critical data from the traffic system would not traverse the public internet for security reasons.

Working together, AT&T and RCOC moved ahead with a new plan: a private mobile network utilizing AT&T virtual private network (AVPN) technology. Instead of the Internet of Things, this new approach is better termed as the **Intra**net of Things.

"When most agencies think of 'private networks,' they think of encrypting their data over the internet," said Renee O'Brien, public sector sales professional at AT&T. "The problem with this approach is the traffic is still on the internet. Regardless of private tunnel encryption, it can still be susceptible to risks like DDoS attacks, BGP hijacks and more."

Instead, the AT&T Private Mobile Connection solution brings together wired and wireless capabilities, allowing RCOC to transmit its critical data over a private AVPN network — bypassing the internet altogether. The Road Commission launched a pilot for approximately 20 intersections shortly thereafter and found the wireless communications worked well and proved to be a stable environment.

"Most importantly, we felt very satisfied that the technology was secure, and there was no threat to the motoring public, in terms of someone hacking into the system over the internet," Jawad said.

The approach also had some unexpected benefits. By moving to the newer technology, it was easier to implement and maintain the system which saved staff time and reduced costs. "It's saving us about 40 percent in monthly expenses," Jawad noted. "That's money we can now divert toward other critical county road needs."

Building Smarter, More Secure Solutions

As Internet of Things (IoT) initiatives bring innovation, automation and value to cities, counties and states nationwide, more jurisdictions are looking to implement them. Yet security concerns associated with critical data have caused some jurisdictions to look for alternative solutions.

"As an integrated solutions provider, bringing mobile, security and IP networks together is the key to protecting data in transit," said John Stuhrenberg, vice president, AT&T Government and Education Solutions East.

Moving to the **Intra**net of Things allowed RCOC to reap the benefits and scale of IoT technology while fortifying security.

Today, RCOC supports more than 700 traffic signals using this technology and plans to convert all 1,500 traffic signals to the new architecture over the next few years. The system automatically balances the flow of data traffic over the network, enables engineers to perform remote maintenance from the office, and helps ease traffic congestion and improve traffic flow throughout the county.

"We are hoping that this is our gateway to additional innovation like connected vehicles," Jawad said. "This technology will definitely bring future opportunities, and security will be at the heart of all of them."

> "We felt very satisfied that the technology was secure, and there was no threat to the motoring public, in terms of someone hacking into the system over the internet."
>
> – Ahmad Jawad, Signal Systems Engineer and ITS Manager, RCOC

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AI in the Public Interest

Artificial intelligence is happening now, it's everywhere and it's going to change everything. But what does it do?

Missi, Mississippi's chatbot, helps customers with questions on the state's portal.

MS.GOV

By Ben Miller / Staff Writer

It used to be that the term "automation" meant robotic arms in factories doing repetitive tasks — fastening one part to another, drilling a screw, folding a piece of material. These days, the word means a lot more.

AI means automation beyond the physical. It means automation of the tasks that previously took a living brain to complete — things like conversation, data analysis, even driving.

And ultimately, AI isn't anything new; computer scientists have been discussing and building it for decades now. What's changed is the availability of cheap computing, advances in algorithm coding and an abundance of newly available data.

"We've just finally had this really good synergy as the technology and the algorithms both matured at the same time," said Daniel Castro, vice president of the Information Technology and Innovation Foundation (and a columnist in this magazine).

What remains, then, is to apply AI to everyday purposes. And people are doing so, both in and outside government — it's just hard to tell sometimes. Because AI, as buzzy as the term is right now, mostly functions as part of a product. AI is just one step — it doesn't necessarily involve gathering data, or doing anything meaningful with it.

"I think people are waiting around for the killer app," said Steve Nichols, Georgia's chief technology officer. "Knowing that it's coming ... and reading about it is one thing, but then you ask yourself the question, 'Now what I do? How do I apply this?' So I think there's going to be a gestation where people are figuring out the use cases."

The technology is, by nature, broadly applicable. If a thing involves data — "data" itself being a nebulous word — then it probably has room for AI. AI can help manage the data, analyze it and find patterns that humans might not have thought of. When it comes to big data, or data sets so big that they become difficult for humans to manually interact with, AI leverages the speedy nature of computing to find relationships that might otherwise be proverbial haystack needles.

One early area of government application is in customer service chatbots. As state and local governments started putting information on websites in the past couple of decades, they found that they could use those portals as a means of answering questions that constituents used to have to call an office to ask.

Ideally that results in a cyclical victory: Government offices didn't have as many calls to answer, so they could devote more time and resources to other functions. And when somebody did call in, their call might be answered faster.

With chatbots, governments are betting they can answer even more of those questions. When he was the chief technology and innovation officer of North Carolina, Eric Ellis oversaw the setup of a system that did just that for IT help desk calls.

Turned out, more than 80 percent of the help desk's calls were people who wanted to change their passwords. For something like that, where the process is largely the same each time, a bot can speed up the process with a little help from AI. Then, just like with the government Web portal, workers are freed up to respond to the more complicated calls faster.

But there's more to it than that. When it comes to a customer service-type situation, AI can streamline the process by getting information from a caller while they wait for somebody to take their call.

"You're sitting on the phone for five minutes waiting and then a real person asks you, 'Hey, what's your name, tell me this, this and this.' And instead a chatbot could have

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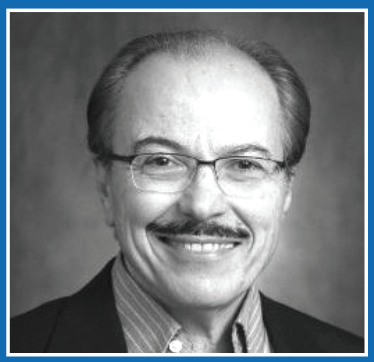
Homewood-Flossmoor Park District, Ill.

SOUTHWEST REGION



LEADERSHIP CATEGORY

Joe Iannello, VP

Chief Information Officer
Capital Metropolitan
Transportation Authority

OPERATIONS CATEGORY

GPS.MyGovernmentOnline

South Central Planning and
Development Commission

CITIZENS CATEGORY

Central US Interoperability Hub

Kansas Turnpike Authority, Oklahoma Turnpike Authority, North Texas Tollway Authority, Central Texas Regional Mobility Authority, Fort Bend County Toll Road Authority, Harris County Toll Road Authority and Texas Department of Transportation

To learn more about the winners' initiatives and the Special Districts Program, or to submit a nomination for the West and Southeast awards, visit:

www.govtech.com/districts

AN **AT&T** PROGRAM

government technology

gathered that information from you in a very conversational way to begin with," Ellis said.

Other governments have taken notice and started tinkering with chatbots in other contexts as well. In Los Angeles, a city-built chatbot answers business-related questions for citizens. In Mississippi, people can use the Amazon Alexa artificial intelligence service to plug into government information about things like taxes and vehicle registration. In Utah, people can use the state's driver's license test studying materials through Alexa.

Others are using AI to recognize and report objects in photographs and videos — guns, waterfowl, cracked concrete, pedestrians, semi-trucks, everything. Others are using AI to help translate between languages dynamically. Some want to use it to analyze the tone of emails. Some are using it to try to keep up with cybersecurity threats even as they morph and evolve. After all, if AI can learn to beat professional poker players, then why can't it learn how digital black hats operate?

Castro sees another use for the technology, a more introspective one. The problem is this: The government workforce is a lot older than the private sector, and that can make it hard to create culture change. According to U.S. Census Bureau data, about 27 percent of public-sector workers are millennials, compared with 38 percent in the private sector.

"The traditional view [of government work] is you fill out a lot of forms, there are a lot of boring meetings. There's a lot of bureaucracy in government," Castro said. "AI has the opportunity to change a lot of that, things like filling out forms ... going to routine meetings and stuff."

As AI becomes more and more ubiquitous, people who work both inside and with government are coming up with an ever-expanding list of ways to use it. Here's an inexhaustive list of specific use cases — some of which are already up and running and some of which are still just ideas. gt

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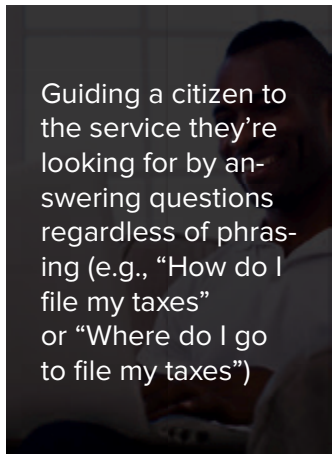
WHAT DOES IT MEAN?

ARTIFICIAL INTELLIGENCE: Computers or software simulating human intelligence by changing the way they behave without explicit human intervention.

MACHINE LEARNING: A specific component of AI wherein algorithms learn and change automatically based on patterns in data.

NEURAL NETWORK: A computing paradigm that achieves machine learning by feeding data through multiple layers. Neural networks are named after connections made in the brain, and are structured to learn in the same way as a brain.



GOVERNMENT COULD USE AI FOR...

Identifying spreading diseases early

Generating dynamic data dashboards to help answer citizen questions

"Listening" to social media for public feedback on government-relevant topics

Logging/checking into various systems in order to quickly find the source of a server problem

Enabling self-driving shuttles that could bring passengers to or from transit stations

Preventing cyberattacks by learning what malicious behavior looks like

"Listening" to social media for quick notifications of emergency situations

Delivering dynamic activity reports to IT departments

Identifying fraudulent benefits claims

Helping to schedule meetings

Creating "synthetic data" to quickly train machine learning algorithms

Helping to speed up HR paperwork

Finding possible health code violations

Counting pedestrians in a given area at a given time

Connecting hard-to-reach citizens to government services

Suggesting additional services and resources to citizens who are applying for something

Quickly compiling and analyzing police body cam evidence

List sources: Daniel Castro, Steve Nichols and Eric Ellis (quoted above), Adobe Chief Information Officer Cynthia Stoddard and Government Technology reporting.

SHUTTERSTOCK.COM

A Common Language

Washington bridges the gap between IT and business with Technology Business Management.

By Julia McCandless / Contributing Writer

If you're not directly involved in the field, IT can seem like a money pit. Requiring significant resources to run, the benefits can often get lost in translation, muddied by technical jargon that sounds like so much nonsense. That's why the state of Washington has implemented a Technology Business Management program from Bellevue, Wash.-based Apptio to improve transparency and communication around the costs and benefits of IT projects, bridging the gap between business and IT leaders.

Technology Business Management

Fully launched in 2015, the Technology Business Management (TBM) program helps the state look at IT through a business lens to effectively communicate the costs and business services that it provides. According to the state's website, "The primary goal of TBM is to provide IT and business leaders with the ability to have data-driven discussions about cost and value of IT to best support business goals."

The program meets a new statewide mandate requiring all departments with a budget exceeding $10 million to track expenses. The state CIO also developed statewide policy to expand program participation to agencies who spend $250,000 or more on an annual basis, resulting in 44 current participating agencies.

By reporting and monitoring IT investments, the program aims to boost transparency, cost optimization and communication between business and IT sectors. It also aims to shift conversations from "cost" to "value" of IT services.

Cammy Webster, senior program manager in the Office of the Chief Information Officer (OCIO) helped launch and manage the Technology Business Management program, and notes that communication has been hugely important to helping leaders evaluate IT. "We bring a CFO and CIO together to have a conversation," she said. "You need a common language between them."

Derek Puckett, TBM consultant in the OCIO, agrees. "When I look at how enterprises work, IT is thought of as a component. As technology has grown, IT is what's running the business," he said. "Part of the education process around the program is being able to get IT to speak like business, getting a feel for business literacy in the IT department."

Bridging the Gap

Through TBM, leaders can easily track spending and see where value is being added by looking at data. Here's how it works: Monthly financial data sets for the state, enterprise labor systems and statewide asset management systems are analyzed to isolate just the IT spending. The system also recognizes relationships between data sets and effectively categorizes costs into Cost Pools (i.e., item that was purchased) and IT Resource Towers (i.e., detailed description of the type of item that was purchased).

This data comparison gives the state deeper insights into how to leverage resources to maximize cost savings. "We've seen a lot of cost avoidance where we can show that we can avoid cost by transitioning applications. We have enough data to be confident in decisions when we've made

them. We're working on data to inform future decisions as well," Puckett said.

The program has also facilitated significant business impacts for the state. For example, the state's Office of CyberSecurity uses the statewide list of agency applications and application developers to optimize security training sessions across all state agencies. Agencies can also now see how they benchmark against one another across the IT Resource Towers and identify areas for improvement. Case in point: Webster recently worked with an agency that noticed one of its security categories was lower than that of everyone else, prompting agency officials to make assessments and business changes to prioritize security within their organization.

More broadly, the data has given CIOs and leaders exposure to technology costs, allowing them to better engage in IT conversations with their business peers. The cost of IT services can also be identified more easily, which aids in decision-making. For example, when leadership had questions about increases in cost, Webster was able to quickly refer to the TBM for context. "We were able to come back within minutes to show the reasons for cost jumps," she said. Providing explanations for spending increases can give business and IT leaders a more well-rounded appreciation for value add when making long-term business decisions.

Looking Ahead

Moving forward, the state hopes to boost tracking clarity of project-based IT costs by linking the Technology Business Management program with the Decision Lens tool. The state currently uses Decision Lens to rank IT projects and provide information on how they align to the IT strategy before they go to the Legislature for funding support. The goal is to link the two systems in the future so that comprehensive information on project budgets, strategy and accounting is readily available.

As it stands, Washington's TBM program seems to be leading the way in providing a solution for an issue that states across the nation continue to face. "What we were finding in the industry is that there wasn't published taxonomy on business services. We are establishing taxonomy in the business services [i.e., cost pools and resource towers] to bring common languages," Webster said. "It feels like we're on the bleeding edge and breaking ground."

While that may be true, Puckett predicts that IT will only continue to gain value in the business world. "This manner of thinking about IT is where businesses are heading. IT needs to be able to speak to what they're doing for the business. It is without a doubt an overwhelming endeavor to wrap our hands around this because there are a lot of moving parts, but the fastest way to improve stuff is to show everything," he said. "You can't improve it unless the business tells you how." GT

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5 Strategies for Going Agile in Government

Overcoming the unique challenges of using agile in the public sector

Ideas from the Deloitte Center for Government Insights

Agile is an approach to software development that has been widely adopted in the private sector. Although sometimes viewed as being suitable only for small startup companies, government is now embracing agile development, even for projects to modernize large, core systems.

Agile may not always be the best approach. But when a public agency wants a vendor to build software using an agile process, it often means changes across many parts of the organization. That's because there are unique challenges to procuring, pricing and monitoring agile projects.

To be successful, government leaders should embrace strategies that can help address the thorniest challenges of using agile in government.

STRATEGY I: ADAPTING PROCUREMENT AND CONTRACTING PRACTICES

From a procurement perspective, perhaps the biggest difference between agile and the traditional "waterfall" approach is the focus on delivering an outcome, not on fulfilling a detailed set of product specifications. This difference means that RFPs and contracts should describe a desired outcome (rather than detailed specifications) and create a framework of flexibility for vendor proposals on how to achieve that outcome.

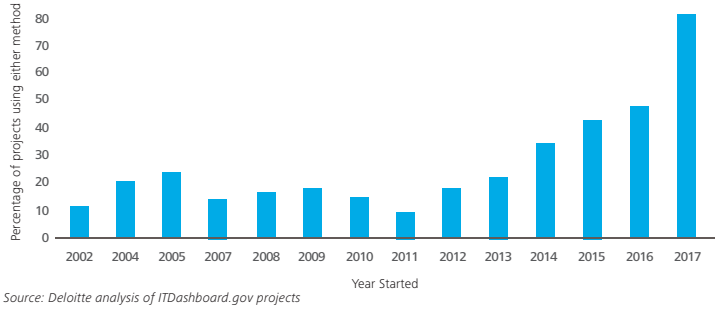
There are a variety of agile approaches, but a common one is to break up a large project into a series of smaller incremental projects. Instead of one all-encompassing, multiyear contract — which runs the risk of problems arising late in the process — an agile project typically has multiple short-term, small contracts that cover a vendor's work in phases. This approach allows the vendor to make adjustments as needed during the project to improve the final deliverables. The agency also can make changes based on emerging requirements or the vendor's work in progress — or even change vendors mid-project. Once work is underway, the agency needs to monitor progress, typically by reviewing demos of working software.

One aspect of procurement that doesn't change: The vendor selection process should continue to be transparent and based on merit.

Government is Going Agile

In part to avoid the risks associated with the traditional waterfall approach to IT procurement, the federal government has been increasingly adopting an agile approach over the last several years. State and local government is starting to follow suit.

Federal IT Projects Characterized as "Agile" or "Iterative"



Source: Deloitte analysis of ITDashboard.gov projects

STRATEGY 2: ADOPTING NEW METHODS FOR BUDGETING AND TRACKING PROJECT COSTS

How do you budget for the cost of a software development project that seems like a moving target? Agile work can be performed through a variety of pricing methods, including fixed price, time and materials, or more nuanced "points-based" fees.

Although some agile projects can be done with a fixed price, this may limit one of the benefits of agile: the ability to allow a design to emerge through a collaborative process of discovery.

If the lack of a known, upfront, fixed price causes planning anxiety, keep in mind that overall agile development costs are often lower. The reason: Vendors deliver only what the agency actually needs and will accept.

STRATEGY 3: PREPARING THE ORGANIZATIONAL CULTURE

From project phases to sprints, work plans to scrums, and progress meetings to standups, agile development comes with new concepts and vocabulary — and often a bit of culture shock. Preparing all parties can help technology contractors adapt to the needs of government and help agency teams accept the new ideas and workstyle of the vendor.

Questions to Explore

- ✓ What changes will we need to make in our procurement processes, RFPs and standard contracts to accommodate agile?
- ✓ How will we price an agile contract, and how can we budget for costs?
- ✓ How do we ensure harmony between the vendor and internal cultures? How can we prepare the various teams to work together effectively?
- ✓ What changes are appropriate for our decision-making process to keep up with the fast pace of agile development?
- ✓ Are we ready to commit the organizational resources needed for an agile project, including subject matter experts?

Yet understanding and preparing for culture differences shouldn't be done only at project kickoff. An ongoing partnership of the vendor, agency IT and business/operational departments will be needed to ensure clear communications and productive work.

The Texas Health and Human Services Commission is using an agile approach to enhance its core integrated eligibility and case management system. To address the significant cultural change that came with the shift from traditional development, the agency invested in educating staff on how to use agile methods for delivering better software faster.

STRATEGY 4: COLLABORATING ON THE WORK PRODUCT

In the traditional waterfall approach, a vendor builds the software. With an agile approach, the vendor and the agency work together to build the software. The collaborative, fast-paced work and regular demonstrations of progress is a big shift, and one that puts increased demands on the agency. The agency team must be an active participant throughout the software build to provide input, make decisions and monitor progress. Agency leadership can help by creating a climate where it is acceptable to show imperfect prototypes and make fast project decisions.

The state of Washington provides an example of how positive outcomes can emerge from the collaboration of vendor and agency in an agile setting. For example, a mobile app, developed using agile, helps state child welfare employees deliver better care. Working closely with subject matter experts helped ensure the software met the needs of caseworkers in the field, giving them the ability to securely access information and enter notes, images and recordings directly into the case file.

STRATEGY 5: MANAGING AGILE AT SCALE

Larger projects are more difficult than small projects, and that holds true for agile. Large projects often involve multiple development teams working in parallel, possibly even multiple vendors. This can create complex interdependencies, which requires a more robust governance structure.

It is critical to coordinate these teams under some form of common governance. For example, additional roles are often needed to facilitate communication and resolve conflicts. And strong leadership via the governance framework is critical.

With agile, the precise features of the final product emerge through a process of joint discovery. One of the most challenging aspects of agile at scale may be the need for multiyear road maps in light of an uncertain, evolving future end state.

MAKING THE RIGHT CHOICES FOR AGILE

Many public sector IT projects could benefit by bringing in some or all principles of agile development. For example, an agency could use agile as an approach to building specialized applications, especially through collaboration of vendors and the agency working in small, incremental sprints. A more comprehensive approach to agile, encompassing contracting and monitoring, can produce even greater results.

It's important to note that traditional software development will continue to be the right choice for some projects and some organizations. In cases where agile makes sense, it may be easier to achieve success if the organization applies the five strategies presented in this paper.

For a deeper dive, check out the "Agile in Government" series at: dupress.deloitte.com/agile

cio central

Read full reports and breaking news about career changes across tech-driven roles in government at **govtech.com/people.**

New IT Office Lead for Alabama

Jim Purcell, formerly the chief operations officer of Alabama's Office of Information Technology since December 2016, was named head of the state agency in July. The change comes after more than a year-and-a-half of leadership under Joanne Hale, who left the job just after newly elected Gov. Kay Ivey took office. "As technology continues to change, the technology-related needs of our state government change; and I am excited to lead the charge in keeping our state on the cutting edge," Purcell said in a press release.

BALTIMORE'S ACTING CIO RESIGNS

After less than five months on the job, Baltimore's Acting CIO **Evette M. Munro** resigned from the position July 12. Munro was elevated in late February from deputy CIO in the Mayor's Office of Information Technology. A representative of Mayor Catherine Pugh's office said the city is mounting a nationwide search for a new CIO, assisted by Bloomberg Philanthropies.

Chicago Names Tech Insider to Replace CIO Brenna Berman

Several months after the departure of former Chicago CIO Brenna Berman, the City Council has backed Mayor Rahm Emanuel's choice for her replacement in longtime city tech insider Danielle DuMerer. The announcement was made June 28.

DuMerer, who has worked for the city since 2008, is no stranger to Chicago's innovation and technology department, having served in a number of positions including as the acting CIO in Berman's absence. Prior to assuming the interim CIO duties April 1, DuMerer had served as the city's chief technology officer and first deputy commissioner.

Former Travis County, Texas, CIO Moves to Houston Airport System

After roughly five years as the CIO of Travis County, Texas, Tanya Acevedo is embracing a new role — as chief technology officer for the Houston Airport System (HAS). Acevedo, who had been with the county in varying capacities since 2009, started work with HAS in mid-July, and sees the opportunity as the perfect blend of public- and private-sector work.

FORMER DOD CIO TERI TAKAI NOW LEADS CENTER FOR DIGITAL GOVERNMENT

Teri Takai, former CIO for the U.S. Department of Defense as well as for California and Michigan, will now lead the Center for Digital Government,* e.Republic's national research and advisory institute on IT policy and best practices for state and local governments. She says the new role gives her a chance to help state, city and county IT leaders succeed in a time of extraordinary change and opportunity. Takai succeeds longtime CDG Executive Director Todd Sander, who left in July to become CIO of the Lower Colorado River Authority in Texas.

**The Center for Digital Government is part of e.Republic,* Government Technology's *parent company.*

AP PHOTO/LAUREN VICTORIA BURKE

FORMER MICHIGAN CIO CLAIMS PRIVATE-SECTOR CIO SPOT

After stepping down as Michigan's CIO in June, **David Behen** accepted a position as vice president and CIO of major furniture retailer La-Z-Boy, headquartered in Monroe, Mich. Chief Deputy Director Brom Stibitz will continue to serve as interim director of the state's Department of Technology, Management and Budget until a permanent replacement is named.

Jeffery Weak Appointed as Idaho's First Director of Information Security

As of Aug. 1, **Jeffery Weak** assumed his duties as Idaho's first director of information security, reporting directly to Gov. Butch Otter. Otter selected Weak after signing an executive order in January to implement the recommendations of the Idaho Cyber-security Task Force that was created in mid-2016. Weak was formerly a U.S. Air Force lieutenant colonel and brings the experience of a 20-year military career, which includes service as the information technology and cybersecurity officer.

California's Riverside County Names New CIO

Southern California's Riverside County named Dave Rogers as the county's new CIO. Rogers was Microsoft's senior director of cloud computing before joining Riverside County 19 months ago. Previously he served as the county's chief technology officer, and was appointed interim CIO on May 12 before officially taking the post almost a month later. Rogers replaces former CIO Steve Reneker, who left the position to serve as the manager of the county's RIVCOconnect broadband project and plans to retire in February.

Bellevue, Wash., Names New CIO

Sabra Schneider was appointed CIO of Bellevue, Wash., after serving in an interim capacity since the retirement of Toni Cramer in 2016. Previously Schneider worked as chief operations officer for the IT Department since 2015, and before that worked in Seattle's IT agency. Schneider said she is "excited to work with Bellevue's technology-savvy community to support Bellevue's smart cities work and to continue advancing technologies that help make government services more accessible and inclusive."

Eric Boyette Sworn in as North Carolina CIO

On June 19, Eric Boyette was sworn in as the new secretary of the North Carolina Department of Information Technology by Gov. Roy Cooper. Speaking with *GovTech* after he was initially appointed in April, Boyette said his focus will be on cybersecurity, procurement and innovation, and that the best way to improve is to form partnerships. He previously served as the CIO for the state's Department of Transportation, an agency he was with for more than 20 years.

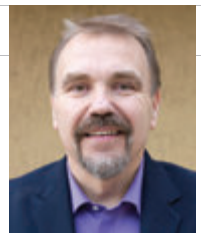
Arkansas Fills Two Key IT Leadership Roles

At the end of July, the Arkansas Department of Information Systems (DIS) announced two key appointments. **Carder Hawkins,** formerly a project manager for the agency, has been named its new deputy director. He replaces Yessica Jones, who assumed the role of state CIO last November. DIS has also brought on state newcomer **Richard Wang** to serve as Arkansas' first chief data officer. The state's search for a chief privacy officer is still underway.

OAKLAND COUNTY, MICH., NAMES NEW DIRECTOR OF IT

Several months after the retirement of its former director, Ed Poisson, Oakland County, Mich., selected Michael Timm to head its Information Technology Department. Most recently Timm served as the director of business planning in the project business office for Meridian Health Plan, a position he held since 2005.

By Paul W. Taylor



Pokemon as Prologue

Facing up to the challenges of our augmented, smart future.

Kids in Boston spent the summer playing Pokemon Go — on purpose and with purpose. For the organizers of this citywide contest, playing is vital. But it doesn't stop there. The experiment could generate widely divergent stories about how kids spend their summer vacations — playing a game, pioneering augmented reality, redefining and reclaiming public spaces, previewing what's next for smart cities, and advocating for inclusion and social justice.

Wider in scope than even the most ambitious sports or code camps, the initiative bears the name Participatory Pokemon Go, a wink and a nod to participatory budgeting through which the public directly decides how to spend part of a public budget. The Pokemon Go variety of "participatory" gives the public — in this case, youth — the power to literally create a new sense of place through location-based mobile technologies. More on that in a moment.

Pokemon Go's introduction in July 2016 made real — and phenomenally popular — what had been the almost theoretical world of augmented reality. At its peak in that first month, the game attracted 28.5 million active daily users — a time when cities alternately embraced its potential for public engagement (San Francisco), regulated it (Milwaukee County, Wis.) and cautioned against its distraction (Prince William County, Va.). A year later, the number of active daily users has fallen to 5 million. That still provided a large, viable test bed for Boston's experiment, described by its planners as "a youth-led, citywide creative communication to promote equitable representation of Boston neighborhoods in the popular mobile game."

The summer challenge focused on identifying and pitching potential PokeStops with a view to having Pokemon Go maker Niantic add up to 100 meaningful locations to the game that resonate with local players. Niantic is a partner in the competition, together with the city of Boston, ENGAGE Boston (a nonprofit promoting youth civic advocacy) and the Engagement Lab at Emerson College.

Professor Eric Gordon directs the lab, and his research is focused on locative computing — the intersection of augmented reality and located data. It is, ultimately, the stuff of a smart city, which can only succeed by reclaiming public spaces, both the physical locations and the data associated with them.

"What we're doing with Pokemon Go is meant to draw attention to the fact that people are interacting with data points," Gordon said. "We're just talking about Pokemon Go, but I'm hoping this opens up a dialog for youth and for people who haven't really considered the implications of smart cities to actually think about what that might mean for their communities and for their cities. I see this project as one of the first steps to having a truly participatory dialog around smart cities and the implications for the future of our cities."

Gordon said that surfacing locative data in these ways makes clear how the same kinds of inequalities of the physical world are mirrored or even amplified at the data level. He hopes the Pokemon Go challenge can help begin policy discussions about equity, privacy and security. He worries that, to the degree these conversations are taking place at all, they are being driven by commercial interests. "Government can't turn a blind eye to this increasingly important use of public resources. It needs to be an active, generative partner with private industry to guide how location data is collected, displayed and used."

Moreover, he said, "the public sector has a role in opening up these conversations, not just so that we can receive more efficient services, but so that we can receive services and benefits that directly impact people in communities across that city."

At the same time, Gordon doesn't want legitimate concerns about privacy and equity to alarm policymakers even as they come to terms with something else that makes public agencies nervous: playing games. "I think we ought to recognize [the phenomenon of game play as a] symbol of the smart city, but also symbols of the playful city that we should acknowledge and grasp onto and make something really meaningful out of."

Paul Taylor is the chief content officer of e.Republic, *Government Technology's* parent company.

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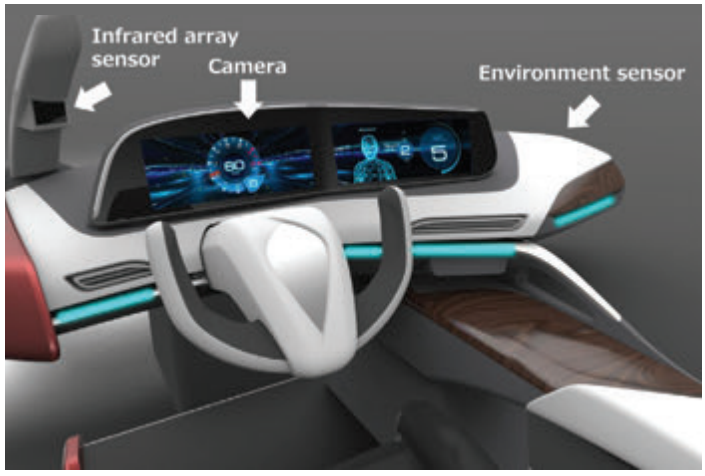
Tech Trash

The weight of e-waste generated annually worldwide is a frightening 50 million tons, a figure that includes 350,000 cellphones that are thrown away every day. As technology becomes more and more integrated into our lives, there remains the question of what happens to all those devices when they stop working or become obsolete. In 2012, 71 percent of U.S. e-waste ended up in landfills or incinerators, and in 2014, 41.8 million tons of worldwide e-waste was shipped to developing countries like Ghana, India and Pakistan.

SOURCE: TREEHUGGER.COM



PANASONIC

Drowsy Driving Detector

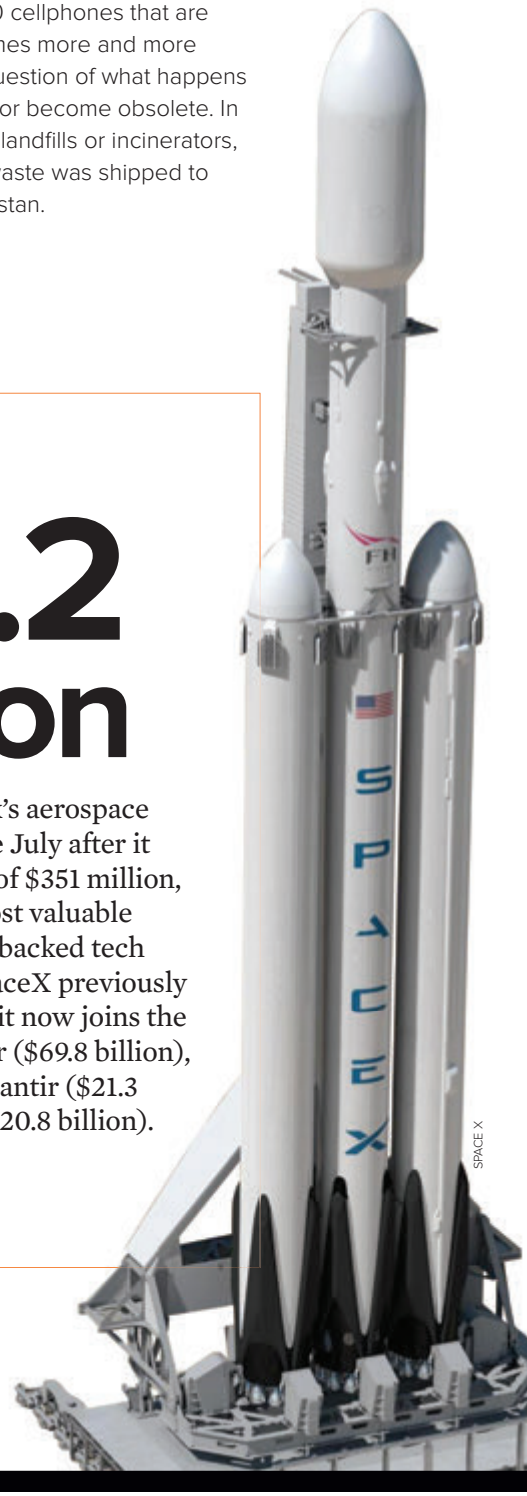
While autonomous vehicles are still in the works, humans remain in the driver's seat and of course bring all of our pitfalls with us, including falling asleep at the wheel. Panasonic, however, is developing artificial intelligence (AI) to detect when you're drowsy while driving and help wake you up. The system uses an infrared sensor, environment sensor, facial capture camera and "thermal sensation" system to rank drivers in terms of sleepiness. It then adjusts the lighting, airflow and temperature in the car accordingly, helping to keep you awake. The system can currently detect about 1,800 facial expressions and blink parameters to determine whether it needs to spring into action.

SOURCE: ENGADGET.COM

$21.2 billion

The value of Elon Musk's aerospace company SpaceX in late July after it raised a funding round of $351 million, making it the fourth most valuable privately held, venture-backed tech company in the U.S. SpaceX previously held the sixth spot, but it now joins the top five along with Uber ($69.8 billion), Airbnb ($31 billion), Palantir ($21.3 billion) and WeWork ($20.8 billion).

SOURCE: THEVERGE.COM



SPACE X

Send Spectrum ideas to Managing Editor Lauren Harrison, lharrison@govtech.com

Modern, More Affordable eProcurement

Best-of-breed eProcurement services support a strategic approach to purchasing – and now innovative financing makes it possible for government.

Effective procurement is the lifeblood of state and local government. Unfortunately, legacy procurement applications don't live up to today's demands. These add-on enterprise resource planning (ERP) modules lack the latest capabilities for modern procurement and aren't designed for the unique requirements of government. What are the consequences? Governments don't have the analysis and reporting tools needed to efficiently meet expectations for financial transparency or to fully optimize procurement activities, which according to some estimates represents 70 percent of public sector spending.

But forward-looking government CIOs have an alternative: cloud-based, best-of-breed eProcurement solutions that turn purchasing into a strategic resource. These new solutions can easily integrate with existing ERP platforms to eliminate rip-and-replace upgrades, which simplifies implementation. They also give procurement departments access to critical resources like end-to-end procure-to-pay processes, online catalogs with products from approved vendors and analytics tools that can help in negotiating more favorable contracts.

Just as significant, leading eProcurement solutions now include self-funded financing options that enable states and localities to modernize procurement without tapping into scarce budget dollars. With innovative funding options, governments can offset some or all of the operating expenses for powerful, cloud-based eProcurement.

Best-of-Breed eProcurement

Governments capitalizing on best-of-breed eProcurement services include Massachusetts, Illinois, New Jersey, Oregon, Maryland and the cities of Baltimore and Tucson.

Modern eProcurement Advantages

States, counties and cities across the country are already seeing the benefits of turning procurement into a strategic resource with eProcurement solutions. For example, the commonwealth of Massachusetts modernized its procurement operations with a best-of-breed eProcurement cloud service that now tracks and reports the number and value of orders placed each day, how many of those orders are based on statewide contracts, the number of registered vendors and how many government entities purchased individual products. This information gives procurement staff accurate insight into which products are growing in demand and identifies opportunities for negotiating volume agreements. The procurement staff has also seen a significant increase in the number of vendors competing for bid awards since deploying the new solution, which may further drive down costs.

Other governments capitalizing on best-of-breed eProcurement services are Illinois, New Jersey, Oregon, Maryland and the cities of Baltimore and Tucson. Some of the advantages they are realizing include:

Simplified Management and Reduced Costs

Cloud-based eProcurement solutions eliminate the need to buy, implement, test and manage on-premises hardware and software. The cloud also spares agencies from incurring upfront capital costs associated with traditional on-premises solutions. Instead, cloud-based, best-of-breed eProcurement solutions are designed to easily integrate with ERP applications widely used in government. In addition, they offer predictable service fees for the life of the contract without unexpected costs for upgrades, security patching or infrastructure issues.

Innovative Funding Options

States and municipalities have a valuable resource for financing procurement modernization, despite tight budgets. A growing number are using money generated from supplier transaction fees to pay for eProcurement solutions. This means procurement departments can fund

modernization without tapping into their budgets. Once the service fees recoup the initial investment, the transaction fees can help IT managers fund new projects, while also becoming an important new revenue stream.

Access to Vendor and Transactional Data

eProcurement solutions must support end-to-end procurement processes. This starts with online product catalogs that let buyers quickly view approved vendors, compare pricing and submit requisitions. Because government procurement rules often promote supplier diversity, eProcurement solutions should enable procurement professionals to identify woman-, minority- or veteran-owned vendors. Some eProcurement solutions closely manage bids and purchase orders, and offer customizable vendor management and payment processing tools. Additionally, eProcurement platforms should be capable of sending transaction data to backend reporting systems so staff can perform trend analyses for ongoing purchasing improvements.

Capabilities Specifically Built for Government

The best eProcurement solutions incorporate the latest capabilities used in the private sector, but are also designed with the public sector in mind. This means the ability to comply with the unique laws and needs of government, including advanced encumbrance, pre-encumbrance and expense controls. Best-of-breed eProcurement solutions also address other special requirements, such as obtaining multiple quotes for some products and services and complying with the U.S. American's with Disabilities Act. Another plus: Bids and transactions are easily viewable to constituents and legislators for greater transparency of government spending activities.

Turn Procurement into a Strategic Resource

Ultimately, procurement isn't just about managing contracts or controlling budgets. Effective procurement is what empowers government agencies to get things done – everything from implementing efficiency-boosting mobile applications to better serving constituents to modernizing transportation systems. These initiatives directly benefit not only government professionals but citizens across the nation.

Procurement must be a strategic function for states and localities, and must be supported by sophisticated best-of-breed solutions that deliver data-driven insights, access to supplier networks and superior usability. Fortunately, cloud-based solutions and innovative self-funding models are putting these vital capabilities within reach of more governments.

This piece was developed and written by the Center for Digital Government Content Studio, with information and input from Periscope.

An eProcurement Checklist

When evaluating and selecting eProcurement solutions, government leaders should get input from all relevant stakeholders, including IT, the procurement office and engineering. Unfortunately, this doesn't always happen. Many states still rely on finance, HR and other departments to make these critical choices. This can lead to services that don't fully consider a comprehensive list of needs. Look for the following characteristics when selecting an eProcurement solution.

- **Cloud-based services:** Eliminates upfront capital investments and implementation headaches, and automatically performs ongoing software upgrades and security patching.
- **Complete procure-to-pay services:** This should include everything from requisitions and purchase orders to payment processing.
- **Sustainable financing options:** Consider innovative approaches like using supplier networks and vendor service fees to offset some or all operating expenses for the eProcurement solution.
- **Advanced analytics:** Access to transactional data and trends can help in the negotiation of more favorable contracts.
- **Online catalogs:** Digital catalogs enable buyers and requisitioners to easily compare terms of approved vendors and speed procurements with online orders.
- **Modern interfaces:** Easy-to-use dashboards and intuitive, graphical interfaces make procurement activities more efficient.
- **Support for multiple departments and external municipalities:** Cross-agency support means other departments or jurisdictions can piggyback on contracts to further promote vendor competition and volume discounts.

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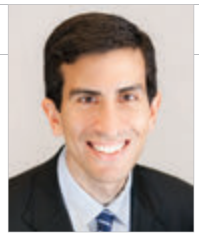
By Daniel Castro



Building the Learning City

Networks of smart cities will help make the most of data-driven governing.

From increasing the supply of affordable housing and efficient transportation to improving public safety and protecting the environment, virtually every city faces many important challenges in the years ahead. To address them, many cities around the world are investing in technology as they attempt to evolve into "smart cities" — those that use data, analytics and automation to address major urban issues. While the immediate challenge for local leaders is to implement the necessary technology to enable a smart city, the long-term one is to create the partnerships necessary to build "learning cities" — networks of smart cities that allow for government agencies to exchange metrics and discover data-driven insights not only from within their own communities but also from their peers in other locales.

Smart cities are beginning to emerge because technology has made it feasible to collect, store and analyze data on virtually every aspect of city operations. In particular, the availability of low-cost sensors, ubiquitous connectivity and affordable cloud computing means that cities can connect every street lamp, bus and municipal building to the Internet of Things. For example, the cost of cloud storage on Amazon Web Services has dropped from 15 cents per gigabyte per month when the service launched in 2006 to 2 cents per gigabyte per month today. And the Raspberry Pi Zero — a barebones 1 gigahertz Linux computer used for embedded computing — sells for $5, making it possible to add on-board computing to virtually any device.

Like other technologies, smart cities will evolve and mature over time. The earliest will provide basic insights from data and enable local leaders to engage in evidence-based governance. These efforts will be important, but they will represent only incremental change from what cities have already been doing. For example, Baltimore created its CitiStat program in 1999 to measure all municipal functions and improve oversight and accountability of city agencies. Early smart cities will have substantially more data at their disposal, but they will not necessarily use this data in fundamentally new ways.

The second stage of smart cities will use predictive analytics to identify patterns and forecast trends. These types of insights will be especially valuable to city planners and local officials responsible for improving municipal services and responding to changing demands. These cities will reduce downtime on critical municipal infrastructure by performing preventive maintenance on vehicles, bridges and buildings, and more quickly intervene when public health and safety issues arise. This stage will rely on powerful data-driven technologies, such as the systems that enable Netflix to offer movie recommendations and Amazon to suggest additional products for customers.

The third stage of smart cities will focus on using "prescriptive analytics" to use data to optimize processes automatically. Whereas the second stage of smart cities will be primarily about using data to supply insights about the future that will allow city leaders to evaluate different choices, this third stage will be about relying on algorithms to make many of these decisions independently. Much like a system of smart traffic signals uses real-time data to optimize traffic flow , these algorithms will help to automate more government functions and increase the productivity of municipal employees.

At all three stages of smart city development, there is an opportunity for city leaders to look beyond local needs and consider how they can design a smart city that will be part of a larger network of cities that share and learn from one another. On its own, a smart city can use data to track local trends, but as part of a network, a smart city can benchmark itself against a set of similar peers. For example, water and waste management departments can compare metrics to assess their relative performance and identify opportunities for change.

If they hope to successfully develop into learning cities, cities can begin the process of setting up to work jointly with their peers by participating in forums such as the Global City Teams Challenge, an initiative to bring together government and industry stakeholders working on common smart city problems. But longer-term change will require city leaders to reorient their planning to consider not only the needs of their city, but also how they fit into the larger network.

Daniel Castro is the vice president of the Information Technology and Innovation Foundation (ITIF) and director of the Center for Data Innovation. Before joining ITIF, he worked at the Government Accountability Office where he audited IT security and management controls.

By Miriam Jones | Chief Copy Editor

Send product review ideas to mjones@govtech.com, twitter@mjonesgovtech

Flipped Out

The ASUS Chromebook Flip C213 is a rugged Chrome OS-powered laptop specially designed for use in educational environments, featuring 360-degree hinges, an 11.6-inch touchscreen display and up to 12 hours of battery life. The Flip C213 contains 4GB RAM of memory and 32GB embedded MultiMediaCard 5.1 of storage. The ergonomic, spill-proof keyboard has 2.0mm key-travel for more accurate typing and a better feel. It can withstand accidental spills of up to 2.2 ounces of liquid. The laptop features dual cameras: a 5-megapixel rear camera for high-resolution photos and videos, and an HD front camera for video calls. **www.asus.com**

Erasable Printing

Toshiba introduced the e-STUDIO4508LP, a hybrid copier capable of producing erasable as well as standard monochrome prints. Featuring the company's proprietary erasable toner, the copier enables paper reuse by erasing all printed content on the page. Content produced using the hybrid copier's blue toner is erased by loading pages into a designated cassette or the bypass tray and pressing the Erase button on the e-STUDIO4508LP's front panel. Content may also be erased using the optional paper reusing device, the e-STUDIO RD301, which also scans and files documents and sorts reusable paper. Printing temporary items, like emails or documents for proofreading, may be designated in erasable toner (at 35 pages-per-minute) to conserve paper, while more permanent documents such as receipts, insurance and on-boarding forms may be designated for monochrome output (at 45 pages-per-minute). **www.toshiba.com**

Thinbook

Acer's Predator Triton 700 ultrathin notebook houses the high-performance NVIDIA GeForce GTX 1080 graphics processing unit, 7th Generation Intel Core processors, and up to 32GB of DDR4 2400 MHz memory in an 18.9mm-thick (0.74 inch) aluminum chassis. The notebook also includes two USB 3.0 ports featuring power-off USB charging, one USB 2.0 port, an HDMI 2.0 port, one DisplayPort connector and a Gigabit Ethernet port. The Predator features a 15.6-inch 1080p display and up to 512GB of storage. **www.acer.com**

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By Kristy Dalton

Social Media Training

Why governments aren't doing it — and why they should.

There's a lot that can go wrong with government social media, which is why social media keeps risk managers up at night. But the alternative of avoiding social media altogether can be far worse.

Solid social media training can help government agencies. While training those employees directly responsible for maintaining your agency's social media profiles is crucial, often another group gets overlooked — everyone else in your agency.

Government workers are accustomed to taking annual training, and mandatory training is typical at all levels of government, in areas like ethics, harassment and IT security. This is important for familiarizing employees and managers with policy, ensuring they clearly understand which actions are acceptable and which aren't, and minimizing potential risk to the agency. That last one carries tremendous value, because it boils down to avoiding costly lawsuits.

The same goes for social media.

The truth is that much can go wrong. But it is manageable with training, and there's even more that can happen if your agency isn't on social media.

What Could Possibly Go Wrong?

Government agencies have been sued for their actions or policies related to social media, and we're starting to see case law regarding government social media practices.

There have been lawsuits initiated by government workers fired for social media conduct on their personal time. In some cases, this conduct may have been avoided had there been a solid policy and clear employee social media training in place.

You must answer several questions in your social media policy and subsequent employee training. Can employees post pictures of themselves wearing an official uniform on their profile? What if they're in law enforcement? Are employees allowed to speak negatively of their co-workers on social media? What if they're referring to working conditions? Can your agency's computers and Internet be used for employees to check their social media profiles on work time?

Besides the reality that employees may violate your government social media policy on their own pages, agencies themselves have come under fire for deleting comments or banning profiles.

Why Don't Agencies Have Mandatory Training?

If the point of government employee training is to educate staff and minimize risk to the agency, then why aren't more agencies pushing for social media training? The answer is likely a couple of reasons. First, government employee social media training hasn't been mandated by federal, state or local law. Second, the agency may not have an official social media policy in place. It's impossible to train staff on social media expectations when they haven't been established.

Avoiding Social Media Altogether? Why, That's Just Silly

"Why don't we just let social media pass us by? Our citizens won't notice, and we don't have to risk them posting critical comments on our social media profiles. The public is notoriously critical of our agency anyway."

Don't fall into this mindset. The truth is that your citizens are still going to talk about your agency and post critical comments. They'll just do it on their own profiles or profiles of local news sites — places where you can't share your side, correct misinformation and show that you care. Avoiding social media — and social media training — doesn't solve the problem.

Social media training should be mandatory for all government employees. Period. gt

Kristy is known as **"GovGirl"** in the government technology industry. A former city government Web manager with a passion for social media, technology and the lighter side of government life, Kristy is the CEO of Government Social Media.

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