PRIVACY IN THE BALANCE
CAN GOVERNMENT PROTECT CITIZEN DATA AND EMBRACE SMART TECHNOLOGIES AT THE SAME TIME?

INSIDE:

Data Please
Transit information abounds, but how it’s managed is up in the air.

FirstNet Forges Ahead
States are on board, but where do locals stand?

PLUS:

Partner Roll Call
A look at who’s helping make cities smarter.
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COVER STORY

16 / In the Balance
Can local governments protect privacy and increase the use of smart technologies at the same time?
By Tod Newcombe

22 / Disrupting Transit
Startups are producing lots of transit data that could help inform government policy — but not everyone agrees on what should be shared.
By Ben Miller

28 / Teaming Up
Nonprofits and foundations bolster smart city efforts.
By David Ruths

40 / Breaking with the Past
First responder networks like FirstNet will be a communications boon, but will local agencies embrace the new technology?
By Theo Douglas
IN OUR NEXT ISSUE:

Cyber Tech Trends
As the cybersecurity market evolves, what does it mean for government?

Lessons from Atlanta
A look at what government can learn from the city’s devastating ransomware attack.

Threshold of Awareness
Many jurisdictions are finding that cybersecurity training can only get them so far. What’s their next step?

58 GovGirl on Social
Humor as a tool for citizen engagement.

53 signal:noise
Data-driven government must track with lived experience.

52 Spectrum
More research, more science, more technology.

8 govtech.com/extra
Updates from Government Technology’s daily online news service.

12 Four Questions
Montreal CIO Tim Bottenfield on moving from state agency to cabinet-level IT.

DEPARTMENT
34 / The Status of Smart (Infographic)
Facts and figures on smart cities efforts in the U.S.

48 / Securing Schools
School districts and local law enforcement are seeing the need to meld security efforts.

NEWS

5 Point of View
What is the price of privacy?

10 Data Points
Securing citizens online.

14 Digital Counties
Key takeaways from the 2018 survey.

56 CIO Central
Career changes across tech-driven roles in government.

50 Facts and figures on smart cities.

53 School districts and local law enforcement are seeing the need to meld security efforts.

14 Career changes across tech-driven roles in government.

56 It's time to bring data-driven government into the fold.
We live our lives online. According to Pew Research, a growing percentage of Americans – 26 percent of American adults as of January 2018 – are online “almost constantly.” Those numbers jump to close to 40 percent for people 49 years of age or younger. And of those who visit the Internet using mobile devices, 89 percent go online daily. It’s a reality of modern life.

As online consumers of content, services and goods, we make certain compromises on privacy. Who we are and what we do online is a valuable commodity. It’s presumptually worth it to hand over some contact information if it gets us access to a retail loyalty program, a useful traffic tool, news stories we’re interested in or an amusing game to pass the time. Do I accept the terms of service? Sure. How bad can they be?

It wasn’t that long ago that few in gov tech knew about the GDPR. Originally passed in 2016, the General Data Protection Regulation is the set of sweeping data privacy laws for the European Union that aim to protect consumers from having their data collected, used or sold without their consent. Companies found to be out of compliance face heavy fines – heavy enough to get the attention of private-sector consumers of data (i.e., nearly anyone doing business on the Internet).

And while the impact of GDPR, which took effect in May 2018, is thought to be pretty minimal for state and local government agencies in the U.S., many wondered if American lawmakers should take similarly aggressive measures. Calls for action got louder with recent discoveries about just how much personal data was being collected and sold by “free” online services like Facebook. It didn’t take long.

As mentioned in our cover story, In the Balance (p. 16), the California Legislature passed its own set of privacy protections in June. The bill was drafted by legislators and signed by the governor in the course of one week, a signal of its importance to policymakers in tech-heavy California, eager to look out for its 40 million residents.

In a July 31 webinar by law firm Morrison & Foerster, attorneys Purvi G. Patel and Nathan D. Taylor agreed that the importance of the California law couldn’t be overstated. “I truly believe this is the most significant U.S. privacy development to date,” said Taylor.

The California bill gives consumers five fundamental rights, as outlined by Patel and Taylor: the right to know how their information is being used; the right to have their information deleted; the right to prevent the sale of their personal information; protection from retaliation for making any requests under the act; and the right to sue.

The bill takes effect on Jan. 1, 2020. It’s deferred effective date presumably offers businesses some time to make the necessary process changes to ensure they’re in compliance. Taken all together, it’s a heavy lift.

But what does this mean for government? In the course of delivering services, taxation and regulation, the public sector must collect a lot of personal information. That same data is then available by extension to any number of private-sector partners. If a breach occurs, will citizens be comforted by fingers pointed at a third party?

Many leading jurisdictions have started to hire chief privacy officers, granting them a seat at the table alongside agency leaders and technical staff at the outset of a project to ensure the protection of citizen data is adequately considered. It’s a good start.

Experts strongly caution against jumping on new tech partnerships that hype smart city benefits, or at least to do so with eyes wide open. Vendor profit often comes not from the size of the contract, but rather the citizen data it allows them to collect.

Government, and those who contract with government, must be held to a higher standard when it comes to privacy.
PUTTING SOME SaaS INTO YOUR SMALL CITY

Progressive city managers and administrators are turning to cloud-powered back office strategies to help their local governments keep pace with change and deliver the advanced services citizens expect. Experts estimate governments spend as much as 80 percent of their IT budgets maintaining on-premises hardware. The right investment in a cloud-based back office solution — such as a finance or human resources (HR) solution — can make organizations more cost effective, efficient and productive, but that’s only the beginning. It can also improve decision-making, spur innovation and enable smart city capabilities that smaller municipalities could only dream of until now.

Much like larger public sector agencies and institutions, leaders in smaller cities, counties and K-12 schools must respond to the accelerated pace of technology and take a critical look at the performance and cost of legacy back office systems. Many of their on-premises data centers have undergone a series of hodge-podge add-ons over the years to handle new requirements and use cases. Keeping these systems up-to-date is an ongoing and time-consuming undertaking, and it’s easy to fall behind. Individual point solutions designed to fix one problem can potentially cause another, from ineffective security measures to the inability to scale. Organizations can’t sustain the systems, much less modernize them.

TRUE SAAS: BUILT FROM THE GROUND UP

The advent of cloud computing addresses the challenges that have prevented smaller municipalities from embracing back office modernization. Today, there are “cloud-native” software-as-a-service (SaaS) solutions built from the ground up to operate in the solution provider’s technical environment (see sidebar, “Know the Difference: Cloud-Native vs. Cloud-Hosted). Unlike point solutions from niche vendors, all components are integrated and communicate with each other. Scalability and needed functionality are built in, so organizations can easily expand their capabilities over time.

To visualize the opportunities, imagine a department of public works with a mature, cloud-based financial system. An employee at a job site can use his or her smartphone to order supplies from a pre-approved list of suppliers with pre-negotiated prices. Executives can instantly approve requisitions. Conversations and notes are attached to individual transactions, providing a clear record of due diligence and detailed information for auditors. Once a purchase order is approved, relevant information is automatically forwarded to the appropriate systems for rapid fulfillment, encumbrance, reporting and other tasks. Over time, artificial intelligence (AI) helps the finance team determine which suppliers provide the best value and how they can aggregate purchasing to obtain preferential terms and prices.

As smart city capabilities mature, the department can integrate its purchasing system with sensors and other technologies installed on street lights, bridges and other assets. When an asset needs to be replaced or is malfunctioning, it automatically requisitions new parts, creates and routes work orders, and schedules the job. Workers are more productive, the city is safer, and citizens are more satisfied.

In addition to streamlining and improving business processes, true SaaS solutions are:

- Fast and affordable — The cloud vendor provides the underlying infrastructure, so cloud-based solutions eliminate the prohibitive capital and operational costs associated with deploying and maintaining in-house finance and HR systems. In addition, systems can be up and running within a few months at minimal cost.
- Simple to use — The best vendors design intuitive systems. Line-of-business users can get the answers they need on their own. This improves productivity and decision-making, while freeing analysts and IT staff to work on higher-value tasks.
- Built on best practices — Cloud finance and HR applications are often architected with industry best practices in mind. Workflows are standardized and are modeled on input from subject matter experts.
- Always modern — Cloud-powered back office solutions are more sustainable because the vendor continuously upgrades systems to keep pace with innovation and industry developments. In addition, solutions can be easily scaled to accommodate growth or contraction.

SEEKING OUT SaaS FOR FUTURE GROWTH

Back office modernization is a basic requirement for the complete digital transformation of a small city or county. By migrating finance and HR applications to the cloud, local governments can bring efficiency, innovation and smart city functionality to the workplace and the community — without the costs, complexity and built-in obsolescence of on-premises solutions.
Know the Difference: Cloud-Native vs. Cloud-Hosted

Although cloud does afford immediate access to software and systems, merely re-platforming and hosting an application in the cloud does not provide full access to the benefits of an application that was “born in the cloud.”

True SaaS applications, built from the ground up to take advantage of cloud, are known as “cloud-native.” They are hosted in a true cloud infrastructure and are designed to maximize the benefits of the cloud. Features include:

- Start implementation cycles, with near-instantaneous provisioning for new users
- Quick upgrades, with simultaneous rollout of new features and security upgrades and patches
- Seamless scalability in response to increased demand (e.g., tax filing deadlines, elections)

In contrast, a cloud-hosted environment is simply on-premises software that is available remotely via the cloud. Although the need for a local server or local copies is eliminated, there are some disadvantages:

- Longer implementation times, including server setup, software installation and customization
- Manual upgrades, specific to each server – not all customers are upgraded simultaneously
- Additional servers may be required for expansion because software is hosted on dedicated servers by the vendor
- Security may be a greater challenge because there are more access points for intrusions

The following suggestions can help organizations successfully deploy a cloud-native strategy:

- Adopt a single, complete service vs. myriad point solutions – Consider what you need today, but keep an eye on tomorrow. Be sure the cloud service can enable flexible analytics, handle complex scenarios and support deep reporting at the user level. Be sure you can opt-in to AI, chatbots and other advanced technology as your requirements evolve.

- Use open standards – Many legacy systems use proprietary code that makes it difficult to import and export data. A solution based on open standards can handle any data format and allows organizations to easily import data from heterogeneous systems.

- Ensure it’s truly cloud-native – A hosted legacy application that is retrofitted for the cloud does not provide the same features and functionality as software that is purpose-built for the cloud.

- Look for an intuitive user experience – Determine how critical metrics are exposed in dashboards, what types of reports general users can create on their own and whether reports are well integrated with other parts of the system. Can users pull narrative and numbers from multiple systems to prepare a comprehensive annual financial report (CAFR) or pull data from the CAFR on an ad hoc basis?

- Use a trusted cloud – Be sure that the cloud service can meet service level agreements for availability and that it can protect confidential data whether it is in transit or at rest.

- Partner with a well-established provider that can grow with you – Look for expertise in back office modernization and in working with local government. Consider the provider’s history of innovation, financial stability and commitment to long-term viability.

- Champion change – Partner with an IT consultant that can help maximize your IT investment and smooth the transition to the cloud. Leverage the consultant’s change-management expertise to evangelize what’s possible, obtain executive and stakeholder buy-in, and arrange user training as needed.

Getting Started

1. Start with data conversion and basic transactional systems. Determine which data to move into the new system, and use this phase as an opportunity to clean up obsolete, incomplete, improperly formatted or redundant data.

2. Once basic systems are in place, start embedding more advanced features into business processes. For example, enable workers to use smartphones or other online tools to update their own records for payroll, timekeeping and benefits management.

3. Evaluate enhancements as they are published and opt in to new functionality as needed. For example, take advantage of AI capabilities to better understand hiring patterns and talent needs, improve decision-making, increase efficiency and move toward more intelligent processes.

Learn more at Oracle.com/PublicSector
In the Fast Lane

In an effort to make traffic safer across the country, Data for Democracy, a volunteer group of technologists whose data-driven projects aim to improve communities, is expanding on its Boston-based crash management program. Called Insight Lane, the project standardizes a city’s traffic, and crash data, generates incident predictions, and can display those findings visually online. While it was built specifically for Boston, it can work for any city that has the data the program needs to run. In addition to identifying areas at high risk for accidents, a goal with Insight Lane is to get a look at what might be causing them. Data for Democracy has discussed bringing the platform to cities including Louisville, Ky., and Washington, D.C., among others.

WHO SAYS?

“Every candidate has a different life story. The individuals with non-IT backgrounds can bring a lot of value into security teams.”
govtech.com/quoteSeptember2018

Face Off

Despite protests earlier this year from groups like the American Civil Liberties Union around the use of facial recognition technology in law enforcement, Orlando, Fla., and the Orlando Police Department plan to launch a second-round pilot of Amazon’s Rekognition software. The program uses a set of images, such as mug shots, and a photo of a suspect in a law enforcement incident, then scans the mug shots for a potential match. Orlando officials explained that while the first round of testing produced valuable results, more information was needed before they could recommend purchasing the technology. Other jurisdictions currently using Rekognition, like Washington County, Ore., find it has increased the speed and efficiency with which police can identify subjects.

Biz Beat

The Urban Innovation Fund (UIF), an investment firm funding startups working in the gov tech space, among other verticals, closed its first fund at $22.5 million. Run by managing partners Julie Lein and Clara Brenner, who also helm the nonprofit startup accelerator Tumml, UIF has made 14 investments, and aims to invest in 25 to 30 companies total.

“We’re still looking for startups that are changing the future of cities,” Lein said. So far in the government arena, the firm has invested in Dropcountr, Voatz and Valor Water Analytics. Lein and Brenner try to bring more than just money to their portfolio companies, providing their own expertise as well as a network of people who have worked with government.

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9,348 VIEWS

Google Maps Restricts Its API, Government Collectively Shrugs
6,808 VIEWS

Digital Counties Survey 2018: Winners Prioritize Culture, Collaboration and Automation
6,437 VIEWS

Chief Data Officers: Which State and Local Governments Have a CDO?
2,164 VIEWS

More Cities Turn to Alexa to Field Resident Questions
2,096 VIEWS

Hacked Voter Records in Illinois Soar to Half a Million
1,736 VIEWS

The amount South Bend, Ind., plans to spend on its Technology Resource Center, which will bring together community members who have tools to work with data.

1,800

The number of public and private vehicles that Columbus, Ohio, will link to demonstrate how real-time monitoring can manage traffic and improve safety.

14

The number of members in the newly formed State CDO Network.

$2.7 M

The amount Microsoft paid to acquire GitHub, the open source code platform used by more than 150 federal, 48 state and 90 local agencies or governments.

$7.5 B

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14

The number of members in the newly formed State CDO Network.
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Site Security
For your safety online, your state should implement DNSSEC if it hasn’t already (and it likely hasn’t).

The Domain Name System (DNS) provides a critical service for the Internet. The DNS acts as an online directory, translating easy-to-remember domain names (e.g., govtech.com) into an IP address (e.g., 52.44.42.61). Unfortunately, traditional DNS lookups are inherently insecure. While website owners can mitigate these security vulnerabilities, few state governments have taken the necessary steps to do so.

Although Internet users routinely rely on the DNS, most are unaware of its importance because DNS lookups run imperceptibly in the background. After a user enters a website domain name in a browser, his or her computer sends out a request for the relevant record from a DNS server that recursively queries other DNS servers until it finally finds one that gives an authoritative answer.

Unfortunately, traditional DNS specifications do not require the servers to authenticate the responses they receive or verify that they are correct. As a result, attackers can exploit these weaknesses in the DNS system to hijack users’ connections and redirect them to malicious sites that may steal their passwords or expose them to malware.

While security researchers identified these security weaknesses in the DNS in the early 1990s, it was not until 1997 that network engineers created the first draft of DNS security extensions, or DNSSEC. DNSSEC is a technical standard for the Internet that adds cryptographic signatures to DNS records to create a chain of trust, so that users can be confident that they have received a valid response and they are not being subjected to a man-in-the-middle attack. This chain of trust has extended all the way to the root zone, the part of the DNS that contains all of the top-level domains, since July 15, 2010.

It has taken some time to implement DNSSEC. The federal government deployed the system to the .gov top-level domain name in January 2009 and mandated that all agencies implement DNSSEC on their domains by December of the same year. In September 2010, 36 percent of federal agency domains had properly implemented DNSSEC. As of last year, 90 percent of popular federal government websites had properly enabled DNSSEC, and the National Institute of Standards and Technology tracks more than 800 federal domains that have properly signed DNS records.

However, a forthcoming study from the Information Technology and Innovation Foundation has found that state governments have been much slower at adopting DNSSEC. In 2010, only three states — Idaho, Vermont and Virginia — had implemented DNSSEC on at least one of its domains. Not much has changed. Today, only nine states have implemented the standard on at least one of their primary government website domains.

A few — including Kentucky, Massachusetts, Minnesota, New Jersey, Vermont and Virginia — had implemented it on most, but not all, of their domains. And only one state, Idaho, had implemented DNSSEC on all its domains. The vast majority of states have not implemented it at all.

It is not entirely clear why more state governments have not made DNSSEC a greater priority. While implementation can raise some technical challenges, the widespread adoption in federal government shows these hurdles can be overcome.

More likely, the lack of adoption reflects the fact that DNSSEC is an investment in security for users rather than government agencies. Many government security investments — network firewalls, two-factor authentication, intrusion detection systems — focus on making the government itself more secure from attacks. While DNSSEC certainly benefits government users too, the primary beneficiaries are average citizens who can access government services more securely because DNSSEC validates that they are being directed to the correct site and are not caught in a man-in-the-middle attack.

Given that it has been more than two decades since security researchers identified vulnerabilities in the DNS, states have no excuse for further delaying implementation of DNSSEC, and they should move expeditiously to implement it on all state government domains.
DIGITAL GOVERNMENT SUMMITS

Spreading Best Practices & Spurring Innovation

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How is your time as CIO with DOR serving you in your new role?

What helped for many years was that in my early career at Auburn I got to wear almost every hat imaginable in the IT world. But I think the key thing I bring into this job is the fact that I was able to build good rapport with my agency peers. And I'm coming into the position of state CIO with the perspective of having worked as agency CIO, and one of the main goals is to be able to continue to build rapport with the agencies to be able to recognize that they are the portal to the citizens.

What’s your vision for enhancing the relationship between citizens and the state?

Institutionally, I’ve got to lead the way and show that the way we’re going to be able to serve the agencies is moving in a direction where we have a more consistent approach to presenting information and interacting with the citizens. But I think we’ve got a ways to go, and collaboration with the agencies is where we’re going to be able to make strides. We’ve got to be able to take new technologies, and those at our fingertips right now, and be able to work together to make sure that we’re doing it in a consistent fashion, that we don’t have maybe Agency A, B and C ever doing things in one way and then we’ve got another group of agencies doing it another way. We just need to keep looking at that, make sure that we’re working together and that we stay in concert with each other.

What is your top priority as CIO?

It doesn’t really matter if you’re the Department of Revenue, if you’re the Health and Human Services agency — everybody gets the fact that security is really the No. 1 thing. We just can’t let our guard down. It’s not a sexy thing to talk about, but it has to be central to every single thing that we do. It has to be paramount. We do the best that we possibly can. Of course, we wish we had more resources in that area, and I don’t think we’ll ever get to the point where we’re not clamoring for more resources in security. We must have a consistent approach to it. I’m very pleased to come into a situation where security is taken so seriously and we have staff working really hard on it.

What’s your approach to attracting and retaining talent?

Across a lot of sectors, people are getting concerned about the dwindling numbers of trained people, and we’re starting to see that crunch in IT. We especially feel that in Montana from time to time, being a small state. A lot of times our tech experts graduate from college and they’re gone. We’re dealing with a situation in Montana where unemployment is very low, so now there’s a premium on those folks that are trained and it’s a dogfight to get exceptional people in the door and to hold on to them. And that’s especially tough in government and state government. We’re all also struggling a little bit with the cultural shift in the way younger people are thinking when they get out of college now. Most young people aren’t getting into an organization and thinking that they’re going to be there for 30 years. If we can get somebody trained and keep them for five to six years, that’s kind of the shift in our mentality now in hiring.

— Theo Douglas, Staff Writer

Tim Bottenfield
CIO, Montana
“FirstNet provides the situational awareness, reliability and security first responders need during any crisis.”

Zal Azmi
Former Executive Assistant Director and Chief Information Officer for the FBI

The only wireless communications ecosystem dedicated to the dedicated is here. Priority. Security. Reliability. Innovation. FirstNet is more than the much needed upgrade your agency demands. It’s your network. The only emergency communications tools, and applications inspired by first responders, exclusively for first responders. And it’s available right now. Get the facts at firstnet.com.
What It Means to Be a Digital County

Highlights from the 2018 Digital Counties Survey

The Center for Digital Government's annual Digital Counties Survey considers the state of technology use across county governments in the U.S. Submissions from counties in five population categories are vetted and judged, and winners are selected and highlighted for their innovative system deployments, citizen-focused initiatives and tech-enabled efficiencies.

The following infographic offers some high-level data points that benchmark the state of technology in America’s counties, and give rising jurisdictions practices to emulate. For Government Technology’s full story and interactive map summarizing key efforts in each winning county, visit www.govtech.com/DigitalCounties2018.

And the Winners Are:

- Nevada County, Calif.
- Arlington County, Va.
- Montgomery County, Md.
- Sonoma County, Calif.
- Dutchess County, N.Y.

Help Wanted

Counties identify the following as their greatest staffing needs in coming years:

- 97% Cybersecurity, data protection, compliance auditing, mobile/remote security
- 80% Business intelligence and data analytics
- 73% Application building, integration and modernization

CIO Priorities

1. Cybersecurity
2. Disaster Recovery/Continuity of Operations
3. Citizen Engagement/Experience
4. IT Staffing
5. Transparency/Open Data/Data Governance

38% of counties report using participatory budgeting

55% of counties have Key Performance Indicators (KPIs) established, defined and published
Counties and Emerging Tech

Here's where counties stand on today's buzziest technologies:

<table>
<thead>
<tr>
<th>Technology</th>
<th>2018</th>
<th>2017</th>
<th>2016</th>
<th>2015</th>
</tr>
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<tbody>
<tr>
<td>Artificial Intelligence/Machine Learning</td>
<td>14%</td>
<td>21%</td>
<td></td>
<td></td>
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<tr>
<td>Drones</td>
<td>11%</td>
<td>40%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Internet of Things/Edge Computing</td>
<td>11%</td>
<td>36%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Blockchain</td>
<td></td>
<td></td>
<td>4%</td>
<td>0%</td>
</tr>
<tr>
<td>Augmented/Virtual Reality</td>
<td></td>
<td></td>
<td>8%</td>
<td>6%</td>
</tr>
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Means of Engagement

Most commonly used citizen engagement tools:

<table>
<thead>
<tr>
<th>Engagement Tool</th>
<th>2018</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social Media</td>
<td>85%</td>
<td>55%</td>
</tr>
<tr>
<td>Livestreaming of Board Meetings</td>
<td>84%</td>
<td>69%</td>
</tr>
<tr>
<td>Responsive Design/Mobile-Enabled Website</td>
<td>74%</td>
<td>43%</td>
</tr>
<tr>
<td>Citizen Surveys/Crowdsourcing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*The Center for Digital Government is part of e.Republic, Government Technology's parent company.*
Seattle, which passed a resolution calling privacy “a human right,” is one of a handful of local jurisdictions with a chief privacy officer, Ginger Armbruster.
Seattle has a homeless problem and it’s getting worse. Since 2007, the city’s homeless population has risen 47 percent, according to the Seattle Times. Today, the city has more than 10,000 residents who don’t have permanent shelter, putting Seattle and King County near the top of the list for urban concentrations of homelessness. Not surprisingly, the situation has put pressure on the city to deliver help in the form of food and shelter, along with addiction and mental health services, while keeping an eye on crime and health problems at the many encampments that have taken root in some neighborhoods.

But to do that calls for using lots of data, some of which may be personal. The city wants to help its homeless population in a coordinated and effective way, which may also mean sharing data between agencies. How that can be done without impacting the privacy of individuals is a balancing act, one that Chief Privacy Officer Ginger Armbruster finds herself doing on a daily basis. “We need data to make sure we are meeting our goals, because we don’t have a lot of time. These people are in a crisis,” she said, regarding the urgency of the problem. Yet it takes time to ensure privacy.

Seattle has a history of putting privacy at the forefront of its policies, which can add complexity to a discussion on how best to deliver services to those who need them the most. “Privacy has strong support in Seattle,” said Armbruster. “It’s about collecting only the data we need, managing it, getting consent and giving users some control over its accuracy.” How Seattle balances its data needs and the growing clout of technology with privacy concerns is an issue for cities nationwide. The solutions aren’t simple, but some best practices are beginning to emerge.
More Technology, Less Privacy?

Homelessness isn’t the only issue Seattle is trying to tackle with data. The city wants to better serve its immigrant population. Then there’s the growth in smart city services, particularly around transportation. For urban areas in other parts of the country where crime is a problem, data in the form of surveillance cameras and videos is in demand from law enforcement agencies. Altogether, cities spent nearly $31 billion on IT in 2017, much of it going toward smart city efforts, the Internet of Things, open data and civic engagement, according to the Center for Digital Government.*

To manage all this data, cities increasingly rely on vendors who can host the services and store the data rather than build expensive data centers themselves. The trend has given cities opportunities to govern in new and better ways, as well as to roll out services that weren’t possible just a few years ago. Cities of all sizes can help drivers respond more quickly to traffic congestion problems, predict where the next crime hot spot will occur, track pollution problems and give citizens the kind of engagement that builds trust.

But some of the technologies that make all this possible collect data that worries privacy groups. The American Civil Liberties Union has been particularly vocal about the inherent privacy risks that today’s high-tech tools can trigger. That doesn’t surprise Peter Swire, who is a leading privacy and cyberlaw scholar, and currently a law professor at Georgia Tech University. “For smart cities, a huge range of applications involve personal data,” he said.

Cities are increasing their dependence on online services and cloud storage, which is cause for concern, according to Swire, who was the country’s first chief counselor for privacy in the U.S. Office of Management and Budget during President Bill Clinton’s administration. “For smart cities, a huge range of applications involve personal data,” he said. “Cities are increasing their dependence on online services and cloud storage, which is cause for concern, according to Swire, who was the country’s first chief counselor for privacy in the U.S. Office of Management and Budget during President Bill Clinton’s administration.”

In another trend that worries privacy advocates, cities are allowing more third-party firms to provide services, such as e-scooters and bikes, as well as public Wi-Fi, some of which are advertised as free, but often require a person to download an app to their phone, which can identify the person’s location or capture other forms of personal information, in return for use of the service.

While it may sound like a service, the company’s business model could have more to do with collecting information about people than with the service itself, according to Armbruster. “Cities need to make principled decisions about the kind of data the company collects, how it is handled,” she said. “It’s our responsibility to our citizens to know what data these firms are collecting and we have to make a smart decision on whether to allow others to collect it.”

Two Game-Changing Privacy Laws

While privacy concerns in local government have been growing, two recent events have thrust the issue to the forefront. In May, the European Union began enforcing the privacy rule known as the General Data Protection Regulation or GDPR, which gives EU citizens control over their personally identifiable information. Few local governments expect a significant, direct impact from GDPR, but the regulation has raised public (and internal government) awareness about personal privacy. However, GDPR does affect private online service firms, which have had to apply much more strict privacy guidelines to their operations than they have in the past. It means that companies are learning to do privacy impact assessments and provide other protections required by GDPR,” said Swire. That’s going to raise expectations among citizens to...
receive the same level of privacy protections from local governments as they now receive from private online services.

In June, California passed a major privacy bill that allows consumers to ask companies what information they are collecting on them, why it was collected and which third party has received it; and they can demand that the information be deleted and not sold. Companies that have collected the information can charge a fee from users who opt out of sharing their data to collect any lost revenue, as long as it’s reasonably related to the value provided by the consumer’s data. With California taking the lead on strengthening privacy protection, other states are likely to follow, say experts.

Enter the Local Chief Privacy Officer

Regardless of what happens at the state level, cities and urban counties are beginning to take steps to protect privacy at the local level. Seattle was the first city to hire a chief privacy officer (Armbruster is the second person to hold that position). In April, New York City Mayor Bill de Blasio appointed Laura Negrón as the city’s first chief privacy officer. She has been tasked with working across city agencies to promote new citywide protocols around the collection, disclosure and retention of personally identifiable information, as well as to centralize how policies and procedures regarding privacy are to be handled.

Few other local jurisdictions have hired CPOs so far, but in 2017 Santa Clara County, Calif., appointed Mike Shapiro as its first privacy officer, and one of the first to work for a county. Shapiro has an extensive background working on privacy issues in the private sector and consulting with federal and state agencies. The big issue facing local government, according to Shapiro, is the development of privacy policies that are consistent across a government at a time of rapid growth in data-driven projects. “The challenge is how to take the large amounts of information we collect for constituents and serve them better while also protecting privacy rights and following the law,” he said.

Given Santa Clara County’s location in the heart of Silicon Valley, Shapiro believes the county can play a lead role in fashioning privacy policies and best practices that draw on the strengths of local high-tech firms, academia and government. He hopes to start a privacy center of excellence that will foster the kind of dialog that can balance privacy with digital commerce and good governance.

But Shapiro’s more immediate mission is to create privacy best practices within county government that balance the need to share information with the need to protect it. “The county is in the early stages of developing big data sharing projects, so now is the time to build privacy into project management and work processes, not afterward,” he said.

To get the ball rolling, he has launched an awareness campaign to educate staff on the different kinds of privacy risks and then promote best practices. Part of the effort is understanding how departments perceive privacy, as well as learning what they do with the data they collect, how the data is shared and when it isn’t, why not. Sometimes an agency’s desire to protect privacy can thwart projects that can serve people, Shapiro explained. Having the right conversation with the right people can overcome roadblocks to data sharing that don’t compromise privacy rights.

In addition to training to raise awareness, governments like Santa Clara County and Seattle are following the lead of private companies and have begun to conduct privacy impact assessments on new projects. Impact assessments are required for federal IT systems, according to Swire. “The key is to have someone with privacy expertise examine important systems before they are deployed,” he said. “That would be a good practice for local governments.”

Swire also advises local governments to have standard contract clauses for IT procurements that provide privacy requirements. He cites California’s new law as a reason why local governments need to be
more careful when it comes time for IT acquisitions, especially those that involve vendor access to data. “Cities should think carefully about it before they agree to let vendors sell citizen data,” he said.

Up the Pacific Coast in Seattle, Armbruster’s role as the city’s CPO has taken on greater significance. The fact that the city council passed a resolution that “privacy is a human right” is an indication of just how important privacy has become. She runs an office of four, which operates out of the city’s Department of Information Technology, and functions citywide, overseeing and managing privacy policies and procedures.

“From the beginning, it’s about education and bringing people along the journey to understand privacy,” said Armbruster. Her office has set up a network of privacy champions in every one of the city’s 33 departments. The champions attend regular meetings on privacy, act as a resource on the topic, and some are going through a certification program run by the International Association of Privacy Professionals. Finally, all city staff must participate in standard security and privacy training on an annual basis.

While some workers might grumble about the training process, Armbruster says it’s crucial to making privacy part of how workers think about information on a daily basis. “You have to build the awareness of privacy or it doesn’t make sense,” she said. “We do that by making the need for privacy relevant to individuals, so they are aware of the impact when privacy gets lost.”

Armbruster and other privacy experts emphasize the importance of making privacy an integral part of the process when it comes to program development and IT deployment. Having a review system that tries to catch privacy issues at the end of the process is a recipe for disaster.

Instead, Seattle, Santa Clara County and a few other jurisdictions are learning how to build in privacy by design. “This is a very well-known concept, in which you build privacy into the organic process of building systems,” said Armbruster.

When it comes to technology itself, Armbruster keeps an eye on cloud services, although she feels that cloud providers are getting better at providing a service that builds in sound data protections. She also worries about shadow IT — those so-called “free” apps and storage services, such as DropBox, which employees will turn to because they are familiar with them outside of work. “People have to understand that free isn’t free,” she said. “In our position, it’s not your data that is sitting in some third-party cloud storage service, it’s citizens’ data or the city’s data.”

Finding That Balance

As more local governments develop and launch smart city projects, it’s becoming increasingly clear that conversations and strategies around privacy need to start happening sooner rather than later. While today’s game-changing projects often involve sensors that collect data that may not identify individuals, too often cities are offered an on-ramp to smart city innovation from a third party that has data collection about individuals at the heart of its business plan.

Knowing an individual’s location has proven to be a gold mine for companies that market products and services. This year, marketing firms are expected to spend $207 billion on geo-targeted mobile ads and $32.4 billion by 2021, according to BIA Advisory Services.

In Seattle, Armbruster says companies approach the city regularly about a new service they would like to offer for free, but when questions are asked, it is soon clear that what they want is information about people “to feed that big marketing cloud in the sky,” she said. “Lots of ‘free’ apps aren’t free because they are collecting data about the individuals who use them.”

Local governments need to have serious conversations with vendors when it comes to smart city projects. Rather than say no and kill the project over privacy concerns, Armbruster advises city officials to talk with the department that might want to roll out the service in conjunction with a vendor and see whether the data it collects could be useful at the block level or census level, rather than at the individual level.

What it comes down to, according to Swire, who has studied the impact of technology on privacy for decades, is “that every smart city project needs a smart privacy plan as well.”
When citizens access government information and services online, they expect an easy, interactive experience. And they want that experience tailored to their device of choice, whether that be a smartphone or watch, voice-activated personal assistant, smart TV or even the screen of an internet-connected refrigerator.

However, in most local governments, online services aren’t designed for this kind of interaction. Instead, content must often be reentered manually into each display format or application, such as a webpage, email message, social media post or digital kiosk.

CivicPlus® helps municipalities overcome this challenge with its Content as a Service (CaaS) solution — a transformative new approach to manage, access and present information.

**Thinking Outside the Webpage**

The concept behind CaaS is to create and maintain digital content as discrete, reusable objects instead of a complete webpage. CaaS manages content in multiple forms (text, data, images, video), then formats it dynamically for display with any application or device.

The CivicPlus CaaS solution excels at separating the front-end functions for information display from the back-end repository for storing and managing content objects. This design helps government communicators break down silos and leverage content more effectively. The CivicPlus solution also takes an API-first approach, making it easier for governments to manage and share information across software stack components and push content to different devices and communications channels, delivering the high-quality interactions citizens and public-sector employees expect.

**Better Decisions for Delivering Better Information**

To help governments optimize their communications efforts, CivicPlus CaaS tracks and measures content objects. This data indicates what content is accessed and on which devices, helping leaders decide where to make communications investments. CaaS data also identifies gaps in information access or service use, such as by neighborhood or citizen demographic, which may indicate a need for more outreach.

**Meaningful Information and Services for Citizens**

CaaS makes it easier to deliver information and services in the form of a personalized conversation. For example, when a citizen views a city webpage for the local dog park, the solution can automatically display links to content about pet licenses and leash laws.

CivicPlus is the integrated technology platform for local government, working with over 3,500 local governments including municipalities, counties, and municipal departments. CivicPlus has been selected by Inc. Magazine as “One of the Fastest-Growing Privately Held Companies in the U.S.” since 2011.

For more information, visit CivicPlus.com
Startups are producing lots of transit data that could help inform government policy — but not everyone agrees on what should be shared.
On one side, there’s the public sector, surprised by a sudden flurry of private transportation companies offering scooters, bicycles, skateboards and car rides. The government has seen rapid disruption of transportation before; it knows that it can be unsafe and inequitable for the public as a whole. So it asks those companies for information, to try to better see what it is they are doing.

But then there are the companies, wary of further fraying society’s already-thinning trust that the tech sector cares about individual privacy.

Between the two is a balancing act of public interests versus individual concerns. And there are a lot of unanswered questions about what the right balance is. But government has been here before.

One morning in March 2018, San Franciscans woke up to scooters. Startups — some of which had already put electric, shareable bicycles on the city’s streets — started out with a few, and they were met with a lot of user demand. So they sent out more. And as the scooters began to cover the streets, residents began voicing their displeasure: Scooters were blocking the paths of people with disabilities. People were riding them unsafely, without helmets and sometimes in traffic. So the city started considering the issue. Were the scooters worth it? Were they competing with transit, or bringing more riders to buses and trains? Were they helping people get around without cars?

In general, said Tilly Chang, executive director of the San Francisco County Transportation Authority (SFCTA), the city wants to make sure that companies operating on public assets, in this case the streets, are supporting public interests. The only way to know whether they...
are — and how the city should regulate them — is to get a look at their data. “We have a responsibility to understand what are the trip patterns that are out there, what are the choices people are making, so that we can inform policy,” Chang said. SFCTA wants to know how big the market for these services is. It has a stated goal of making San Francisco a transit-first city, so it wants to understand how new services impact transit.

Those are big questions that can be answered with aggregate statistics that look at trends and overall population behavior. But the city, according to Drew Cooper, a staffer in SFCTA’s technology data and analysis group, would still ideally like access to raw data — because who knows what questions will come up in the future? “The more granular [data] it is, the more questions you can ask from it,” Cooper said. “We may not know a priori all the questions we may want to ask from the data we’ve collected in the past year.”

The problem is that using raw data provided by private companies opens up a lot of possibilities — some of which would make the average scooter-rider’s skin crawl.

**ORIGIN, DESTINATION**

This is a time-stamp — that’s all some people might need to identify who is taking which scooter trips.

That’s how Scott Kubly, chief programs officer for scooter-share company Lime, thinks about the issue. “If you get a few of those trips … somebody that’s savvy with data can start to build algorithms that identify individual people,” Kubly said.

In other words, a person’s name doesn’t have to be attached to their data in order for somebody to guess who they are. So anonymizing data probably isn’t enough to protect privacy. And there are plenty of things that could go wrong if transportation data doesn’t protect privacy. Private investigators could use it to keep tabs on spouses. Stalkers could use it to track or harass their victims.

So it would make sense for local government, should it receive even anonymized raw transportation data, to not share it or open it up to the public. Here’s the problem: Once government collects data, it can be hard to keep it truly private.

Some federally mandated privacy standards, like the Health Insurance Portability and Accountability Act and the FBI’s Criminal Justice Information Services security framework, have succeeded in creating common practices for keeping data private in the health-care and law enforcement fields respectively. But nothing like that exists for transportation data; there are no standards to guide one government toward the same best practices that a model government might use.

It might not even be legal for a local government to gather the data but then refuse to share it with the public. All it could take is a public records request, and then anybody can get it, according to Brian Hofer, chair of Oakland, Calif.’s Privacy Advisory Commission and an attorney with the law firm Gould and Hahn. “If it’s held by a government, I think generally a lot of that stuff you would have to disclose,” Hofer said.

To circumvent Freedom of Information Act requests, some governments have come up with a clever workaround: sending the data to a third party for hosting. That way the government can use the data, but doesn’t “own” it, so it can’t be forced to hand it over to anyone. That’s how the Seattle Department of Transportation has approached the matter, giving the data to a University of Washington project called the Transportation Data Collaborative. Kubly used that partnership before he joined Lime, while he was serving as director of Seattle DOT. “[Seattle] could query it for regulatory purposes, the university can query it for research purposes, but [Lime] couldn’t go in and submit a public disclosure request for the data from one of our competitors,” Kubly said.

Depending on the situation, even that might not be enough to stop the data from falling into unexpected hands. Take, for example, the Northern California Regional Intelligence Center (NCRIC). It’s a database that many law enforcement agencies in California use to host data such as footage from traffic intersection enforcement cameras. The center offers free hosting to those agencies, but it also exists to share data between the agencies that use it. That includes the federal government, and Immigration and
 Customs Enforcement (ICE), which uses data to find undocumented immigrants and deport them. That’s been a politically fury issue, particularly in California where “sanctuary cities” are fighting to keep that data from ICE in an effort to stop deportations. NCRIC maintains that its partners can control who has access to the data it hosts. And of course, ICE doesn’t have access to every database. But NCRIC raises a broader question: If an agency that owns data shares that data with anybody else, can it be sure that third party isn’t also sharing the data?

“They don’t need a direct route to the Oakland Police Department because the Oakland Police Department, just in the course of general crime-fighting, shares data with [the National Crime Information Center], [the Automated Regional Information Exchange System], NCRIC, and state agencies like the California Department of Justice and [Department of Motor Vehicles], where ICE can get to the data anyway,” Hofer wrote in an email.

**THEIR’S ANOTHER STEP.** Companies and governments can take to avoid a simple data-sharing arrangement becoming a personal privacy nightmare: aggregation. That is, instead of a city seeing where an individual scooter ride began, where it ended and when it happened, it might see the total number of scooter rides on a given day from one area to another. The technique effectively removes the individual element from the data at the point where it moves from the company to the government. And if it has no individual information, any concerns of who has access to the data and whether a bad actor might be able to guess who is who become moot.

“If I say, ‘Show me a heat map of rider routes by time of day,’ that would allow me to answer all sorts of planning questions,” Kubly said. “If you gave me a raw data feed from Lime and its competitors, absent a consultant, I’m not sure I actually have the tools and people to deal with that analysis.”

Then there’s the obfuscation approach, which sits somewhere between anonymization and aggregation. One car-sharing service in San Mateo County, Calif., hands over rider data to the City/County Association of Governments of San Mateo County — but it doesn’t say exactly where the ride began or ended. Instead it tells the government which city and zip code a ride began or ended in.

Others, like the scooter-share company Skip, have “fudged” the location data, randomly moving origins and destinations a little bit away from where they actually happened so that the government can see the general area but not the address.

“It’s more like, ‘Hey, we want to use who’s using this in what neighborhoods,’” said Dmitry Shevelenko, an adviser for Skip, to Chang, the National Highway Traffic Safety Administration is working to create a platform called Shared-Streets that seeks to establish common data formats and language. According to Chang, the National Highway Traffic Safety Administration is working to find third parties who can facilitate the safe exchange of transportation data.

**MANY ON THE PUBLIC.** And private sides of the transportation sector are hoping for a more uniform approach to data sharing and analysis. If somebody developed common privacy protection practices, data formats or even clearhouse-like channels for sharing, it could make the process of local governments answering their questions much faster and more efficient.

And it would remove a burden from companies, too, because they wouldn’t have to spend time responding to individual data requests from various agencies in different places.

“I’m hopeful that we’re going to be moving into a world in which there’s more standardization. And I think that’s a good thing for everybody,” Kubly said. “At a certain level, customization is bad because I can’t get my custom question answered exactly the way I want it, but on the other hand it’s really hard to do comparative analysis market to market.”

Some people are trying to do exactly that. This year, the National Association of City Transportation Officials launched a platform called Shared-Streets that seeks to establish common data formats and language. According to Chang, the National Highway Traffic Safety Administration is working to find third parties who can facilitate the safe exchange of transportation data.
CONTRA COSTA COUNTY is the ninth most populous and third largest county by land area in California. Serving more than one million people spread over 800 square miles is a constant challenge.

For years, the county relied on four premises-based automatic call distribution (ACD) centers to manage incoming calls from residents. But the ACDs worked in different ways and relied on antiquated technology. They also had limited functionality, were expensive to maintain and lacked resiliency. This made it difficult for county employees to manage incoming calls and respond to citizens effectively and efficiently using an omnichannel approach.

“The older systems did not allow us to add things most people now think of as basic call center functions, such as call back and voicemail,” says Wayne Tilley, telecommunication manager for the county.

“That limited our ability to provide services to county customers in a timely manner.”

The systems also reduced each department’s control over its call center. Additions or changes required a third-party vendor, which was time consuming. The county also needed to expand its reporting capabilities to meet state and federal mandates, but the existing systems made it difficult to obtain the data needed.

Ultimately, the county wanted to regain control over its call centers, make them more agile, provide better citizen services and reduce costs.

An Integrated Solution
Contra Costa County IT leaders started the search for a single, integrated call center platform that would provide more flexibility and control. They also wanted technology that could integrate with their existing systems.

“The omnichannel capability is a big deal. It helps people realize the benefits they can receive from the county and its various departments. … Ultimately, the new solution allows us to better satisfy the needs of our clients and end users.”

WAYNE TILLEY, TELECOMMUNICATION MANAGER, CONTRA COSTA COUNTY

Transforming Citizen Communications
With the help of AT&T and inContact, Contra Costa County boosted call center capabilities with a cloud-based, geo-redundant solution.
existing Hosted Cisco UC voice solution and was robust enough to meet the needs of multiple county departments. Getting there would require network upgrades and an infrastructure buildout.

AT&T performed the network and phone system upgrades and brought in inContact as a trusted partner to work with the county and fulfill its need for a cloud-based call center solution.

“The county has a lot of semi-autonomous groups. We needed to offload the existing PBX (private branch exchange) phone structure that a number of different vendors were providing, depending on the department,” says Peter Morrison, AT&T technical sales consultant.

Contra Costa worked with AT&T to build a dedicated network to connect the county’s departments directly to the inContact cloud center platform. AT&T then deployed a hosted phone solution to enable fail-over and remote access for county employees. By moving to the cloud, the county could assure application uptime and reliability. To address surivability concerns, the county leverages remote data centers in Los Angeles and Dallas.

Working with inContact, the county then designed new processes to direct inbound calls to the correct agent in a more succinct manner.

Once initial deployment and testing was complete, the county rolled the new contact center solution out to the Child and Family Services Department, which handles a variety of sensitive matters such as child and elderly abuse.

“They are heavy users and they need to have accurate inbound call information and to connect to agents quickly,” says Tilley. “They can’t have people sitting on hold for a long time.”

Based on its success with the Child and Family Services Department, the county pushed the solution out to other departments, including the Behavioral Health Services Department and Animal Services, which both regularly handle emergencies. Because the solution includes a single, unified communication platform, availability improved dramatically. Callers now get the help they need quickly, no matter when they call. And because it’s a hosted solution, county employees have the flexibility to log on remotely when needed.

As word of the new solution got around, other county departments wanted in. AT&T increased the system’s capacity to meet demand. Most recently, the county brought the Health Services Department online.

Benefits of a Cloud-based Approach

The inContact cloud-based call center software, combined with network and phone upgrades from AT&T, gave Contra Costa County a complete solution, brought its various departments, including the Behavioral Health Services Department and Animal Services, which both regularly handle emergencies. Because the solution includes a single, unified communication platform, availability improved dramatically. Callers now get the help they need quickly, no matter when they call. And because it’s a hosted solution, county employees have the flexibility to log on remotely when needed.

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Benefits of a Cloud-based Approach

The inContact cloud-based call center software, combined with network and phone upgrades from AT&T, gave Contra Costa County a complete solution, brought disparate systems together, and allows the county to work more efficiently and collaboratively. Since the solution is cloud-based, departments now have better control over their operations and the flexibility to make changes.

“In the past, this was all on premises, and because the county worked with multiple vendors, getting all the solutions to work together was complex,” says Mark Palmer, channel director at inContact. “Putting it all in the cloud where everything is pre-integrated took all that complexity out of it.”

Utilizing the cloud also allows the county to scale bandwidth as needs change.

“We deal with a wide variety of public needs, and those needs can change dramatically,” says Tilley. “For example, during flu season calls to our advice nurse go up and our call volume increases substantially. Working with inContact, we can increase our inbound bandwidth. When we start to see the inbound bandwidth decrease, we can scale down again.”

Improved Functionality for a Prosperous Future

Better access to data with the new solution has improved reporting functionality, allowing county leaders to provide the information required by local, state and federal regulators.

“A lot of our programs are federally funded and have significant reporting requirements,” says Tilley. “We now not only provide the reports, but have access to data that shows how the county is meeting required guidelines and standards.”

Most importantly, the solution allows the county’s employees to communicate with citizens faster and in more ways, such as email or text.

“The omnichannel capability is a big deal. It helps people realize the benefits they can receive from the county and its various departments, especially in emergency situations where response time is critical,” says Tilley. “Ultimately, the new solution allows us to better satisfy the needs of our clients and end users.”
FOR CITY GOVERNMENTS, getting the most out of their digital transformations requires planning, engagement with residents and the ability to measure the impact of their investments. But because of limited resources and the demands of their day-to-day work, sometimes cities can be reactive to grant announcements or vendor pilot projects, leading to disjointed efforts.

Several nonprofit foundations and academic centers have focused their efforts on supporting planning and development, best practice guideline creation, and cross-pollination between cities. Each has its own area of expertise and focus. Some are grant-making organizations, while others have received grants from the federal government and foundations to bring together city departments and researchers to develop tools and new approaches. Here are profiles of six of the organizations having a significant impact on how smart cities are developing across the country.

**Bloomberg Philanthropies’ What Works Cities**

**LAUNCHED: 2015**

**PART OF PHILANTHROPIST** and former New York City Mayor Michael Bloomberg Philanthropies’ American Cities Initiative, What Works Cities was launched in April 2015 to enhance the use of data and evidence-based decision-making in cities. The What Works Cities initiative is a three-year, $42 million effort to support mayors and local leaders in 100 mid-sized U.S. cities with technical assistance, access to expertise and peer-to-peer learning opportunities.

“When we looked at the landscape of cities using data to effectively manage local government, most of the great work was happening in large cities,” said Simone Brody, executive director of What Works Cities. “Mid-sized cities were eager to take on this kind of work but didn’t have the knowledge or skills to do so.” To fill this gap, Bloomberg Philanthropies stood up What Works Cities, bringing together five expert partners that provide pro bono technical assistance to city staff, helping them build the capacity and skills to use data to make more informed decisions, deliver more effective services and programs, and ultimately, improve residents’ lives.

Brody stressed that the technical assistance is designed to be issue-agnostic. “Our goal is to help cities build capabilities that can be applied to all local issues they’re looking to address,” she said.

What Works Cities brings city leaders and staff together with peers in other cities as well as experts and resources. “This community is committed to learning from each other’s challenges and building on each other’s work, enabling them to accelerate the pace of progress.”

One example of a What Works Cities project is Seattle’s work with Bloomberg partner Government Performance Lab at the Harvard Kennedy School to revamp its contracting practices with providers of homelessness services. The changes ensure providers are measured on their ability to place people in permanent housing, rather than just providing services along the way. A portion of the contract value is also tied to hitting established performance metrics.

In May 2018, Bloomberg Philanthropies announced an additional $42 million investment to deepen and expand current efforts, as well as lower the population threshold to allow smaller cities — with populations of more than 30,000 — to participate.
SMART CITY EFFORTS often involve using sensors and connected IoT devices to bring more efficiency to lighting, transportation or public safety. Yet following a broader definition, the Harvard Kennedy School Government Performance Lab (GPL) helps governments get smarter in several other ways — with performance improvement, procurement and results-driven contracting.

GPL conducts research and holds national competitions to select government partners for technical assistance, usually in the form of consulting help from a Kennedy School government innovation fellow. Philanthropically funded, GPL is one of five technical assistance partners for the What Works Cities initiative. In that program it is assisting cities that seek to adopt results-driven contracting strategies for critical grants and procurements. Of the 100 cities in that program, GPL has worked with 26.

“Sometimes it is difficult for governments confronted by daily operational challenges and frequent crises to think about how to address important long-term priorities,” said Gloria Gong, director of research and innovation. “A lot of our work fits into a definition of a smart city or smart government because it involves developing tools and approaches that can balance the difficult day-to-day work of running a government with trying to accomplish things in a more strategic way.”

GPL, for example, helped Chicago social services agencies redesign how they use data and metrics in their outcome contracts to re-envision cross-agency cooperative services. “We are thinking about smart cities in a broader sense,” agreed Hanna Azemati, program director. “We think about it as governments that are modernizing the way they operate in their core functions by better utilizing up-to-date technologies and partnering with the private sector to make sure they can adopt all the tools available to help them use data to better support, track and analyze performance.”

She cited several projects GPL has done with the city of Boston, including smart streetlights, procurement of an IT system to oversee capital works programs, and development of a tool to better prioritize capital works projects based on specific goals.

GPL also worked with Charleston, S.C., on improving the use of data on vendor management in waste collection. “The city wanted to know in real time when a vendor was unable to finish a route or experienced property damage so it could be better prepared to respond to residents,” she said.

John S. and James L. Knight Foundation

ALTHOUGH THE NONPROFIT Knight Foundation has been funding civic technology projects for some time, it jumped into the smart city space in 2017 when it announced $1.2 million in grant support for six cities to explore how the Internet of Things (IoT) can be deployed responsibly and equitably. Akron, Ohio; Boston; Detroit; Miami; Philadelphia; and San Jose, Calif.; all received planning grants. Lilian Coral, director of national strategy and technology innovation, leads the foundation’s smart city strategy development. “We see a real opportunity to bring the needs and preferences of the residents back to the center of the conversation,” she said. “We want to see if we can engage more residents and show them the value of this work.”

In a March 2018 blog post, Coral highlighted a series of questions Knight hopes to address, including:

- How can cities responsibly and equitably deploy IoT and smart technologies?
- How do cities plan for success along the way?
- How can cities ensure residents have a voice in these decisions?
- How can cities provide opportunities for all residents to participate?
- How can cities ensure that data and technologies are used to benefit all residents?
- How can cities assess the effectiveness of these technologies over time?
- How can cities ensure that these initiatives are integrated into the broader city strategy?
MetroLab Network
FOUNDED: 2015

THE OBAMA ADMINISTRATION'S
Smart Cities Initiative included federal agency efforts as well as those involving the private sector. One of its offshoots was the MetroLab Network, a nonprofit organization established to foster university-city partnerships to drive research and development related to technology, data and analytics in government.

“The idea behind MetroLab was to take the idea of an institutionalized partnership between city and university and bring that to greater scale,” said Ben Levine, the organization’s executive director. “We wanted to see if technologies or approaches can be scaled across cities. We thought it was important to have an organization to facilitate convening, programming and communication.”

MetroLab launched in 2015 with 22 partnerships between cities and universities and has since doubled its membership in the United States. With funding from the MacArthur, Annie E. Casey and Kresge foundations, MetroLab has an annual budget of between $500,000 and $750,000.

Although the idea of scaling approaches from one city to another has been a challenge across the country for years, Levine said MetroLab is starting to see some cross-pollination: An algorithmic approach to fire inspections developed in Pittsburgh with Carnegie-Mellon University is being adopted elsewhere, and Chicago’s data science approach to restaurant inspections has taken off in other cities. “We maintain a library of over 100 such projects as a resource,” he said.

MetroLab engages with its members to think about methods and approaches to elevate the work they are doing. As a guiding framework, it has created a list of 10 principles for successful city-university partnerships. As public service agencies work on integrated data systems, MetroLab has also established a data sciences and human services lab that researches how the disciplines intersect. The emerging area requires a framework to deal with ethical considerations, Levine said.

“For the last two-and-a-half years, we’ve done a good job of creating a community of practice that didn’t exist before and have been an effective convener,” Levine said. “Now we are ready to move to the next level and expand the set of resources available to do this work.”

New York University Center for Urban Science & Progress
FOUNDED: 2012

THE BLOOMBERG ADMINISTRATION’S
“Applied Sciences NYC” initiative made underused city-owned properties available to universities if they would start or expand applied sciences or engineering programs. In 2012 NYU took the administration up on its offer and created the Center for Urban Science & Progress (CUSP), now housed at an old transit headquarter building in downtown Brooklyn.

“Our mission is to develop tools of data science to help city agencies do what they do better,” said Mike Holland, executive director. “We have a one-year master’s degree program. The goal is to equip students with data science tools plus the urban context to effectively apply those tools in a coherent way.”

One component of the degree program is a capstone project for which CUSP solicits project ideas from city agencies that students can work on. For instance,
students have worked with the parks department to bring together existing park data to develop a quality matrix. Those master’s degree students are starting to fan out across the country in smart city-related jobs. Approximately 20 percent of students have taken jobs with city, state or federal agencies. Another large percentage are hired by big consulting firms that do public-sector work, while many others have been hired by tech companies, large and small. CUSP faculty members are also involved in larger research projects that may be exportable to other cities. One such project that received $4.6 million in funding from the National Science Foundation is called Sounds of New York City (SONYC). It combines a network of sensors and a cellphone app to more effectively monitor, analyze and mitigate noise pollution. “We set out to develop a machine learning algorithm to identify and classify the sources of sounds that New Yorkers call 311 to complain about,” Holland said.

Another faculty member is working on the concept of “quantified community” by developing lightweight sensor networks to monitor the baseline behaviors of a neighborhood. The idea is that when vendors make claims about “smart” technologies, cities can better measure whether interventions are making a difference.

### Urban Center for Computation and Data

**FOUNDED: 2012**

The Urban Center for Computation and Data (UrbanCCD) grew out of work researchers at the University of Chicago and the Argonne National Laboratory were already doing informally by partnering with city of Chicago departments to help them more effectively use their data to improve city operations.

One UrbanCCD focus is urban measurement — exploiting new Internet-connected hardware and software to help cities measure their environments and operations. Its Array of Things project, established with a $3 million grant from the National Science Foundation, includes more than 100 nodes collecting data on temperature, humidity, air pressure, magnetic field, vibration, light and air quality. It publishes the results openly for scientists, city officials and residents to use.

UrbanCCD also works to apply urban computational modeling to planning and design for major projects that involve zoning and investment over hundreds of acres of city land.

With funding from NSF and the MacArthur Foundation, UrbanCCD has created an analytics platform called Plenario, which seeks to make the data released by cities, federal agencies, and other sources more accessible. “We are providing a way for people to search for and explore data about the city that would help them with a data science project,” said Director Charlie Catlett. “If a health scientist wants to investigate the impact of heat waves on different communities, it searches our Array of Things data and Chicago open data sets, and presents available data sets.”

On the educational front, in 2013 UrbanCCD helped create a “data science for social good” summer program, which has since spun off and become independent. It involves a partnership with Chicago public schools, and has trained more than 400 students to think about urban and environmental measurement and to design devices that can help.

Catlett said a key goal is to help other cities besides Chicago deploy its tools and approaches. “Our default approach is open source and we think about how we can enable other cities to take advantage of this technology to replicate it locally.”

In fact, the Array of Things project has created a partnership program that is attracting international interest. “We have 100 devices installed in Chicago and 30 installed or shipped in a half-dozen other cities in the U.S.,” Catlett said. “There are cities around the world wanting to try this technology out with four to six units,” he added. “This partnership program is going to be a major focus of our expansion over the next year or more.”
When Park City Water in Utah needed a new system for supervisory control and data acquisition (SCADA) and human-machine interface (HMI), it picked the same solution chosen by its neighbor, Mountain Regional Water (MRW) District.

The two utilities collaborate on projects often, share some resources, and even share data now that they both use Ignition by Inductive Automation® — an industrial application platform with tools for building solutions in HMI, SCADA, and the Industrial Internet of Things (IIoT).

Both MRW and Park City have seen significant improvements since switching from their previous SCADA systems to Ignition. MRW saves more than $400,000 per year on energy with greater control from Ignition. Park City saves the equivalent of one full-time employee by using Ignition to automate its reports to a state agency. Both utilities plan to do more with Ignition in the future. And operators are becoming more engaged with the data at both organizations, creating their own screens in Ignition.

Ignition was implemented at both utilities by system integration company SKM. Based in Bountiful, Utah, SKM operates all over the western United States. “Both utilities need to see data, track the data very closely, and store large amounts of data,” said Allen Rogers, a principal and project manager at SKM. “They wanted the data to help them make better decisions, run their operations more efficiently, and save energy. Being able to track everything in their systems was key to all that. And both utilities are constantly expanding. I knew we needed a SCADA system that allowed for growth and could handle a lot of tags, without the need to go back and relicense things. Ignition was a great fit for both Mountain Regional and Park City.”

Using Ignition, SKM has built several solutions for both utilities.

No Limits

Ignition’s unlimited licensing model is perfect for the growing utilities. “We needed a new HMI/SCADA system primarily because the one we were using was difficult to expand,” said Doug Evans, water & energy manager for MRW. “Every time we wanted to add a site or expand our water system, we needed to acquire new licenses. We wanted a SCADA system that could provide everything we needed in one package. Ignition is a system that can grow with us.”

The number of SCADA tags for each utility jumped sharply with Ignition. MRW went from 5,000 tags to more than 90,000. Park City went from 8,000 to 130,000. “We took them from looking through a
peephole into their systems, to having a nice bay window,” said SKM’s Rogers.

“The granularity of our data collection with Ignition allows us to see things in our water system that we were never able to see before,” said Nick Graue, public utilities engineer for Park City Water. “The real-time data allows us to monitor our system very closely now.”

It’s also easy to add more clients. “Prior to Ignition, we had multiple operators fighting over the mouse to control the SCADA system,” said Graue. “Now we have individual terminals for each operator. Everybody has eyes on the system, and nobody is getting in anyone’s way.”

Help All Around

The mountainous region requires MRW to pump plenty of water uphill. That consumes a lot of energy.

“One of the things we really value with Ignition is that it allowed us to venture into new realms of energy and power management,” said Evans. “And it saved us over $400,000 a year. That savings more than funds my entire department, as well as much of our SCADA improvements and upgrades.”

For Park City, reporting has become much easier. “I really enjoy the reporting tool that SKM built for us within Ignition,” said Graue. “I’m able to query any parameter of any tag within our entire system, and learn anything about what was happening at a certain time.”

Like MRW, Park City is expanding, so it really likes the unlimited licensing. “It gives us the flexibility to continuously add tags of our choosing, whether it’s new instrumentation, or new reporting capabilities,” said Graue. “We are constantly modifying our SCADA system. Before Ignition, we did not have that luxury.”

Bright Future

Park City sees Ignition as a strong base for the future. “Ignition, in our minds, is a great foundation for what we see as the smart utility,” said Graue. “We have various other critical business systems, such as our automated meter reading and our CMMS. We feel we can continue to capitalize on these great technology systems by integrating them with each other.”

Rogers of SKM said he was very impressed with the speed and power of Ignition when he first became familiar with it. “I was really surprised at how fast and easy it was,” he said. “I was able to download Ignition and install it, and within 10 minutes I was connecting to PLCs and adding tags. It was very impressive.”

Rogers also liked that he could try Ignition without having to buy the software first. “Being able to download the software, and experiment with it, without having to get licenses from a vendor, it was so easy,” said Rogers. “And we also saw the free training videos online. The whole process made it easy to see the power inside Ignition.”

SKM, Inc. is a premier electrical engineering firm specializing in SCADA, telemetry, electrical, and control design. Its engineers have extensive experience in electrical design, instrumentation and controls, PLC and HMI programming, and design services. For more information, visit skm-inc.com.

Watch the case study video online at: bit.ly/ia-MRW
ACROSS THE GLOBE, THE SMART CITY MARKET (SERVICES AND SOLUTIONS) TOTALED NEARLY $530B IN 2017. IT IS FORECAST TO REACH NEARLY $1,950B BY 2023. Source: Orbis Research

TRUCKS HELD UP BY METRO AREA TRAFFIC COSTS SHIPPERS ABOUT $28 MILLION EACH YEAR IN OPERATING COSTS AND WASTED FUEL. Source: U.S. Department of Transportation

THE STATUS OF SMART

Facts and figures on smart cities efforts in the U.S.

$530B

$28M
The following cities got a boost on their path to becoming future-ready when they were named finalists in the U.S. Department of Transportation’s Smart Cities Challenge. Of 78 applicants representing 85 cities in 36 states, the following seven cities received $100,000 as well as public- and private-sector consulting help to further develop their pitches. The ultimate victor (and recipient of $100 million in implementation money) was Columbus, Ohio, though all participants found value in refining their plans by participating in the challenge.

### Austin, Texas
Proposed a Mobility Marketplace to help connect underserved communities, like those without traditional bank accounts, the disabled and the elderly, to economic opportunity through improved mobility.

### Columbus, Ohio
Set aside to enhance equal access to health-care services and cut infant mortality rates, especially in communities of color, with a centralized traffic signal and transportation data system that offers multimodal trip planning and a single payment system, and integrates with doctor visit scheduling.

### Denver
Sought to mitigate negative impacts of freight movement, especially on underserved communities, by establishing a connected corridor for freight with connected parking and traffic information systems, which reduced pollution, congestion and engine noise in adjacent communities.

### Kansas City, Mo.
Wanted to quantify and understand data related to urban travel and quality of life, including traffic movements, accident data, air pollution and resident health.

### Pittsburgh
Aimed to take on high air pollution levels through a series of emission-cutting efforts, like converting the city’s vehicle fleet to electric, adding charging stations, converting streetlights to LED and using sensors to monitor air quality.

### Portland, Ore.
Planned an aggressive outreach campaign to engage underserved communities in the development of new, smart transportation options that serve all residents’ needs.

### San Francisco
Acknowledging that housing costs are lengthening commutes into the city, wanted to invest in tools to support carpooling like dedicated lanes and curb space, and an app to connect carpoolers in need of rides.

### Out Front

Eighty-two percent of urban North Americans currently live in urban areas. Source: U.S. Department of Transportation.

About 30 percent of urban traffic comes from cars looking for parking. Source: U.S. Department of Transportation.
THE TYPICAL JOB IS ACCESSIBLE TO ONLY ABOUT 27 PERCENT OF ITS WORKFORCE BY TRANSIT IN 90 MINUTES OR LESS.
Source: U.S. Department of Transportation

CONNECTIVITY

Universal connectivity is also at the heart of most smart city blueprints, like that of Louisville, Ky., which plans a 115-mile fiber deployment, boosted by its selection as a Smart Cities Readiness Challenge grant winner.

OUTDATED TRAFFIC SIGNAL TIMING CAUSES MORE THAN 10 PERCENT OF ALL TRAFFIC DELAYS ON MAJOR URBAN ROUTES.
Source: U.S. Department of Transportation

TRANSPORTATION/TRANSIT

As host to the annual Consumer Electronics Show, Las Vegas is considered a hotbed of tech innovation, especially when it comes to transportation. The Las Vegas Innovation District is now home to a data-gathering connected corridor and an autonomous shuttle to service nearby casinos. New Orleans envisions on-demand minibuses for low cost connections to underserved communities, while Boston proposes "radically programmable" streets that can transform from loading zones to through streets to street hockey lots according to demand.

PUBLIC SAFETY

Smart cities are safe cities that use connected tech like camera networks and shot detection tools to fight crime and contribute to the overall quality of life. Among Schenectady, N.Y.'s smart city projects is a Wi-Fi data network that lets police download dashcam video from cars to the central network as they go about their patrols.

Who’s Who in Smart Cities

According to Navigant Research, here are the top 10 suppliers of smart city technologies:

1 / CISCO
2 / SIEMENS
3 / MICROSOFT
4 / IBM
5 / HITACHI
6 / HUAWEI
7 / SAP
8 / PANASONIC
9 / ERICSSON
10 / GE
STAFFING IT
Cities have started hiring staff dedicated to advancing their smart city efforts. While there are likely many others doing similar work, these cities have someone with “smart city/cities” in their job title (or in the case of San Antonio, they’re working to hire one).

DATA
Intelligent streetlights are propagating across U.S. communities large and small, offering energy savings as well as data-gathering opportunities. In San Diego, $30 million will pay for 3,200 sensor-laden streetlights that will feed data into the city’s open data network.

TRUCK PLATOONING USING AUTOMATED AND CONNECTED VEHICLES COULD REDUCE TRUCK CO2 EMISSIONS BY 7 PERCENT.
Source: U.S. Department of Transportation

7%

DIGITAL EQUITY
Running through seemingly all smart city plans is a desire to ensure all citizens can participate fully in the benefits of their connected community. While providing Internet access to the wider community, cities are also working to ensure that Internet infrastructure can withstand disasters. Organizations like New York City’s Digital Equity Laboratory — spurred by the extensive communications damage from Hurricane Sandy — are helping to develop stronger networks. Wi-Fi projects in six parts of the city are strengthening networks that support residents and first responders during crises.

INFRstructure
An early smart cities leader, Chicago’s Array of Things is a network of streetlight-mounted sensors that gather a variety of data to measure things like air quality and pedestrian flow. First launched in 2016, the network will include 500 nodes, and is described on the project website as a “fitness tracker” for the city that can inform a broad range of future public policy decisions.

Portland, Ore.
Seattle
San Antonio, Texas
A Platform to Power Government

By embracing SaaS, the state of Texas speeds development and saves money.

When Todd Kimbriel started working for the state of Texas in 2008 as director of IT services, he was skeptical of software-as-a-service (SaaS). But the state’s Department of Information Resources (DIR) had already started using Salesforce, and his staff kept trying to show him what it could do.

“Every time we had a new demand, one of my colleagues wanted to put it in Salesforce, and I kept saying no,” he says. Then his department was tasked with finding a replacement for the spreadsheets many agencies were still using to track the bills moving through the state legislature. Kimbriel tried to adapt a new software program already being used by one agency, but it was too complex, costly and time consuming.

When someone suggested, yet again, they do it in Salesforce, “I finally threw up my hands and said OK,” he says. “In three weeks we had developed and implemented a solution in Salesforce. It was amazing. That was my ‘aha’ moment and I became a convert.”

Today, Kimbriel is CIO of the state and deputy executive director of DIR, whose mission is to provide technology leadership to state agencies. And he wholeheartedly supports the use of SaaS. In fact, DIR is a pioneer in Salesforce apps, having developed more than 20 of them and demonstrated their success to at least 23 different state and local government and education entities. Some entities have even asked for copies of the developed applications and worked with Salesforce support to modify them for their particular licensing scenario.

Blazing a Trail in Texas

Kimbriel’s “aha” moment with the legislative tracking app was not just that a SaaS approach speeds the development of apps, but also how cost effective it is. To implement the other agency’s system would have cost DIR hundreds of thousands of dollars in new licenses, development and training. In contrast,
new apps can be developed with the existing Salesforce license, often by less technical staff. The ease of the low-code programming and the efficiency of reusable objects makes the agency agile in responding to needs.

"What used to take months with traditional waterfall development, we can now do in weeks," says Kimbriel. "And what used to take days, we can develop in minutes."

But it's more than just low-code and low cost of development, "it's also cost avoidance," he says. "You don't have to go buy another solution. The more you put into Salesforce development using your existing license, the more you are effectively saving."

DIR has been developing apps in Salesforce for about 11 years. The first DIR Salesforce app helps manage the state’s cooperative contracts program through which agencies purchase technology. It transformed a paper-based process into a streamlined online system that lets customers easily find applicable contracts and enables DIR to quickly update information about vendors, contracts and products. The app, which has been modified and improved over its lifetime, is used to manage some 700 contracts.

The state took a similar approach when it needed to modernize its paper-based procurement. None of the commercial-off-the-shelf products the state evaluated met all of its requirements, so it developed BidStamp, an online procurement application on the Salesforce platform. With BidStamp, vendors can view and respond to request for offers (RFOs), download relevant documents and monitor the status of their bids. Pre-configured rules quantify a prospective bidder’s applicability, helping DIR Contracts personnel and vendors responding to procurements make decisions more quickly and complete the process. The application inspired other agencies throughout the state to develop more Salesforce apps of their own.

Using a SaaS approach to digitize and automate paper workflows has made DIR faster and more efficient, says Allan Martin, director of Information Technology Services and Information Resource Manager at DIR.

“We’ve been able to eliminate the black holes that paperwork sometimes falls into, and minimize the administrative minutia,” he says. It reduces errors and virtually eliminates forms getting lost in the shuffle.

Building a Foundation for the Future

Kimbriel now promotes SaaS among his fellow CIOs. And he points to the benefits that Texas has gained through its use of Salesforce.

In fact, the state launched and hosts a Salesforce government user group, and has worked with the company to build an app exchange for government.

“That’s a model I think other vendors should follow,” says Kimbriel. "If one state has developed something, we should be able to share it with other states.”

Salesforce will remain a core part of DIR’s architecture. "We’re committed to using Salesforce," Kimbriel says. "It demonstrates all the best characteristics that state agencies should seek to implement to move away from legacy systems and move toward agile development."
First responder networks like FirstNet will be a communications boon, but will local agencies embrace the new technology?

Breaking w
On Sept. 11, 2001, in the nation’s worst public safety communications breakdown, firefighters in New York City’s World Trade Center were unable to receive warnings to evacuate the North Tower, which collapsed, killing hundreds of first responders. During hurricanes Katrina and Rita, commercial wireless networks went offline as flooding ensued, making it impossible for federal troops and emergency officials to communicate with each other, and bringing chaos to rescue efforts.

In the wake of the country’s worst terrorist attack and unprecedented natural disasters, one of the recommendations of the 9/11 Commission Report was to stand up nationwide, interoperable communications for all first responders. The result was the First Responder Network Authority (FirstNet), created by Congress as part of the Middle Class Tax Relief and Job Creation Act of 2012 and partially funded with $7 billion.
FirstNet selected AT&T in 2017 to build and manage its broadband network and offered “success-based payments” of $6.5 billion over five years. AT&T said it would spend roughly $40 billion during the 25-year contract to construct, run and maintain the network. Fifty-six states and territories, and Washington, D.C., joined FirstNet by late 2017, with a few meeting the opt-out deadline with just days to spare. This March, FirstNet launched its core network in a controlled introduction to a limited customer base. Rival Verizon also said its competing core network, entirely self-funded, would be “generally available” to all members. Often left unsaid is the fact that, regardless of state-level participation, individual local first responder agencies retain the option to join either network or none. By late July, more than 1,500 public safety agencies had joined FirstNet, enabling more than 110,000 connections — with the adoption rate doubling from April to June. Verizon has declined to release exact subscriber numbers.

The communication landscape for first responders and law enforcement is still being redefined by the arrival of these broadband networks, with significant questions around what they could ultimately look like, when the large-scale transition will occur and how agencies should accomplish it. Critical communication has unquestionably been improved by these national systems, according to first responder association officials who have firmly endorsed FirstNet. However, with roughly 18,000 law enforcement agencies in existence nationwide, it’s clear the vast majority have not yet joined either FirstNet or Verizon. A key reason is that while police, sheriffs and firefighters in the same jurisdictions today may all still use different, noncompatible communications systems, emergency personnel are traditionally cautious about relinquishing devices that have been proven to work.

**FINDING THE BEST FIT**

FirstNet’s two linchpin attributes are priority and pre-emption. Priority guarantees first responders’ traffic will take precedence over any commercial traffic on Band Class 14, the spectrum that’s exclusive to FirstNet members during incidents but available to commercial subscribers at all other times. Pre-emption achieves priority, literally displacing commercial traffic in a crisis. A growing number of FirstNet-certified devices undergo a unique certification process of around 3,500 tests aimed at verifying higher security and reliability before being approved to accept network SIM cards, according to Scott Agnew, AT&T assistant vice president of product marketing for the public sector. While the network currently has just a “handful” of Band 14-enabled devices, that number is expected to rise. To date, Band 14 has been added to more than 2,500 sites nationwide and is live in 40 states. AT&T plans to add Band 14 to more than 10,000 additional locations, and it’s seen as key to closing gaps in rural coverage.

“Because this is public safety, it is treated at a much higher level from a security and reliability standpoint,” said Agnew. Verizon’s network also offers priority, pre-emption and heightened security to its members, according to Nicholas Nilan, the company’s director of product development for the public sector. But rather than keeping first responders in a “certain spectrum class,” Verizon offers them access to the entirety of its network. A 2015 study led by the RAND Corp. affirmed the “emergence of a future broadband network” that would let law enforcement “seamlessly and securely communicate over whatever local point of access is the best fit.” Nilan underscored that point, emphasizing Verizon’s mission to meet a tremendous need for interoperability.

**THE REAL TEST IS GOING TO BE WHEN THINGS GET REALLY HECTIC AND REALLY BUSY — AND A COMMERCIAL WIRELESS NETWORK PROVIDER TYPICALLY GETS BUSY BECAUSE WE’RE ON THAT HIGHWAY WITH EVERYONE ELSE.**

A dedicated network will allow first responders to pre-empt commercial communications traffic, providing faster, more efficient response.

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"The question remains, and the goal remains, to provide interoperability across multiple levels between networks, between commercial carriers, and that requires commercial carriers coming to the table to discuss interoperability and make sure that we all align on it," he said.

Eddie Reyes, chairman of the Communications and Technology Committee at the International Association of Chiefs of Police and an executive fellow at the Police Foundation, explained that law enforcement communication systems remain fragmented nationwide and described police, firefighters and paramedics as cynical and "not likely to let go of technology they trust when a new thing comes along."

FirstNet, said Reyes, "really hasn't been driven around the block enough times yet, it hasn't proven itself," prompting officials to take a "toes-in-the-water approach as opposed to a head-dive approach." That's the case in Prince William County, Va., where Reyes is director of the Office of Public Safety Communications. The county has compared FirstNet-enabled devices "side-by-side" for about 30 days with those on its current carrier. For now, the county is piloting the network on fewer than 10 cellphones and in-vehicle computers.

"To me, the real test is going to be when things get really hectic and really busy — and a commercial wireless network provider typically gets busy because we're on that highway with everyone else," said Reyes. "We don't have pre-emption and priority on our wireless carrier whereas, of course, with FirstNet, it's going to be tested if we're going to have a higher level of resiliency, once a major emergency happens."

But officials in Wake County, North Carolina's second most-populous county at more than 1 million residents, are gearing up to migrate from Verizon to FirstNet during the next 12 to 18 months, citing an increasing reliance on mobile broadband data connectivity, and FirstNet's ability to provide it on a dedicated spectrum. In an email, Wake County's Information Technology Director John Higgins and Jon Olson, the county's EMS deputy director and chief of support services, described connectivity as "mission-critical," pointing out that by late 2019, the county intends for every first responder unit to be able to exchange data with the Raleigh-Wake Emergency Communications Center and agency public safety apps.

"As demand on wireless networks increases based on expanded use of current technology and the implementation of emerging technologies for public safety, so grows the need for a first responder-only 'information highway' that a dedicated broadband network will provide," said Higgins and Olson.

Tom Jenkins, president of the International Association of Fire Chiefs and fire
“made the case for this dedicated spectrum,” meaning Band 14. PERF Executive Director Chuck Wexler called FirstNet “the culmination of what many in law enforcement had been asking for.” He and PERF’s chief operations and strategy officers agreed FirstNet will likely help overcome the communications difficulties of 9/11, but said challenges around adoption policies, equipment rollouts, and usage remain as agencies move to join FirstNet.

“What happens when a department adopts it? How do you communicate? How are officers given equipment? How do they use the voice and texting and driving to a call? There are just practical issues. A lot of policing is a word-of-mouth kind of enterprise in which people will look to hear what’s working and what isn’t,” Wexler said. PERF will host a meeting for early adopters in September to hear their impressions of FirstNet and will compile case studies based on their experiences.

The 2015 RAND study, done in conjunction with PERF, RTI International chief for Rogers, Ark., agreed that FirstNet has “spectrum real estate” in Band 14, and characterized its provider AT&T as “genuine with caring” about members. While he believes all first responder disciplines are important, Jenkins pointed out that firefighters, with their varied assignments, have a need for improved access to online information that is “tough to rival.” Rogers, a city of nearly 70,000 in northwestern Arkansas, has upgraded all accounts from AT&T to FirstNet in what it considers a cost-effective move. Not all fire personnel are on the core yet, but those who are got their first real demonstration of the network’s potential during a Fourth of July fireworks show. With residents actively sending and receiving photographs, texts and video, the fire chief said his staff saw a clear difference in latency between its smartphones, which were FirstNet-enabled, and its iPads, which were not. While voice communications are generally considered most important to Rogers and Wake County, both local agencies view being able to send and receive large amounts of data as increasingly vital.

“It’s an exciting time to be able to solve what is probably the most critical element of using data in a public safety environment, and that’s reliability and redundancy, and for them to have that priority,” said Jenkins. He pointed out that interoperability could be an Achilles’ heel going forward. To ensure connectivity during peak times of usage, AT&T and Verizon also offer portable wireless towers known as COLTs and COWs (Cells on Light Trucks and Cells on Wheels, respectively) to boost bandwidth at large events like the July Fourth celebration on the National Mall. Recently, FirstNet launched its first such dedicated resource, the Satellites Cell on Light Truck (SatCOLT), which was utilized to keep public safety officers connected at a July Fourth celebration in Chino, Calif.

MEETING TOP NEEDS?

Officials at the Police Executive Research Forum (PERF) in Washington, D.C., a research think tank on policing, said their group hosted a March 2010 meeting for stakeholders, including the Federal Communications Commission, that emphasized the need to be able to “make sense out of all the new data.” The top 10 needs the study identified for law enforcement broadband communications included guidance on acquiring, managing and using “mixtures” of technologies, processes and procedures to help public safety answering point (PSAP) employees “prioritize incoming data”; and concepts, policies and procedures for mutual aid networks in a “post land-mobile-radio/FirstNet/broadband era.” It’s important for local governments to be aware of their transition process onto a dedicated broadband network, the costs for a “full life cycle,” and to avoid buying technology “because it sounds cool,” said John Hollywood, the study’s project leader.

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“made the case for this dedicated spectrum,” meaning Band 14. PERF Executive Director Chuck Wexler called FirstNet “the culmination of what many in law enforcement had been asking for.” He and PERF’s chief operations and strategy officers agreed FirstNet will likely help overcome the communications difficulties of 9/11, but said challenges around adoption policies, equipment rollouts, and usage remain as agencies move to join FirstNet.

“What happens when a department adopts it? How do you communicate? How are officers given equipment? How do they use the voice and texting and driving to a call? There are just practical issues. A lot of policing is a word-of-mouth kind of enterprise in which people will look to hear what’s working and what isn’t,” Wexler said. PERF will host a meeting for early adopters in September to hear their impressions of FirstNet and will compile case studies based on their experiences.

The 2015 RAND study, done in conjunction with PERF, RTI International and the University of Denver, also emphasized the need to be able to “make sense out of all the new data.” The top 10 needs the study identified for law enforcement broadband communications included guidance on acquiring, managing and using “mixtures” of technologies, processes and procedures to help public safety answering point (PSAP) employees “prioritize incoming data”; and concepts, policies and procedures for mutual aid networks in a “post land-mobile-radio/FirstNet/broadband era.” It’s important for local governments to be aware of their transition process onto a dedicated broadband network, the costs for a “full life cycle,” and to avoid buying technology “because it sounds cool,” said John Hollywood, the study’s project leader.

“Go into that with a sense of what you plan to do with the FirstNet devices in terms of improving response, improving ongoing both day-to-day responses and large-scale communications. We tell people, ‘Go in with use cases, go in with a plan.’”
Congratulations to the 2018 Special Districts Technology Innovation Award Winners!

LEADERSHIP CATEGORY
Dante Ramirez
Principal Accountant for the Los Angeles County Metropolitan Transportation Authority

WEST REGION

LEADERSHIP CATEGORY
Michael Parks
Deputy Executive Director for the Brazos Valley Council of Governments, Texas

SOUTHWEST REGION

OPERATIONS CATEGORY
Regional Streetlight Program
Western Riverside Council of Government

CITIZENS CATEGORY
Flood Early Warning System
San Francisquito Creek Joint Powers Authority

CITIZENS CATEGORY
GPS.MyGovernmentOnline
South Central Planning and Development Commission, Louisiana

To learn more about the winners’ initiatives and the Special Districts Program, visit: www.govtech.com/districts
Spyware. Malware. Adware. It’s difficult to know where, or where, to begin.

Cyberattacks are as real and often as common as someone stealing mail right out of a mailbox. Unfortunately in a world with a perpetual increase in technology and online private data, so follows the risk of having highly confidential information stolen.

In a proactive approach, Sourcewell (formerly National Joint Powers Alliance) recently collaborated with all Minnesota service cooperatives to research and provide a way to help protect members — within Minnesota and beyond — from cyberattacks.

Ryan Donovan, manager of insurance and employee benefits at Sourcewell, said this was a first-of-its-kind collaboration among service cooperative entities to work toward a common solution for a growing problem.

Just last October, the U.S. Department of Education alerted schools of a cyberthreat where criminals were seeking to extort money from school districts and other educational institutions on the threat of releasing sensitive data from student records. The alert also noted that, in certain instances, hackers have threatened violence, shaming, or bullying students until they are paid the ransom.

Specifically in Minnesota — Sourcewell’s home state — schools have already been the victims of cyberthreats and attacks. In December 2016, leaders at Spring Lake Park Schools said the district was the victim of a ransomware computer virus attack designed to extort money in exchange for regaining access to its hacked computer system.

In February 2017, the South Washington County school district was forced to tighten security after a high school student hacked into the district’s server and took names, Social Security numbers, and addresses. Files for more than 15,000 people were downloaded. Of that number, 478 files were opened, providing complete access to individuals’ private data. In the same month, 2,800 current and former Bloomington Public School employees were robbed of tax forms in a phishing scam.

“This is very real,” says Donovan. “It’s not just about hackers in hooded sweatshirts living in their grandparents’ basement. This can be accidental stuff, like clicking on a phishing email. Any device carries a liability.”

To address the increasing occurrence of cyberattacks on school districts and municipalities, the consortium of Minnesota service cooperatives created a powerful tool to help protect members of all sizes.
“This is a risk management solution, not just an insurance solution,” Donovan noted. “We’re working to be more proactive versus reactive.”

A partnership was secured earlier this year with Wisconsin-based agency Hausmann-Johnson Insurance.

“We’re trying to protect all of our members by providing front-end proactive practices,” says Donovan. “We’re also working with those same members to provide the proper security systems to keep cyberattackers out.”

The Minnesota Service Cooperative Cyber Program offers a cutting-edge cyber insurance program to its thousands of members — within the state and throughout the United States. Policyholders receive industry-leading cyber insurance coverage available only to cooperative members, with preferred pricing and access to a robust online portal filled with tools and training to help identify and mitigate cybersecurity risks.

“We’ve tried to make this easy, easy,” says Donovan. “It’s easy to understand, easy to connect with the service provider to shore up shortfalls in the system, and easy to apply.”

Additionally, Sourcewell provides member access to other vendor contracts for services such as firewall implementation, data backup and disaster recovery, security auditing, server infrastructure, and more.

“We used all of our collective power to provide volume discounting and specialized pricing and coverages that are not currently available in the public marketplace,” says Donovan. “This program is only available for the public and nonprofit sector within the United States. It’s something they can’t even get from their local agent. Members can easily go online to apply for and receive coverage. We’ve also created a slot rating table that allows members to estimate their premium based upon number of students if they’re a school, or population if they’re a city or county.”

For more information, including a list of frequently asked questions, highlights for school districts and municipalities, as well as a breach cost estimator, visit Sourcewell-awarded vendor Hausmann-Johnson Insurance at sourcewell.co/cyber.

Be proactive in protecting your public agency data with Sourcewell’s cyber liability solutions.
As school districts intensify their focus on campus safety and security, the role of local law enforcement is changing. From providing real-time access to surveillance videos to shared trainings, messaging systems, two-way chat dialogs and providing school resource officers, an intense collaboration is emerging. Police are no longer just responders. They’re increasingly becoming partners.

“There’s no way [a school district] can do it alone,” said Gary Sigrist, CEO of Safeguard Risk Solutions, a security consultant. “Nor can you let law enforcement come in and say, ‘This is how you’ll do it.’ Both are bad ideas.”

After the Sandy Hook Elementary School shooting that killed 26 in 2012 in Connecticut, the departments of Homeland Security and Education published a report about the importance of collaboration between first responders and schools. The report said schools should develop Emergency Operation Plans with the help of the local first responder and emergency management community. “There is a need to help ensure that our schools’ emergency planning efforts are aligned with the emergency planning practices at the national, state and local levels,” the report reads.

That approach seems to have been placed on a fast track, at least in some jurisdictions, after the shooting that killed 17 at Marjory Stoneman Douglas High School in Parkland, Fla., in February. “Parkland hit home for a lot of school districts,” said Sgt. Kynrick Koralewski, with the Fort Worth, Texas, Police Department, assigned to the School Resource Unit. “There’s definitely been more change than anything else I’ve seen.”

This year, the Moses Lake School District in Washington state deployed a SafeSchools Alert website where district officials can get anonymous tips reporting threats, harassment, or other safety concerns. The city of Brewer, Maine, is deploying a desktop and mobile application allowing two-way chat between police and school administrators and teachers; and in Fort Worth, schools and law enforcement are ramping up shared surveillance, and law enforcement has started following up on leads with home visits.

Asking for help

The Fort Worth Police Department School Resource Unit consists of 67 officers and monitors five school districts, including the Fort Worth District’s 143 schools. Each district has its own contract with the resource unit that can include training, officer access to video surveillance cameras and off-hour response to problems like social media threats.

There are up to 10 officers who are ready to respond at any time, even during the middle of the night if there is a threat, such as on social media. Officers take all social media threats seriously and begin investigating immediately, contacting the school district and parents. A home visit and a chat with the parents and the student may lead to a search of the home where any weapons may be confiscated, and other appropriate action can be taken to eliminate the threat.

The Fort Worth Police Department has access to video feeds at its Real Time Crime Center and officers can view live video from their phones and laptops. Any information gleaned from video feeds can be immediately transmitted to officers on the street, along with floor plans and other intelligence about many of the schools. The police department is already talking about incorporating facial recognition into the surveillance systems as well.

“Since Parkland, we’ve gotten a lot better at working with the school districts...
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in terms of security, and that’s sparked interest from the districts as far as what they can do to harden targets and make schools safer,” Koralewski said. He said the districts understand that they need local law enforcement and are more readily coming to the table for help. That has also led to more continuity in response protocol and language used across districts and counties.

The police are more than willing to accommodate the districts when they ask for help. School administrators have started accompanying officers to the police academy to take part in simulation training. “We have a judge and a video screen that displays different scenarios,” Koralewski said. “It puts the administrators in certain situations where they would have to make a call.”

The districts are also allowing police to use school buildings for training, like in active shooter scenarios, that let police get familiar with the settings. Probably the most important outcome of the increased collaboration between the districts and police is a familiarity and trust between the two. The attitude, from both police and school administrators, has changed dramatically over the years. Sigrist, whose career includes years as both a school administrator and police officer, shared an encounter he had when he first took a job as a project director for readiness and emergency management for an Ohio school district in 2008.

“I ran into the sergeant in charge of community relations with the police department. He shook my hand and said, ‘if something bad ever happens in one of your schools, I’m going to help the parents sue you because you guys aren’t doing [anything] to protect these kids.’”

That led Sigrist to contact all the first responders, emergency managers and anyone remotely connected to school safety. He started conducting joint meetings to build relationships. Though he is retired from that position, the meetings continue today.

In Ohio, where Sigrist is based, schools do tabletop, functional and full-scale exercises that include first responders and school administrators. The biggest benefit that comes from the exercises is the “familiarity” that’s built among everyone involved. “The same officers you train with are the ones that are going to show up when something goes wrong,” he said. “You can’t do this alone.”

After the Parkland shooting, Sigrist saw a big spike in clients. The first question he has for them is about their law enforcement partners. “Where is police and fire?” he asks. “One of the schools wanted me to do a security and vulnerability assessment and make recommendations for their district,” he said. He agreed, but only if he could do so alongside the local police and fire departments. “We wrote our recommendations, but they didn’t come from me — police and fire signed off on it.”

It’s no different in Fort Worth, where the police department, even during the summer, is intent on building relationships with kids and families.

“When I was in the unit in 2010 and 2011, our main focus was security,” Koralewski said. “Then we went into relationship building, and now we have to do both.”

jmckay@govtech.com
DOES IoT INCREASE OR DECREASE SECURITY RISKS?

23% say IoT makes their agency MORE SECURE. BUT 26% say IoT makes their agency LESS SECURE.

“The assumption that IoT will make agencies more secure or less secure really depends on how it is used and the related controls that are put in place. IoT is still emerging — and the security and privacy issues regarding it go beyond traditional web security.”

— JOE IANELLO, CIO, CAPITAL METROPOLITAN TRANSPORTATION AUTHORITY, AUSTIN, TEXAS

IS IoT IMPORTANT NOW — OR SOMETHING FOR THE FUTURE?

30% say IoT is a buzzword that DOESN’T MEAN MUCH YET. BUT 42% say they are ALREADY BUYING IoT technologies.

“IoT isn’t a ‘thing of the future’ when you consider all of the sensors, meters, communication devices, cameras and even consumer appliances that already are being connected. It’s important to acknowledge the explosion of connected devices and understand that they present opportunity and interject inherent risks.”

— KAREN JACKSON, FORMER SECRETARY OF TECHNOLOGY, COMMONWEALTH OF VIRGINIA
The Internet of Things (IoT) is arriving faster than many government officials realize. The Center for Digital Government surveyed 158 state and local government IT decision-makers to understand how they’re approaching IoT. Their answers reflect uncertainty around deploying and securing this promising new technology.

The Center for Digital Government surveyed 158 state and local government IT decision-makers to understand how they’re approaching IoT. Their answers reflect uncertainty around deploying and securing this promising new technology.

**Will IoT Improve Citizen Services?**

46% say improving citizen services is the top DRIVER FOR IoT. BUT Only 16% perceive IoT as a quality IMPROVEMENT to citizen services.

“States are doing significant work with IoT for environmental and infrastructure monitoring, transportation systems and public safety. These efforts benefit citizens, but they aren’t the showy front-end applications for IoT that are used in the consumer space, so they tend to not be noticed as much by the public.”

— BOB WOOLLEY, FORMER CHIEF TECHNICAL ARCHITECT, UTAH DEPARTMENT OF TECHNOLOGY SERVICES

“Current IoT implementations are aimed at solving specific problems, which is typical for new technologies. The challenge now is to find where there needs to be an enterprise approach and create mechanisms for sharing data, infrastructure and costs across agencies.”

— TERI TAKAI, FORMER CIO OF CALIFORNIA, MICHIGAN AND THE U.S. DEPARTMENT OF DEFENSE

**Are Agencies Inadvertently Creating IoT Silos?**

52% say BUILDING COMMUNITIES OF THE FUTURE requires the elimination of agency silos. BUT Only 4% are procuring IoT technologies as part of a holistic, ENTERPRISE-WIDE EFFORT.

“Current IoT implementations are aimed at solving specific problems, which is typical for new technologies. The challenge now is to find where there needs to be an enterprise approach and create mechanisms for sharing data, infrastructure and costs across agencies.”

— TERI TAKAI, FORMER CIO OF CALIFORNIA, MICHIGAN AND THE U.S. DEPARTMENT OF DEFENSE

Every day you seek innovative ways to connect the unconnected in your communities. But budgets, staffing limitations, and outdated infrastructure are proving a challenge. At Cisco, we understand, and can partner with you to implement IoT strategies to meet these challenges, and more, including unifying data from sensors and devices throughout your communities into a single platform. All while working to keep agency and private citizen data secure.

Cisco is already helping governments like yours develop a strategic and holistic approach to IoT. And together we’re empowering greater opportunities, security, and resilience that enhances quality of life in their communities. Now it’s your turn. Learn more at cisco.com/go/SLG.
More research, more science, more technology.

Despite criticism that has plagued Uber over how it pays drivers and the practices of former CEO Travis Kalanick, the ride-sharing company hit a milestone of 10 billion trips and deliveries on June 10. That includes 173 rides in 21 countries that all started at 10:12 p.m. GMT that day to push Uber’s total rides over that impressive number. The company’s main U.S. competitor, Lyft, announced it had hit 500 million trips in October 2017.

(A)I SEE DEAD PEOPLE:
Researchers at Warsaw University in Poland have developed AI with a sixth sense: the ability to tell the difference between iris scans from living and dead people with 99 percent accuracy. As iris scans become a more common method of biometric identification — much like the fingerprint used to unlock an iPhone — the potential for identity theft via the eyes of the dead is not merely the stuff of fiction. That means that this new machine learning algorithm could potentially become a futuristic crime-fighting tool, stopping bad actors from stealing personal information from the dead.

SOURCE: ENGADGET

Despite criticism that has plagued Uber over how it pays drivers and the practices of former CEO Travis Kalanick, the ride-sharing company hit a milestone of 10 billion trips and deliveries on June 10. That includes 173 rides in 21 countries that all started at 10:12 p.m. GMT that day to push Uber’s total rides over that impressive number. The company’s main U.S. competitor, Lyft, announced it had hit 500 million trips in October 2017.

SOURCE: TECHCRUNCH

4,000:
As cities and counties across the country install fiber-optic cable to increase Internet speeds and improve access for residents, it’s likely the impacts of climate change aren’t on government’s mind — but maybe they should be. According to a recent study presented at the Applied Networking Research Workshop in Montreal, rising sea levels mean more than 4,000 miles of fiber could be underwater in just 15 years, affecting connectivity for millions of residents living along the coasts. The study’s authors hope their findings will serve as a wake-up call that steps must be taken now to ensure our ability to communicate online doesn’t deteriorate by 2033.

SOURCE: EARTHER
Data Disconnect

Data-driven government is most effective if it tracks with residents’ lived experience.

This is the story of a university professor, a blogger and a journalist, each part of a larger narrative about the intersection of crime statistics and fear. Once it came together, the police department and city council wanted to operationalize it. But first it got messy.

At issue is that residents in a number of Seattle neighborhoods think crime is much worse than it is. The results of a Seattle University survey asking 6,454 city residents about perception of public safety found that in Ballard, a neighborhood in the northwestern part of the city, fear of crime ranks higher than most of the 59 Seattle neighborhoods covered by the survey. The My Ballard blog published these numbers, and the story caught the attention of Seattle Times columnist Gene Balk, who followed up by comparing the numbers from Seattle University’s fear-of-crime scale with actual crime rates for Seattle neighborhoods, which he calculated by using Seattle Police Department crime data and population estimates from the U.S. Census Bureau.

Balk’s analysis found several neighborhoods where fear was higher than average and crime was lower than average. The reader response was swift, angry and clear: “Don’t tell me what it’s like to live in my neighborhood.” Data reflected reality — just not their reality. It prompted Balk to write a follow-up column to more fully capture the lived experience that was not evident in the numbers.

The survey findings were also the subject of a hearing before the city council. The professor who led the study explained the disconnect between data and the lived experience as the manifestation of an angry bit of Mean World Syndrome, a phenomenon through which violence-related media content makes consumers believe that the world is more dangerous than it actually is. It didn’t help that neighbors were frustrated with slow police responses, and by their own accounts, many residents had stopped reporting crime, casting a pall on the legitimacy of the survey data. The Seattle Police Department told the City Council the contextualized data was helpful. For its part, the council wanted to know more about what made residents fearful.

There are a number of elements in play in stories such as these: data, engagement and storytelling. This Seattle case demonstrates what happens when data doesn’t map to lived experience. Data is authoritative, but its legitimacy can easily be called into question. It helps policymakers and planners see deeper and more broadly into the life of the city. Data is helpful in operations, planning and politics. Analytics can surface correlations that would have otherwise remained unknown. Civic engagement is the result of asking questions of the people who live and work in a particular place. Methods vary in their rigor and results vary in their usefulness.

Then there is storytelling. This is not a strong suit of most public agencies, leaving constituents to their own devices to make sense of what is going on. Effective storytelling — not necessarily in the journalistic sense — provides a narrative about which people may argue, but at least lays out a common fact pattern. Many public agencies do well to get one of these elements right; the lucky ones get two. But if policy decisions are to be trusted in an era of data-informed government, then government needs to get good at doing all three well, every time.
Digital transformation has produced dramatic improvements in the private sector. Now the public sector is primed to embark down the digital path. But what is the best way for a government agency to achieve digital transformation? In this Government Technology Q&A, Katie Gaston, product manager for Laserfiche Cloud, discusses how governments can simplify and accelerate digital transformation with cloud services.

Q: Where do most state and local governments stand today in terms of digital transformation?

Most organizations go through multiple phases when they transform business processes with digital content and technology. Initially they convert paper documents and forms into electronic files for digital access, processing and archiving. Once documents are digitized, it’s easier to organize, categorize and manage information in a secure, central location. Electronic documents also make it possible to automate business processes and workflows. As processes are automated, the organization can streamline operations on a larger scale. The agency can also apply analytics to identify ways to improve processes and better align them with business activity and citizen services.

Most state and local governments today are still focused on digitizing documents and adopting a content management system. But that work establishes a foundation for automated business processes.

Q: What types of cost savings can be realized from automated business processes?

Agencies can realize the biggest savings by reducing employee time spent on manual tasks, including searching for paper documents. Automating the routing and filing of digital documents further increases productivity. Agencies may also avoid costs by reducing the risk that sensitive information is managed incorrectly.

Q: Why haven’t more government processes been automated?

Once documents are digitized, it’s easy to see the potential for automating the agency’s business processes. Many large and mid-sized public sector organizations are looking at how they can move toward automation. These organizations typically begin by looking at existing systems and tools. However, those solutions often can’t scale to handle high-volume documents and transactions. Another challenge is many legacy systems don’t meet regulatory requirements for protecting digital information. As a result, the organization starts looking for new document management and automation solutions.
Q: What are the benefits of cloud-based digital transformation?

The benefits of digital transformation in the cloud include reducing costs, eliminating the support burden of in-house infrastructure, and gaining flexibility and scalability to handle more data and deliver more services. The cloud also provides users with secure mobile access to applications and data.

When considering the move from an on-premises system to a cloud solution, it’s important to create a comparative ROI analysis. For an internal system, look at capital costs for expanded infrastructure and the operational costs of maintaining it. For a cloud solution, evaluate the system implementation as a service offered on a public cloud, in a hybrid private/public cloud or in a private cloud.

Q: How will moving business processes to the cloud help prepare government for future trends?

Robotic software is the future of digital because of its power to automate repetitive and routine tasks. We’re already developing bots to handle document workflow tasks in Laserfiche products, which will free up time for higher-value work.

Bots can also make government information more transparent and easier to access. For example, when documents are stored in the cloud, routine public requests can be handled automatically by a bot. Bots will also allow users to automate some of their own processes instead of submitting requests to IT. The organization benefits from accelerated digital transformation and IT benefits from a reduced programming workload.

Q: What factors should a government agency consider when choosing a cloud-based business process automation solution?

Evaluating both the automation solution and the underlying cloud platform. For the automation solution, look at automated document filing capabilities and whether the system can handle automated approval routing. The way in which the solution integrates with business applications for consistent and single-source information is also important. And of course, you’ll want a system that offers process automation supported by robotic software.

For the cloud platform, ask about the cloud vendor’s compliance certifications, especially for data security. Look at the guarantees specified in service-level agreements (SLAs) and the vendor’s application uptime metrics. Ask how the content management system is implemented in the cloud: Can it take advantage of cloud elasticity and scalability in a way that will meet your organization’s changing needs?

Q: How can governments make a successful transition to business process automation in the cloud?

Choose which use case to validate first, along with the right stakeholders to involve. To encourage adoption, cultivate employees who can become automation champions within their department and give them the training and tools to be effective.
SHAKEUPS IN WASHINGTON STATE
At the beginning of June, veteran cybersecurity leader Agnes Kirk retired as CISO of Washington after a multi-decade career in state government. While her deputy CISO Phil Davis assumed the role in an interim capacity, he too left the position in mid-July. This leaves both the CISO and CIO roles unoccupied — interim CIO Rob St. John retired in June as well — but Davis said the organization will fill out its leadership ranks in the coming months.

Cook County, Ill., Makes Two Major Hires
Following the departure of CIO Simona Rollinson in mid-June, Cook County, Ill., made two major tech hires. Dessa Gypalo, previously director of data services at campaign tech provider NGP Van and at EveryAction, a company specializing in resources for nonprofits, was brought on as the county’s inaugural chief data officer. Later in June, Cook County Board President Toni Preckwinkle nominated the agency’s Deputy CIO Tom Lynch as its next CIO. The appointment was confirmed in late July. With Cook County since 2014, Lynch led the implementation of a new enterprise resource planning system that spans multiple departments.

Longtime Delaware Security Chief Retires
After 22 years with the state, and 13 as chief security officer, Elayne Starkey retired at the end of July. Delaware CIO James Collins will serve in the position in an interim capacity during a nationwide search for a permanent replacement.

New Mexico CIO Steps Down
Following a long tenure as the state’s top technology official, Darryl Ackley left his post at the end of August to rejoin the New Mexico Institute of Mining and Technology as CTO at the Institute for Complex Additive Systems Analysis, where he previously served as assistant director. Department of Information Technology Deputy Secretary Estevan Lujan will serve as acting cabinet secretary.

NEW JERSEY HIRES FIRST CHIEF INNOVATION OFFICER
In August, New Jersey Gov. Phil Murphy announced the appointment of Beth Simone Noveck as the state’s first-ever chief innovation officer. Noveck is founder and director of The Governance Lab at New York University Tandon School of Engineering, and previously served as the first U.S. deputy CTO. She was also director of the White House Open Government initiative under the Obama administration.

Montana Appoints New CIO
Gov. Steve Bullock announced in early July that he had appointed Tim Bottenfield, whose public-sector IT background spans 30 years, as Montana’s new CIO (see p. 12). Bottenfield joins the State Information Technology Services Division from the position of CIO of the state Department of Revenue, and replaces former state CIO Ron Baldwin.
Arkansas Appoints Its First Chief Privacy Officer

Amid growing interest in protecting citizens’ personal information, Arkansas joined the list of states appointing chief privacy officers. In June, the Department of Information Systems announced that attorney Jennifer Davis, a former legal adviser in the Arkansas Department of Education and general counsel for DIS, was named to the role. Davis will work with CDO Richard Wang to ensure protection of citizen data across the enterprise.

San Jose Hires First CISO

With a doctorate in information assurance and nearly 30 years of software and security experience, Marcelo Peredo has taken on the role of San Jose, Calif’s first-ever chief information security officer. Peredo’s other previous work includes time spent implementing a NIST Risk Management Framework and creating an IT security road map for San Diego County. San Jose is also now looking for its first chief data officer, who will work with the Office of Civic Innovation and Digital Strategy and others in city government.

Former Westchester County, N.Y., CIO Builds New Career in Construction

John McCaffrey, a GT Top 25 Doer, Dreamer and Driver of 2017, retired from his post as CIO of Westchester County, N.Y., in January to launch a consulting service. But in April, construction management giant LiRo Group hired him as its first CIO to jump on a growing trend in public-sector projects.

San Jose Hires First CISO

CIO of Fulton County, Ga., Departs

After three years in the position, Sallie Wright, CIO of Georgia’s most populous county, stepped down Aug. 3. Fulton County CFO Sharon Whitmore will oversee the Department of Information Technology while the agency searches for Wright’s replacement.

Arkansas Appoints Its First Chief Privacy Officer

Alaska Adds Innovation Officer to Its Ranks

Jason Schneider, who started work in May for Alaska’s Office of Information Technology, has been appointed to the position of the state’s first chief innovation officer. He will report to one of five chief technology officers in OIT, which is overseen by state CIO Bill Vajda.

CIO of Fulton County, Ga., Departs

CDO Hired for Virginia

Following the passage of legislation that created the position earlier this year, Virginia now has its first chief data officer in Carlos Rivero. Appointed at the end of July by Gov. Ralph Northam, Rivero has experience in both academia and government, having most recently served as the CDO and chief enterprise architect for the U.S. DOT’s Federal Transit Administration.

CDO Hired for Virginia

LONG BEACH, CALIF., NAMES NEW DIRECTOR OF TECHNOLOGY AND INNOVATION

Having served as interim director of the department since January, Lisa Erikson in June officially assumed the role of director of technology and innovation for Long Beach, Calif. Erikson arrived at City Hall four years ago and, said City Manager Patrick West in a press release, “From overseeing multi-billion-dollar budgets to managing critical projects for the city, she has excelled, and always puts the needs of our community first.”

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Finding the Funny
Humor can be a useful tool for generating social media engagement for government.

"See you in the funny pages!" I remember my grandpa frequently using this good-natured colloquialism when saying goodbye to friends and family. It referred to a time when comic strips, a.k.a. "the funnies," were published in the back of printed newspapers. Everyone flipped to the back of the paper to follow their favorites with each new issue.

Viral humor on today's social media might be a close equivalent to yesterday's funnies. We not only share these witty posts and clever burns with our friends and family, we also intentionally follow profiles that consistently use humor. Humor is a legitimate tool for earning a social media following, and the benefits of funny posts go well beyond simply getting one-time social media shares.

Several government agencies have cracked the code in terms of effectively incorporating humor in their mainstream social media activities and striking a balance between the funnies and getting important government business done.

A quick look at the Lawrence, Kan., Police Department's Twitter profile reveals why it's known for its use of humor. Hats off to LPD Officers Drew Fennelly and Derrick Smith for continually raising the bar for government humor. Not many agencies can say they've earned over half a million interactions on one tweet alone. In real life, their department is recognized, and even defended by citizens as a direct result of its Twitter style.

Growing your online reach and getting positive public sentiment are both important goals. But what about using humor to actually get people to do something? A classic example of a humorous post getting people to take action — in this case, apply for a job opening — is a January 2018 tweet by the city of Los Angeles, pictured here. The response was resounding, and gave the city a new avenue to create engagement around employment opportunities.

If you're anything like me, you continue to follow these profiles to see what these agencies will think of next. And maybe I'll see you in the funny pages ...

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.
Stay up to date on the latest trends and gain insights to some of your most pressing challenges.

Intelligent Jail Management
Unlocking the Power of Data

Incarceration is one of the costliest components of the criminal justice system. And even though jails and other detention facilities are 24/7 data factories — generating volumes of information, all too often, fulfilling a public records request means carrying paper around from department to department because it’s the fastest and easiest way to assemble all the right documents. And because one employee typically serves as the response coordinator, deadlines could be missed when that person takes time off.

This was the challenge for La Plata County, Colo., where state law requires a response to records requests within 72 business hours. "The 72-hour response requirement is a tight timeline and requires everybody to be on top of things because the legal implications for not meeting the deadline are huge," says Sarah Jacobson, manager of the county’s administration office.

Today, La Plata’s response process is largely automated within its Laserfiche enterprise content management system. County staff used the Laserfiche Business Process Library, a feature in Laserfiche Forms, to find a prebuilt template that reflects a typical records request workflow and automates task routing, document forwarding and due date reminders.

Using Laserfiche to create online forms and automate workflows is a significant part of the county’s initiative to mitigate declining tax revenues by reducing direct costs and working with leaner operations. "Laserfiche helps us increase our capacity to get work done, even in times of tight budgets," says Mike Hawkins, enterprise content analyst. The improvements gained from process automation are instrumental to the county’s goal of saving $1 million in hard and soft costs in FY 2017 and to its Innovate La Plata initiative, a program that empowers staff to think differently about their work in order to streamline processes, save money and improve their job satisfaction.

Meeting Deadlines, Reducing Work
When a public records request is entered into La Plata’s Laserfiche system, the automated workflow starts freeing up county employees’ time by:

• Tracking the status of required actions for each department and automatically sending reminder emails about items due
• Supporting redaction and allowing drag-and-drop document submissions into the response file
• Avoiding the need to manually convert documents into a PDF format before responding back to the appropriate request
• Routing the response file to the county attorney’s office for legal review
• Sending an email to the requester with cost information if the request will involve charges for staff time, then issuing an invoice when the response work is finished

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