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2017 FROM A TO Z
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December 2017

C O NTENTS

Vol 30 | Issue 8

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FEATURES

Ahead of the total solar eclipse that crossed the U.S. in August, Oregon officials turned to tech to prepare for the crowds that descended upon the state.

COVER IMAGE SHUTTERSTOCK.COM

COLUMNS

DEPARTMENTS

NEWS

IN OUR NEXT ISSUE:

FOLLOW
US ON

GovTech 100:
2018 Edition
Our third annual take on
an emerging market.

Biz Profiles
We look at a handful of
gov tech pioneers and
their path to viability.

Guest Voices
A roundup of opinions from
practitioners on the state of
the market.

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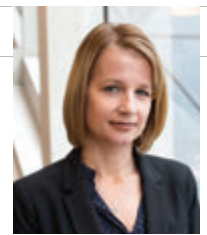
The First Three Decades of GovTech

This issue marks the 30th anniversary of *Government Technology*. We dug up a copy of the inaugural issue, which looks a little different from December 2017.

e.Republic CEO and *GT* Editor in Chief Dennis McKenna's original idea for *Government Technology* back in the late 1980s was to take the two most boring subjects — government and technology — and put them together. He went on to build a company around them — at a time when technology leaders in California state government doubted his prediction that one day, all state employees would have computers on their desks.

Paging through that first issue brings some predictable reactions. Especially in technology, the biggest takeaway is how very far we've come. This, of course, was pre-Internet, pre-smartphone, when significance was measured by the size of your switchboard and raised-floor data center. The ads inside offer phone numbers and physical addresses as the preferred (and only) means of contact.

IT was buried in some other function of government, not a standalone entity. Those who ran these units were IT managers. The idea of a chief information officer in government — especially one that deserved a place at the cabinet table — was novel, even foreign, but it was championed early and often in these pages.

What was perhaps a more surprising reaction is how evergreen many of the issues covered actually proved to be. While progress, remarkable in scope and scale, is evident at every turn, so too is the universal nature of many of the biggest challenges in government IT.

Case in point: The struggle to create mutually beneficial relationships between the public and private sectors snags a good amount of ink in the 1987 issue. David Lema, then-director of the state of California's Stephen P. Teale Data Center, urged readers to work toward symbiotic, two-way partnerships in which taxpayers and shareholders alike "each rightfully demand a good return on their investment." Another piece suggests vendors ought to invest as much time boning up on prospective government clients as they do potential customers in other markets.

The premier issue also looks at the advantages of telecommuting as an antidote to ever-increasing traffic, offering advantages for productivity, absentee rates and making government a more desirable employer. While it's a challenge to imagine remote work in the pre-Internet era, the building blocks for a more flexible workplace were being considered, even then. Our recent workforce series (www.govtech.com/workforce) proves that CIOs see the benefits, even if some still struggle with policies. The essential nature of a mobile-enabled workforce — for field-based and remote work — is fully accepted today.

Evidence of data-sharing, and its inherent challenges, were hinted at in the early days as well. A profile of nonprofit Public Technology Inc., described as the research and development arm of the National League of Cities and the International City/County Management Association, pointed to a payroll upgrade for a California city that benefited from an internally developed tool from a Wyoming municipality. The concept — one jurisdiction benefiting from a solution another built for the same issue — was a novel one at the time, yet it foretold so much of what was to come.

The Young Turks of 1987 are now graybeards, what was cutting-edge tech then has aged into legacy and what were then new companies are now incumbents, each negotiating a future with hundreds of gov tech startups that have assumed the vanguard in what seems like an eternal quest to find a better way to do the work of government.

These are just a few examples of broad topics from 1987 — when a gallon of gas cost 87 cents — that still resonate today. While the specifics of each challenge have evolved, and tales of overcoming them in smart ways are many, the underlying themes still seem worthy of consideration.

Hopefully this means we're still talking about the right things. Let us know. And here's to the next 30 years of *GovTech*. gt

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Transit Goes Tiny

Los Angeles, long known for its reliance on cars to get around and the accompanying heavy traffic, is investigating a new way to get riders onto public transportation and easily take them from point A to point B: micro-transit. The county's Metropolitan Transportation Authority released a request for proposals to produce a pilot program for a sort of hybrid between Uber and a vanpool that would carry passengers in a ride-share vehicle for a low cost, facilitated by software to make it on demand.

BIZ BEAT

OpenGov offers data-focused tools for government to increase collaboration, transparency and public feedback, particularly in the areas of budgeting and performance management. In October, it strengthened that "public feedback" ability by acquiring Peak Democracy, whose function has always been to help government work better with the citizens it serves. Peak Democracy's core product, Open Town Hall, offers cities a way to collect resident input with an emphasis on diverse, informed opinions and civil discussion. OpenGov plans to incorporate that form of civic engagement into virtually every product they offer, ultimately creating a complete ecosystem that opens communication channels between cities and citizens.

HACKING FOR HURRICANES

Following the devastating hurricanes that tore across the Gulf Coast and Caribbean this fall, local Code for America brigades in Miami and Savannah, Ga., pivoted their National Day of Civic Hacking events to focus on disaster recovery, using their regions' response to the hurricanes as a case study. Savannah's event turned to creating tech-based solutions to control rumors and disseminate better information in advance of a disaster, as there was confusion about when residents should evacuate ahead of Hurricane Irma. In Miami, the focus shifted to look at solutions for marginalized communities, where infrastructure and economic challenges are exacerbated by storms.

WHO SAYS?

"If you ask a bunch of people what's a digital experience or a user experience, you may get a mix. People think it's a pretty website, people think it's simplified content. It's really all of the above and a little more."

Govtech.com/quoteDecember17

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Mammoth Riverside County Broadband RFP Takes a Modern Approach **3,511 VIEWS**

Iowa, Five Other States Will Try Digital Driver's License Projects in 2018 **2,077 VIEWS**

Portland's Popular Bike Map Goes Digital **1,504 VIEWS**

Washington, D.C.'s Bike-Sharing Goes Dockless and Electric **1,325 VIEWS**

Atlanta's Smart Corridor to Serve as Living Lab for Smart Transportation **1,272 VIEWS**

tech/**bytes**

238
The number of jurisdictions bidding to become home to Amazon's $5 billion second headquarters.

72%
of private-sector employees are willing to share sensitive, confidential or regulated company information, according to a security study from Dell.

500M
The value of a contract between the New York City Metropolitan Transit Authority and Cubic Transportation Systems to set up a new fare system for the city's subways and buses.

350K
The number of Arkansans signed up to receive notifications from the all-in-one mobile platform Gov2Go since it launched there in 2015. In October, NIC announced that the service was expanding to all 50 states.

Making It Personal

Using both public outreach and innovative tech, South Bend, Ind., took on citizen engagement.

The city of South Bend, Ind., tackled urban blight in short order, rehabilitating or demolishing 1,000 abandoned properties two months ahead of the 1,000-day goal set by Mayor Pete Buttigieg. However, resolving the blight issue created a new problem: What to do with hundreds of now-vacant lots scattered throughout the city? To answer this question, South Bend paired the power of public outreach with innovative technology.

The city sent municipal employees and University of Notre Dame students into the field to understand what features community members wanted to see in their neighborhoods. "We had people working with neighborhood groups, creating makeshift policy labs through which we could understand issues from residents' perspectives," explained Santiago Garces, South Bend's chief innovation officer. To ensure the process would garner effective and representative public input, the city relied on its relationship with the university to construct methodologies and survey instruments.

To make sense of the data gathered, South Bend then paired this tried-and-true method of public outreach with cutting-edge mapping technology. The city used ArcGIS Hub, an Esri platform that clusters data sets and tools around specific citywide initiatives, in order to improve public input. Anthony Puzzo of Esri described the hub as "a two-way engagement platform to help connect the government to its citizens and create a digital conversation about the initiative at hand."

The first element of this platform is a visualization of resident input that takes information gathered on the ground and maps it lot by lot across the city. For example, the map might show that residents see one lot as an ideal place for affordable housing and another as a good spot for green infrastructure. The other element is a channel of communication that allows residents to comment on the information displayed in the map. "We are using the hub to create a modern way of organizing open data, presenting the information in a consumable fashion, and creating a digital conversation to listen to those interested," explained Puzzo. With respect to blight, the hub provides "a way of understanding which lots are right for which uses," said Garces. And opening the platform to the public has allowed the city to publicize its successes and gain buy-in for construction and renovation projects.

For Garces, however, it was important that the technology came after the city put in the work to engage with residents in their neighborhoods. The relationships the city developed with community members were invaluable in gaining support for projects. "With this on-the-ground engagement, we were able to develop the trust to experiment with new things — for example, a tree nursery that we're thinking about filling with edible fruit that could serve food deserts," Garces explained.

Moreover, engaging with residents on the ground increased community interest in city projects. "With technology only, you may get participation, but you don't necessarily get buy-in because people feel like they have a marginal influence," Garces said. "It feels to residents more like rooting for their favorite *American Idol* contestant than participating in a conversation." On the other hand, talking to residents face-to-face assures them that their voices will be heard, and then technology can be a useful tool for organizing and delivering upon this public input.

And the combination of personal outreach and technology ensured that the city's efforts engaged a representative group of voices. "Especially in South Bend, neighborhoods that don't have a ton of money don't have access to tech platforms," said Garces. And yet, following on-the-ground engagement with technology also aided efforts toward inclusivity. According to Garces, during the outreach process, students and employees analyzed the distribution of participation across the city and, seeing that the channels of communication were underused in low-income areas, adjusted their methods in order to broaden the reach. Puzzo described the hub platform as "a way of capturing who from the public is providing information. You know who you're engaging with and can manage your community accordingly."

South Bend's approach to its blight outreach efforts — fusing the personal with the technical — is exactly how cities should approach tech-driven initiatives. Technology is no replacement for human-centered policy. Rather, "technology validates a process that's a lot more democratic and meaningful," Garces said. 𝗀𝘁

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

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

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Acting Locally

Key takeaways from the 2017 Digital Cities Survey

In November, the Center for Digital Government announced the winners of its 2017 Digital Cities Survey, a nationwide analysis of municipalities and their tech-driven initiatives aimed at ensuring their cities are delivering services as effectively as possible, both to external and internal customers. Here are a few top-level insights gleaned from this year's submissions. For the full story and details on each of this year's 63 ranking cities, visit **www.govtech.com/DigitalCities2017**.

They're No.1

These cities earned the top spot in their population category.

- Cape Coral, FL
- Tamarac, FL
- Los Angeles, CA
- Lynchburg, VA
- Virginia Beach, VA

Are cities using AI?

37% Using

36% Not using

27% Planning to use soon

CIO Priorities

1. Cybersecurity
2. Citizen Engagement/Experience
3. Mobility/Mobile Devices/Applications
4. Transparency/Open Data/Data Governance
5. Disaster Recovery/Continuity of Operations
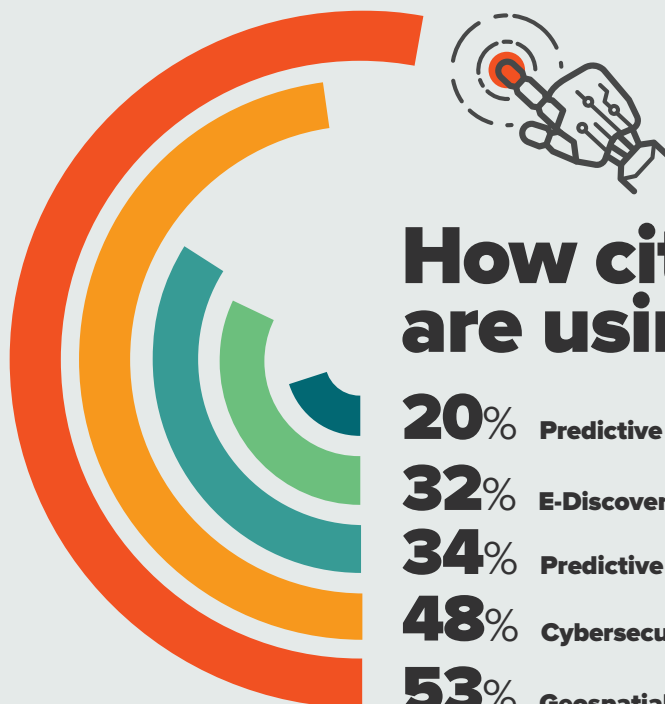
How cities are using AI

20% Predictive Analytics

32% E-Discovery

34% Predictive Policing

48% Cybersecurity

53% Geospatial/Mapping

AI that cities plan to invest in:

- Analytics
- Automated Traffic Control
- Benefits Eligibility
- Infrastructure Inspections
- Physical/Digital Robotic Controls, Robots (including Humanoid Robots)

IoT on the Rise

Percentage of cities planning with the Internet of Things in mind

81% 2017

73% 2016

61% 2015

Covered or Not?

60% of cities report having cyberinsurance.
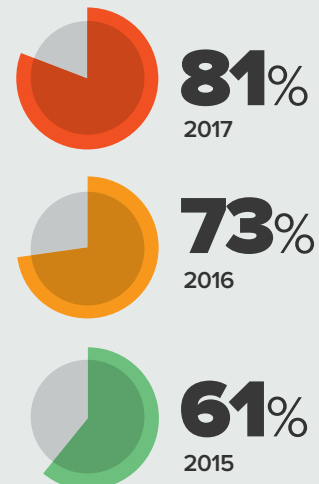
Cloud Movement

Systems in the cloud

0-20 percent:
- **67%** 2017
- **77%** 2016

20-40 percent:
- **26%** 2017
- **16%** 2016

More than 40 percent:
- **6%** 2017
- **6%** 2016
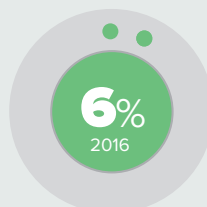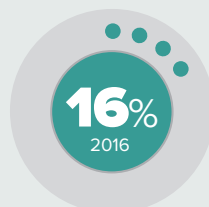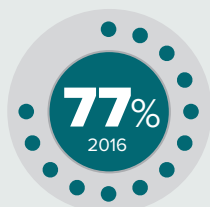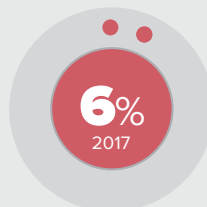
Funding Innovation

Dedicated Funding

19% of cities report having a dedicated funding stream for tech-related innovation

while another

19% Are Working on It

CENTER FOR DIGITAL GOVERNMENT

government technology

Accela

CIVICPLUS

DELL EMC

ForeScout

Laserfiche

Microsoft

NetApp Data Driven

CISCO

NUTANIX

PURESTORAGE

shi

Spectrum ENTERPRISE

*The Center for Digital Government is part of e.Republic, *Government Technology's* parent company.
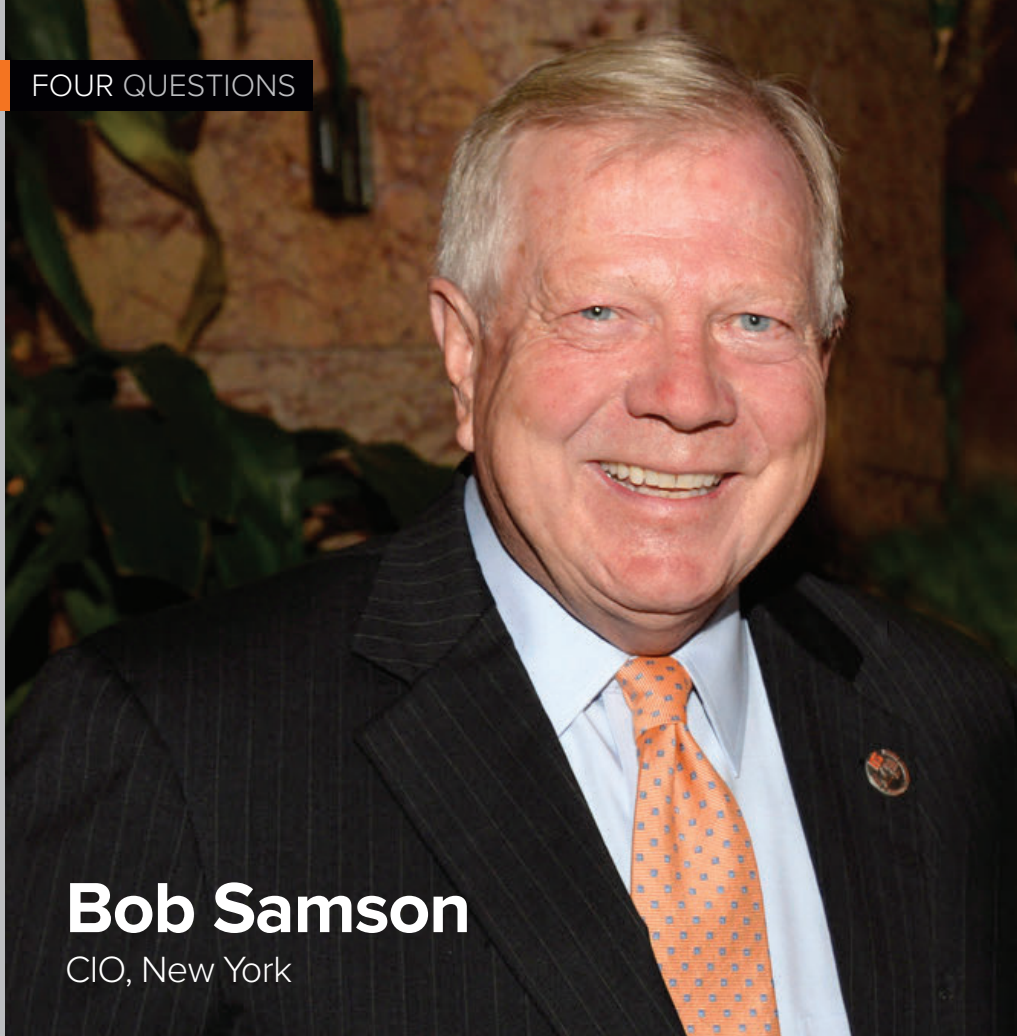
Bob Samson
CIO, New York

Bob Samson *has only been New York state's CIO since April, but his relationship with the state and IT spans decades. Today, the former IBM veteran is focused on the present and is proud of New York IT services — from its massive consolidation, which took place in 2012, to the fact that the state was first in the nation to name a chief information security officer and chief data officer, as well as its adoption of cluster CIOs to support the horizontal organization of IT services across 46 agencies. Samson recently shared his views with* Government Technology *during the New York Digital Government Summit in Albany.*

1 How was New York able to consolidate its IT operations and what has been the outcome? Gov. Andrew Cuomo recognized early on that technology was horizontal across agencies — it is transformational in terms of the power of applying it to government — and it needed to be secure. At that time, we had 37 agency CIOs covering 46 agencies and 53 data centers, 27 email systems and no consolidated strategy for cybersecurity or data. IT was run in 46 different silos.

We worked for two years putting together recommendations for the governor. Then he made the bold idea to work on what I characterize as the "all in" model. On Nov. 11, 2012, we moved about $1 billion of IT spend out of the agencies, and about 4,000 people from the executive agencies into what we renamed the Office of Information Technology Services (ITS). We have consolidated into one email system and have about 130,000 users. The next project is to continue the consolidation of the data centers, from 53 down to two.

2 How has consolidation changed the way ITS and the agencies work with technology? The 46 executive agencies we have responsibility for, we are their IT outsourcer. We manage all their IT and we are also their consultant to help apply technology to grand challenges they have. I characterize a grand challenge as something that people have thought about, possibly believed impossible to do, but it is something so transformational that it changes the trajectory of how work is done, how decisions are made and how outcomes are improved.

One of the more powerful things to come out of the creation of this organization is to get agencies to stop thinking and worrying about the infrastructure and focus on the application of technology as it relates to what they do. It really changes the dialog. All of that noise about what server, switch, phone, etc., has been taken off the line into what is a consolidated, best-of-class, resilient, secure infrastructure.

To my knowledge, no state has done what the governor has done here in terms of the all-in model. Some have come close, some have hybrids of it. But we have the all-in model: all the budgets, all the resources, all the standards, all the decision-making with regards to IT sits here. We are a trusted confidant, a trusted colleague, a trusted partner to do this work for them.

3 How do you stay flexible and innovative, given your large size? A big part of it is culture. We've also put together a rigorous training program; we were one of the first agencies to build its own unique leadership program, which is intended to create the next generation of leaders and also bring them down the path in terms of innovative thinking in how to not be distracted by the bureaucracy and other things that tend to encumber innovative thinking. Instead, they can focus on the ideas that matter most.

4 Has data sharing become easier now that IT is consolidated? Quite frankly, it makes our job easier when you have a leader who understands that technology is horizontal, is transformational and needs to be secure. If you start with the premise that IT is horizontal, then embedded in that idea is access to data. We were the first state to name a chief data officer five years ago. It starts with thinking of how to have a data strategy for the state that allows you to be horizontal in terms of data access as well. We are in the process of building that strategy. **gt**

— Tod Newcombe, Senior Editor

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2017
A FROM TO Z

Data drives smart decision-making, and *Government Technology's* annual Year in Review feature is a good example of that. This look back at 2017 is based on the site analytics for Govtech.com that tell us which stories got the most traction with readers. From artificial intelligence implementations moving from concept to reality, to zero waste programs indexing trash using tech, here's a look back at the stories you spent the most time with this year.

JAN

2017 saw the country edge ever closer to mass use of **self-driving vehicles on public roadways.** In January, the U.S. Department of Transportation named **10 test sites** that will together form a "Community of Practice" to advance the tech behind autonomous and connected cars. Guidance for local government came from the National League of Cities in April, which directed members to grab a seat at the table, and staff it with experts from IT, procurement and transportation.

The civic tech community met in San Francisco on the eve of President **Donald Trump's inauguration,** where Code for America founder **Jennifer Pahlka** reminded attendees of the enduring importance of using tech to improve how government serves its people. Concerns about what the election might mean for recent tech progress persisted throughout the year, as leaders in gov tech watched open data disappear from federal websites. Government staff also grappled with enforcing policies they didn't agree with, like a presidential commission request for **detailed voter data,** which many feared would be used to restrict access to the vote.

Government took a more prominent seat at the table at the 2017 **Consumer Electronics Show,** where policymakers participated alongside the private sector to ponder **emerging technologies** such as big data, the Internet of Things, sensors and smart cities. For example, Denver Mayor Michael B. Hancock talked about Peña Station Next, a mixed-use connected development that prioritizes sustainability with smart lighting as well as plans for driverless shuttles and a quarter-mile LED welcome sign that connects the area to the adjacent airport.

FEB

Philadelphia is among the U.S. cities working toward **zero waste,** with a goal of increasing its trash diversion rate to 90 percent in less than 20 years. The inaugural Zero Waste and Litter Cabinet, with city and community representatives, is behind a **data-driven litter index** to catalog the type and location of trash in two pilot neighborhoods. Officials are hopeful that detailed and accurate data will help drive effective city litter policy.

On the gov tech biz beat, readers tuned in to hear from incoming **Granicus CEO Mark Hynes** following the announcement in late 2016 that the company, known for its legislation management tools, had merged with constituent messaging company **GovDelivery.** A Harvard Business School alum, this is Hynes' first venture into working on products geared toward government.

In February, five cities got a boost in their respective quests toward smart city status. The **Smart Cities Council,** partially funded by the White House Smart Cities Initiative, awarded packages of services and products valued at hundreds of thousands of dollars from member companies to five jurisdictions: **Austin, Texas; Indianapolis; Miami; Orlando, Fla.; and Philadelphia.**

MAR

Originally intended to improve planning and maintenance, a **statewide roadway inventory in Utah using lidar** technology has given the state insights it didn't expect. Officials now use the information for hydrologic modeling to better plan for water runoff when flooding occurs. The lidar-gathered data, including details on road temperature and guardrail locations, could help Utah become the first state with **self-driving snowplows.**

Four states made recreational use of marijuana legal in November 2016, requiring them to set up the necessary groundwork ahead of legislative deadlines. While the challenges in front of affected states **(California, Maine, Massachusetts and Nevada)** were great, many could use lessons from pot pioneers, and tech they already had — processes for background checks, business licensing and safety inspections, to name a few — to get ready.

Persistent concerns over biased policing have contributed to close examination of the use of predictive technologies in law enforcement. One-time Chicago Chief Data Officer and former Chicago PD Commander **Brett Goldstein,** now with Ekistic Ventures, is behind the work of CivicScape, a startup focused on bringing **transparency to predictive policing** and weeding out bias from the data that goes into its algorithms by publishing them on GitHub.

The government tech community gathered in Washington, D.C., in March for a **market forecast** on IT spending in state and local government. With uncertainty at the federal level, activity in state and local government was projected to grow. **Cybersecurity** was the No. 1 area of increased spending in states, while innovation at the local level is fueling efforts related to **smart cities, open data and civic engagement.**

APRIL

The month of April saw several states introduce bills to counter the Trump administration's support of legislation allowing **Internet service providers (ISPs) to sell customer data,** including browsing history and location information. The federal bill rolled back privacy protections enacted during the Obama administration, though supporters claim it increased fairness by making the rules for ISPs match those on the books for major Internet companies like Twitter, Google and Facebook.

It was another rocky year for the **central IT office in Florida,** which faced **legislative attempts to scale back its authority** and strip its funding. The measures gained some support as they worked their way through the Legislature, but the efforts ultimately failed by the veto pen of Gov. Rick Scott in June, and the Agency for State Technology, under state **CIO Eric Larson,** lives on.

States across the country continued to tackle **connectivity in rural areas** in 2017, with creative funding strategies in evidence for connecting communities that don't pencil out for traditional ISPs. The month of April saw Colorado Gov. John Hickenlooper sign a bill allowing rural counties to set up special districts to fund **broadband improvements,** and in West Virginia, Gov. Jim Justice approved a measure to allow the development of nonprofit co-op groups to advance broadband projects in rural areas.

MAY

On May 12, the now infamous "WannaCry" ransomware attack hit organizations from hospitals to transportation networks in more than 70 countries, and its far-reaching effects were not lost on state and local government. While U.S. states were not directly affected, CISOs across the country seized on the opportunity to ensure their cyberdefenses were ready for anything.

"Blockchain" took hold as one of the big buzzwords of the year, as NASCIO released a brief highlighting the distributed ledger's potential use for government. While in May a NASCIO official said interest in blockchain was "on a very steep acceleration," many CIOs remained skeptical, with most firmly in "wait and see" mode. However, some states, including Delaware, Illinois and Texas, have blockchain pilots underway.

In theory, the 2005 Real ID Act is simple: States must meet federal ID requirements by 2020 or citizens will run into issues when traveling by air. But as of May, when *GT* checked in on who was in compliance, just 26 states and territories had met regulations, while 26 more were in various stages of the extension process. Since then, all but one state have gotten on board, with Virginia's extension in effect until next October.

JUNE

Cities across the country are finding ways to put newly open data to use for public good, with a growing number targeting homelessness, seeing potential for tech solutions to help track homeless populations and improve policies with more accurate data. Other efforts include New York City's StreetSmart app, which allows outreach workers in all five boroughs to communicate and log data in real time. And Asheville, N.C., is tackling the problem with the aid of nonprofit volunteers through its Code for America brigade.

As government seeks to increase citizen engagement online, new platforms are emerging that aim to make that interaction as painless as possible. PlaceSpeak is one such tool that not only solicits useful resident feedback, but also eliminates trolls and bots that so often make the Internet unpleasant. Agencies are using PlaceSpeak to identify users based on location, ensuring that only residents who live in affected areas can weigh in on issues relevant to them.

Cloud migration has been on the rise for state and local government, with the number of purchase orders for cloud services rising steadily for the last five years. While big names like Amazon, Microsoft and Oracle are certainly part of the landscape, research proves that government tends to opt for third-party vendors, rather than working with those big companies directly. Instead, vendors like SHI and Carahsoft Technology Corp. implement solutions based in, for example, Microsoft Azure.

JULY

As the world braces for the reality of driverless cars, this year 21 states put legislation on the books regulating their use. Traditional rules no longer hold up against the rapidly evolving technology, and government has to keep pace. Self-driving vehicles can be spotted in tests from San Francisco to Detroit, and major car companies like Ford, Toyota and BMW have all pledged to put autonomous vehicles on the road in the next five years.

In collaboration with the SANS Institute, seven states partnered with CyberStart, a free online cybersecurity training exercise offering scholarships for students ages 16 and up to help get new talent interested in cybersecurity. As the number of open cyberpositions increases across the nation, the problem of identifying, hiring and retaining qualified workers remains an issue. Early in the year, Virginia alone saw its number of vacant security positions nearly double to 36,000.

Using artificial intelligence (AI) in everyday applications isn't a thing of the future: It's happening now. In July, AI startup Waycare secured a pilot project with the city of Las Vegas to use its tech to predict traffic accidents and congestion. The program crunches large data sets to find correlations where humans might not look, allowing, for example, first responders to arrive at incidents more quickly. The deal indicates that Las Vegas is looking to a future of connected and autonomous vehicles, also evident in the city's growing innovation district.

In 2017 Ohio took a novel approach to an umbrella analytics RFP, hoping to move past the same cadre of legacy vendors that bid on every project. A streamlined process made it easier for smaller companies without an extensive resume of government work to respond. Ultimately 50 firms were pre-qualified to do analytics work in 14 areas, including transportation, corrections and public health. Now that the vendors are in place, CIO Stu Davis is "anxious to drop one into the cauldron and see what happens."

AUG

Integrated Roadways, a company that's been pitching government on its idea for years — roads that pay for themselves — finally got a bite from Kansas City, Mo. The pilot project will build sensors, phone and Internet connectivity, and other hardware into 1.5 miles of pavement that could support communication for self-driving cars or charge the batteries of electric vehicles as they drive.

2017 was a big year for government chatbots. From Los Angeles' Chip, short for "City Hall Internet Personality" to Mississippi's Missi, digital assistants are helping residents get more out of online public services like city websites, pothole reporting and open data. In Utah, an app for Amazon's Alexa can help people study for their drivers' test. More than just flashy AI-powered tech, chatbots allow agencies to automate answering simple citizen questions, giving staff time to deal with more complicated requests.

State and local officials were not immune to the frenzy of activity surrounding the total solar eclipse that crossed the U.S. on Aug. 21. Oregon was the first state in the eclipse's path of totality, and anticipated 1 million visitors to pour in for the occasion. To bolster public safety and accommodate the influx, officials used GIS technology to share data via maps to help coordinate their efforts and track traffic congestion, air quality and wildfires, among other concerns.

Following more than a decade of development, FirstNet made some tangible progress in 2017. The public-private partnership led by AT&T will allow first responders to pre-empt other traffic on a dedicated, interoperable broadband network. As of press time, 30 states and two territories had opted in to the contract, and remaining states have until Dec. 28 to make their decisions. Opt-out states must create their own network that meets FirstNet standards. In August, Verizon, which did not bid on the FirstNet contract, announced plans for a rival network aimed at public safety, but the impacts on FirstNet are not yet clear.
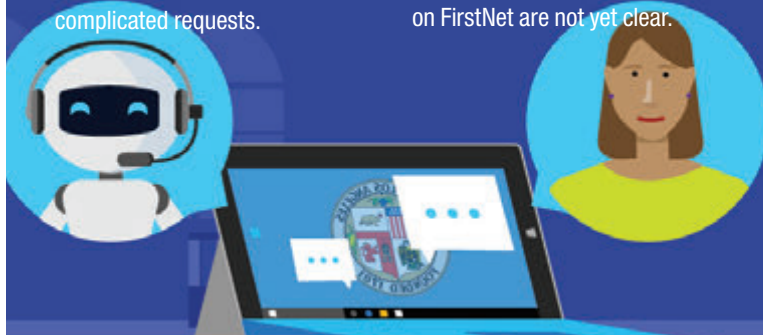
SEPT

In what has been called the biggest gov tech deal ever, in late September, Boston-based private equity firm Berkshire Partners acquired government permitting and licensing vendor Accela. While detailed numbers were not released, Accela CEO Ed Daihl noted that investments from Berkshire Partners are typically upward of half a billion dollars, a massive leap from the usual activity among gov tech companies, signaling a potential shift in the market.

As part of the ongoing conversation about law enforcement surveillance, a company called Callyo wants to make it easier for police to record their exchanges with the public. A solution to the expensive problem of data storage created by police body-camera recordings, the 10-21 Video smartphone app allows users to stream unlimited video to the cloud cheaply and easily.

The historic breach of credit reporting bureau Equifax made public Sept. 7 is believed to have exposed the personal information of 145.5 million Americans, although its impact on state and local government was unclear. A number of cities and states, including San Francisco, Chicago and Massachusetts, sued Equifax seeking restitution for citizens. Adding to concerns over cybersecurity, the breach on global consulting firm Deloitte announced Sept. 25 raised similar questions, but the company reported that none of its government clients were affected.

OCT

While some believe that digital drivers' licenses (DDLs) won't replace paper or plastic licenses for some time, trends show that more states will likely adopt them in the coming years. The idea is that encrypted, app-based technology will enhance safety and achieve operational and cost efficiencies. Iowa leads the country following a 90-day mobile driver's license pilot in 2015 and 2016, and expects digital licenses will be available statewide in 2018. Earlier this year, Colorado, Idaho, Maryland and Washington, D.C, also piloted DDLs, and all four, along with Wyoming, will continue efforts in 2018.

September's Equifax breach set the stage for important conversations in October, national cybersecurity month. Governments of all sizes are tackling cyberthreats every day, so how do small towns combat the same threats as big cities, but with far fewer resources? States are trying to ease the burden of local cybersecurity. In Michigan, a squad of volunteers, the Michigan Cyber Civilian Corps, is ready to assist in the event of a major cyberattack. And a few smaller jurisdictions, like Allegan County, Mich., are partnering to create a program in which they share a chief information security officer — CISO-as-a-service.

Officials in Riverside County, Calif. — home to more than 2.3 million people and nearly as large as the state of New Jersey — are reviewing responses to their RIVCOconnect Broadband Initiative RFP. The initial response period of four months was extended to six to lure the right mix of vendor responses to the project, a public-private partnership that aims to build a broadband network that could be the nation's largest.
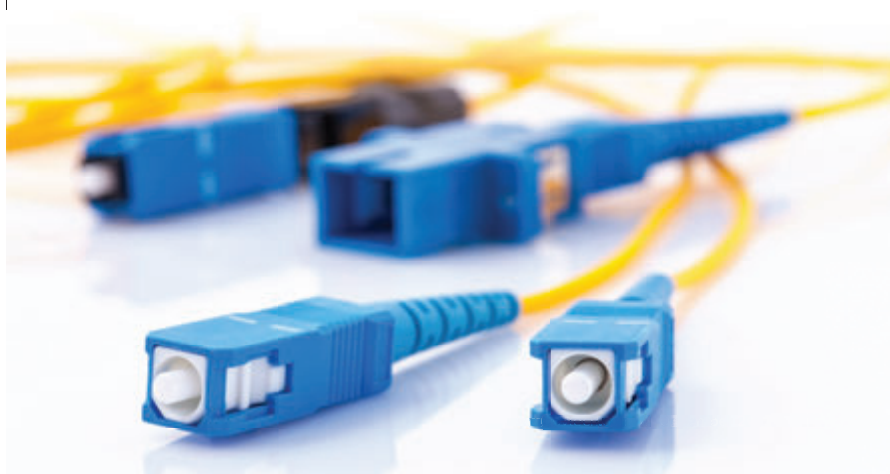
NOV

A mid-October incident in which money was stolen from Iowa Public Employees' Retirement System (IPERS) accounts came to light in early November. Several hundred thousand dollars was stolen from more than 100 retiree accounts by thieves that used stolen Social Security numbers and birthdates to obtain online access and then redirect payments to their own accounts. The incident was quickly contained, and those affected were made whole. IPERS officials said the stolen personal information didn't come from their agency.

The drive toward meeting the expectations of an increasingly digital constituency continues, and several states are out in front in moving their organizations closer to an Amazon-like experience. The Digital Services Georgia initiative introduces the concept of "experience-as-a-service," an approach that extends user-driven design to all constituent-government interactions. The Utah Legislature is behind a push to a single sign-on portal that would allow one login for all state transactions. State leaders are looking for funding to pilot the concept to a limited constituency: Utah businesses. In Ohio, customer-centric means a focus on personalization since the ideal digital experience means different things to different people. A key element of Ohio's strategy is moving toward a single enterprise ID for customers — admittedly a considerable undertaking. "It's a living and evolving strategy that we have to constantly try to put into practice," said Derek Bridges, a program administrator at the Ohio Department of Administrative Services. gt

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CONNECTING COMMUNITIES VIA A THRIVING DIGITAL INFRASTRUCTURE

**Bruce Graham,
Chief Strategy Officer,
Tyler Technologies**

Connecting essential city, county and regional government services within a healthy digital infrastructure is a priority as agencies look to transform their communities. In this Q&A, Tyler Technologies Chief Strategy Officer Bruce Graham discusses how local governments can implement solutions to break down geographic and agency barriers, share data more easily, connect processes and engage citizens.

How does Tyler define connected communities?

Connected communities bridge local government agencies, jurisdictions and the public across department and geographic boundaries through a thriving digital infrastructure. Just as a community needs a physical infrastructure to support roads, utilities and building development, it needs a digital infrastructure to support the essential services that help government operate efficiently.

Why would local government care about being connected?

Typically, each government department or agency uses separate applications, with self-contained processes and data, which leads to process isolation. Since systems don't talk to one another, the process — and data — stops at the "boundary" of the office and has to be picked up in a new process by the next department, usually with new data entry. When local government agencies can share information and integrate workflows across departmental, political and geographical boundaries, they gain the benefits of paperless processes and can serve citizens in ways they haven't even imagined.

Can you provide an example of a benefit of a connected community experience?

In Fulton County, Ga., which includes the city of Atlanta, officials are developing a clear picture of crime patterns. Authorities can now look at crime rates across various neighborhoods, see where individual crimes were committed and when someone is apprehended, and determine where the offender resides. This helps the city fight crime more effectively. To connect these dots, county officials integrated the flow of information among law enforcement, judicial and property tax systems.

Which kinds of jurisdictions will benefit most from connected communities?

Of course, any jurisdiction would appreciate seeing improved workflows and using data to gain insight to better services; however, the connected communities concept is particularly helpful in larger metropolitan regions that are composed of smaller communities and counties. Often a resident may live in one community, commute to work in another, and attend events or shop in another — crossing jurisdictional boundaries multiple times. These neighboring communities need to share data often, so trying to coordinate sets of processes can be challenging.

What would your advice be to leaders who want to implement a connected communities vision?

We understand it's not always easy to look beyond an individual department and gain consensus with other agencies, let alone agencies in other jurisdictions. First, forward-looking leaders should define metrics that demonstrate the value of connected communities strategies. Use these metrics to build an evidence-based business case for modernizing technology.

Next, create a solid technology foundation. Update government applications with modern workflows and standardize on a single, integrated platform instead of piecing together standalone apps.

Finally, communicate with and gain consensus from the public sector staff who will be involved in executing this vision. Giving up old ways of doing things can be a challenge, but, in our experience, once they live with the benefits, they wonder how they ever got along the old way.

Putting the technology in place for broad coordination and process flow is not going to happen overnight, but we are excited about the direction as we work with jurisdictions to build their digital infrastructure. We see this as an 8- to 10-year vision, and we're methodically moving our products toward a common foundation across all Tyler applications to realize this vision.

tyler technologies

For more information, visit **www.tylertech.com/connectedcommunities**.

DELIVERING RESPONSIVE SERVICES BEYOND IT

How the New York City Health Department uses an IT management system to streamline service requests from employees and citizens

When employees need a new computer or access to an agency system, most of them know to call the IT help desk or submit an online service request. But where does an employee go when he or she needs a human resources or facilities service? Who can citizens contact when they need help from an agency, but don't know where to start? And how can agencies efficiently track these requests and automate the workflow around them?

The New York City Department of Health and Mental Hygiene (DOHMH) is answering these questions with cloud-based ServiceNow software. What began as a tracking and management system only for IT service cases now offers employees a central place to request help on multiple work-related issues. The department will also use ServiceNow to automate workflows for selected public services, allowing it to operate more efficiently and better respond to requests.

"For our agency, it is so important to give people one place where they can request what they need," says Jian Liu, CIO of DOHMH.

A Move to the Cloud Brings an Aha! Moment

DOHMH previously used on-premises solutions to manage its IT service desk. The department developed the initial solution internally, but that solution could not meet its needs. DOHMH then deployed two different commercial software solutions, but the associated annual fees and necessary infrastructure were cost prohibitive. The solutions were also difficult to customize, which meant the department had to spend extra money each year to get professional help from vendors.

After learning about ServiceNow, Liu and her team realized they could reduce costs by switching to a cloud-based IT service management system. After conducting a proof-of-concept project, the department migrated to the ServiceNow platform in 2014.

The cost savings were significant and immediate. Instead of the capital and operating costs of an on-premises system, the department pays only an annual license fee for the ServiceNow software. The department also avoids the customization challenges of the past.

"It's easy to train our IT staff on how to develop the ServiceNow workflows, so we can develop new workflows quickly and with minimal cost," says Liu. "Because we don't need a lot of professional services for custom development of the core platform, we don't need to allocate annual expenditures toward this anymore."

Today, DOHMH employees use an IT web portal for routine requests such as a password reset or to order a new PC. An established workflow in ServiceNow automatically routes the request to IT staff for review and response. More complex requests, such as those involving infrastructure changes, are reviewed in a formal governance process.

The department's confidence in using ServiceNow to manage IT service requests led to the idea of adopting this platform to manage other employees' requests, as well as for citizen services.

A Central Help Desk for All Employee Requests

The initial extension of ServiceNow was to provide employees with a single portal to submit requests related to their work, such as a paycheck question or help with a move to a different office.

The help desk staff use ServiceNow to store all information and communications related to a request in one place. The system then tracks the status until the requester confirms the problem is resolved or the service has been received.

Employees enter a service request using the agency's internal web portal. The field technicians, IT support staff and other department personnel responsible

SNAPSHOT: NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

One of the largest public health agencies in the world, the DOHMH serves eight million New York City residents with 6,000 employees and a $1.6 billion annual budget. Department services include neighborhood health clinics, epidemiological tracking of diseases and health conditions, environmental health monitoring and restaurant inspections.

Jian Liu,
CIO of DOHMH

for the request can also use the ServiceNow web interface or mobile app to record activity, update the status and communicate with the requester.

The automated routing and tracking of service requests and simple access to a single service management system all contribute to higher performance for IT. The department's service-level agreement (SLA) achievement has increased from previous levels that were below 80 percent to levels that are now above 90 percent.

Better Managing Citizen Services

Like any government agency, DOHMH wants to respond quickly to new service needs and streamline routine service requests for citizens and other agencies. The IT team realized that much of the information tracking and workflow for these needs could be automated and managed in ServiceNow. The team has tested this concept for managing resource requests during an emergency and processing routine orders for printed materials.

Managing resource requests during emergencies. During public health emergencies, many DOHMH internal programs are required to provide services and resources within the agency. Previously, resource requests were made in various formats such as emails, phone calls or conversations in meetings. The requests were hard to track, prioritize and fulfill, and sometimes were duplicated or lost. Today, the department uses ServiceNow to centrally manage requests, triage them according to priorities, and launch multiple workflows to fulfill requests and orders.

"When we're in emergency response mode, we don't want to have people coming to our main office just to request help or get an assignment," says Liu. "With the workflows in ServiceNow, we significantly increased accountability and responsibility, and are better triaging and routing requests to the proper channels. After the event, we can use information from ServiceNow to evaluate the effectiveness of our efforts."

Processing routine orders for printed materials. Fulfilling orders for printed materials is an example of a routine request that the department automates with ServiceNow. When an agency orders materials on the DOHMH website, the order activates an automated workflow in ServiceNow. That workflow sends the order to the department print shop, adjusts inventory levels and tracks the order processing to completion.

Perhaps the biggest benefit of these extended services is that they are delivered in the cloud, making them accessible to employees and citizens even when the department's internal network is down.

Making Agency Services Easier for Everyone

In the past, managing requests for a different type of agency service would have required developing and maintaining a separate tracking system. Today, by taking advantage of a cloud-based service management platform — and applying fresh thinking about how service management is done — governments can create a single place to receive and respond to service requests quickly, efficiently and economically.

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

Now, with the ServiceNow System of Action,™ every employee, customer, and machine can make requests on a single cloud platform. Every department working on tasks can assign and prioritize, collaborate, get down to root cause issues, gain real-time insights, and drive to action. Your employees are energized, your service levels improve, and you realize game-changing economics. Work at Lightspeed.™

For more information, visit **https://www.servicenow.com/solutions/industry/public-sector.html.**

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LEADERSHIP
IN MOTION

From the start, public-sector tech leaders were on the move in 2017. While some took their services from one city or county to another, others moved up within their agencies or left for private-sector roles where they continue to support government efforts. From federal to local, here's a look back at the year in career shifts.

JANUARY

Google's **Matt Cutts** was appointed acting administrator of the U.S. Digital Service.

West Virginia appointed **John Dunlap** as CTO, replacing Gale Given, who had served in the position since 2012.

FEBRUARY

San Francisco hired **Carrie Bishop,** director of FutureGov, as its first chief digital services officer.

Former Environmental Protection Agency CIO **Ann Dunkin** took over as CIO of Santa Clara County, Calif.

Florida CTO **Eric Larson** was named interim CIO after Jason Allison departed for the private sector.

Baltimore CIO **Jerome Mullen** resigned.

MARCH

Yessica Jones was permanently appointed CIO of Arkansas, having acted in an interim capacity since the departure of Mark Meyers in January.

Marcos Vieyra resigned as South Carolina's CISO, and deputy **Rick Makla** was named interim director of information security.

Andrew "Pete" Peterson began serving as CIO of Oakland, Calif.

Maryland named **Michael Leahy** acting secretary of information technology after David Garcia stepped down earlier in the year.

San Diego CISO **Gary Hayslip** left city service for the private sector.

18F's **Hillary Hartley** became the first chief digital officer of Ontario, Canada.

BILL VAJDA,
CIO OF ALASKA

APRIL

Robert Mancini was named CIO of Prince William County, Va., after longtime CIO Tom McQuillan retired in March.

Shawn Riley took over as North Dakota's CIO after 13 years with the Mayo Clinic.

Rhode Island named **Mike Steinmetz** as its first CISO.

IBM veteran **Bob Samson** was appointed New York State CIO after Maggie Miller resigned in February.

John Quinn became CIO of Vermont, having previously served as chief innovation officer.

After a consolidation of the state's IT agency, Alaska appointed **Bill Vajda** as its new CIO.

MAY

California's deputy director for innovation and entrepreneurship **Louis Stewart** left his post to become CIO of the city of Sacramento.

Amid a tech reorganization, NYC's Chief Digital Officer **Sree Sreenivasan** left his post, followed by Chief Analytics Officer **Amen Ra Mashariki,** who took a position with Esri.

Florida CISO **Danielle Alvarez** left for a related post in the private sector.

JUNE

After five years in the position, Montgomery County, Md., CIO **Dan Hoffman** resigned to become an assistant city manager in Gainesville, Fla.

Sabra Schneider was named CIO of Bellevue, Wash., after working as chief operations officer for the Information Technology Department since 2015.

Following the retirement of Ed Poisson in January, **Michael Timm** was named IT director for Oakland County, MIch.

North Carolina's new CIO **Eric Boyette** was sworn in after being named to the position in April.

YESSICA JONES, CIO OF ARKANSAS

Chicago's former CTO **Danielle DuMerer** was named CIO after having served in an interim capacity since the departure of Brenna Berman earlier this year.

Amy Tong was appointed California CIO after serving as acting CIO since Carlos Ramos' retirement in March.

JULY

In Alabama, former COO of the Department of Information Technology **Jim Purcell** was elevated to serve as CIO under recently sworn-in Gov. Kay Ivey.

Former Pierce County, Wash., IT Director **Linda Gerull** took the reins in San Francisco as CIO and director of the city's Department of Technology.

Rhode Island hired **Bijay Kumar** as its new CIO following the April resignation of Richard Culatta, who left for an education nonprofit.

Arkansas announced **Carder Hawkins** would assume the role of deputy director for the Department of Information Systems, and **Richard Wang** was named the state's first CDO.

BRANDON WILLIAMS, FORMER DIGITAL TRANSFORMATION OFFICER FOR COLORADO

AUGUST

Twenty-year Air Force veteran **Jeffery Weak** assumed the role of Idaho's first director of Information Security.

Former Department of Defense CIO **Teri Takai** took over as executive director of the Center for Digital Government.* Takai also previously served as CIO of both Michigan and California.

Maricopa County, Ariz., CIO **David L. Stevens** announced he would leave for a private-sector position in early October.

SEPTEMBER

David DeVries, previously CIO for the U.S. Office of Personnel Management, was appointed Michigan CIO following David Behen's departure in June.

Los Angeles County announced its next CIO would be **Bill Kehoe,** who'd served in the same position for King County, Wash., for seven years.

Louisville, Ky., chief innovation officer **Grace Simrall** stepped in as interim CIO after Jason Ballard resigned the post.

Frank Johnson of Intel started work as Baltimore's CIO and Chief Digital Officer.

After nearly a year as Colorado's first digital transformation officer, **Brandon Williams** left for a similar position with the Eagle County Department of Public Health.

Hardik Bhatt left his role as Illinois CIO after two-and-a-half years for a role with Amazon.

Cook County, Ill., CISO **Ricardo Lafosse** departed his position for the private sector.

OCTOBER

Former Maryland CIO **David Garcia** took the same role with the U.S. Office of Personnel Management.

LINDA GERULL, CIO OF SAN FRANCISCO

After **Tanya Acevedo** left for a role with the Houston Airport System in July, former city of Austin IT executive **Paul Hopingardner** took over as Travis County, Texas, CIO.

Janethe Falvey took over as Boston's chief digital officer after Lauren Lockwood left the city in May.

New York City hired **Quiessence Phillips** as deputy CISO to help lead its new cybersecurity command center.

Washington state CIO **Michael Cockrill** left government service for a position with a nonprofit research group.

In Florida, **Nancy Sampson** was named the first state chief data officer.

NOVEMBER

With almost two decades of information security experience, **Arlen Fletcher** assumed the role of Wyoming's CISO.

After 33 years with California's Franchise Tax Board, CIO **Cathy Cleek** announced her retirement.

Aaron Call was named Minnesota's interim CISO.

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

Q&A
Building a Better IT Resiliency Strategy
Step Two: Respond

Greg Carter, Solutions Architect, Veritas

As public sector agencies collect more data, they must effectively store and protect it. But outdated legacy systems, growing IT complexity and a stringent regulatory environment make that challenging.

Government leaders must take three steps to build a resilient agency: prepare, respond and adapt. In this Q&A, we take a closer look at step two: respond. Veritas Solutions Architect Greg Carter discusses how public sector agencies can implement an effective IT governance strategy to better manage data, reduce risk and respond to resiliency challenges.

Q: What obstacles keep governments from creating a comprehensive strategy to respond to today's threats?
The main challenges are understanding what data they collect and the costs of managing and protecting that data. Fortunately, establishing a strong information governance discipline around data — regardless of what platform it's sitting on or whether it's structured or unstructured — can help agencies determine the best ways to overcome these challenges.

Q: What role does the cloud play in information governance?
Data can be moved from an agency's on-premises data center to cloud storage, which is often cheaper than storing it on site and makes it easier to access.

Our solutions help governments make that move seamlessly. During the process, they will always know where their data is, how much of it is in the cloud and how often it is accessed. Veritas solutions integrate with the cloud well, and that's a key part of information governance.

Q: How can agencies lay the proper foundation for information governance, and ultimately IT resiliency?
Agency leaders need to implement a strategy for visibility into data. After they gain that visibility, they then need to act on what they've found. An automated process can help governments maintain continuous control of their data.

State and local agencies should ensure the solution they choose is versatile, so as their organization grows and becomes more complex, the solution can adapt and change with them.

Read about step three in building a better government resiliency strategy in the January issue of *Government Technology*.

To learn more best practices about building government resiliency, download our handbook: **www.govtech.com/resiliencyhandbook**

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Software for the Social Good

Can technology lead to better policy on homelessness, poverty and other urban problems?

About This Report

The Digital Communities Special Report, which appears twice a year in *Government Technology* magazine, offers in-depth coverage for local government leaders and technology professionals. It is part of the Digital Communities program, a network of public- and private-sector IT professionals working to improve local governments' delivery of public service through the use of technology. The program — a partnership between *Government Technology* and e.Republic's Center for Digital Government — consists of task forces that meet online and in person to exchange information on important issues facing local government leaders and technologists.

By Tod Newcombe

I n 2010, the Anchorage, Alaska, Police Department closed 190 homeless camps that were hidden in parks and the woods that surround the sprawling city of nearly 300,000. By 2016, the police closed five times that number — nearly 1,000 illegal camps. The explosion in camps can be attributed to a variety of factors, including the lack of affordable housing in recent years, an extremely low vacancy rate overall and problems with alcoholism and drug abuse. But it adds up to one of the highest per capita rates of homelessness in the country.

Not surprisingly, closing the camps drove many of the homeless into the city's overcrowded shelters, especially in the winter months. Nor did these actions address the mental health and medical issues that affected many of the adult homeless. With so many camps scattered across the city and little information about their location, providing outreach and services to the city's most vulnerable residents was difficult, to say the least, according to Nancy Burke, the city's housing and homeless services coordinator.

But when Burke met with Tina Miller, the city's geographic information officer, they hatched a plan to use digital maps and data to monitor camp locations and to start coordinating services for the homeless as the camps were being closed. Using software from Esri, the mapping company, Anchorage began surveying the homeless population for an accurate count twice a year (1,128 during the latest census in 2017). They created mobile apps for the police and Department of Parks and Recreation to help with pinpointing the location of camps, now in the hundreds, throughout the city. A public-facing app also allows city residents to report camp locations.

More accurate information about the camps and the number of people living in them means the city can do a better job aligning outreach services, so that the homeless don't keep returning. "I've been working in this field for 13 years, and this was the first time we had access to this information," said Burke. "It's so critical to how we plan safe shelters and housing."

The Struggle to Make Informed Decisions

Anchorage and other cities have struggled to get an accurate, data-driven estimate of their homeless population. Alaska's largest city has had to recruit nearly 200 volunteers to do its point-in-time surveys. What is startling, though no longer surprising, is just how many Americans are homeless. In 2016, the U.S. Department of Housing and Urban Development came up with an estimate of 549,000 homeless in the country, with 68 percent staying in shelters, transitional housing programs or safe havens, while the remainder — 32 percent — were living in camps or on the streets.

But the homeless problem is just one of many social issues that plague counties and cities. Local governments are struggling with problems that range from housing and poverty to food access and a rampant opioid addiction epidemic. Take poverty. In 2016, the official poverty rate was 12.7 percent, according to the U.S. Census. While the figure marked the second consecutive year that the poverty rate had dropped, it still represented 40.6 million Americans, the largest figure in more than 50 years of record-keeping.

While it's possible that an individual or family may suffer just one of these problems, it's probable that they are impacted by several at once. That means several different agencies may be trying to help someone separately, without the other agencies fully aware of what the other is doing. It also means that non-social service agencies, such as the police or parks department, may be involved as well, as is the case in Anchorage.

Left unaddressed or treated with short-term solutions, social problems can drain any city or county government budget, not to mention the fact that they tear at the human dynamism of any community.

Technology has been used to improve how local government deals with social problems for years. But what's been missing has been the ability to take data from multiple sources and align it to make informed decisions, said Stephen Goldsmith, a professor at the Harvard Kennedy School of Government and director of the Innovations in American Government Program, as well as a columnist in this magazine. He also directs Data-Smart City Solutions, a project that highlights new technologies and analytics in local government.

Goldsmith, who was mayor of Indianapolis and deputy mayor of New York City under Michael Bloomberg, knows a thing or two about using data to drive solutions in cities. When it comes to using data to solve social problems, Goldsmith explained that the first step is to make the data accessible, whether it's for homelessness, child welfare or substance abuse. "Step two is to present the information in a usable way to the person who has to make a decision. Step three is to use the information to help the caseworker predict which type of intervention will be successful," he explained. "We're making progress in the first two steps, but have hardly made progress with step three. There's a long way to go."

As Goldsmith pointed out, technology and policy are combining to make data more accessible and useful to those who have to make decisions. One of these innovative trends involves a new twist on a mature technology. Digital mapping has been around for decades and most large cities and counties have a department devoted to geographic information

DAVID KIDD

Using Data to Solve Social Problems: 3 Steps

Stephen Goldsmith, former mayor of Indianapolis and New York City deputy mayor under Michael Bloomberg, now serves as director of the Innovations in Government Program and Data-Smart City Solutions at the Harvard Kennedy School. He outlined three steps on the path to effective use of data to drive better policy around social issues like homelessness, child welfare and substance abuse.

Step 1:

Make the data accessible.

Step 2:

Present the data to decision-makers in a usable way.

Step 3:

Use the information to choose the best kind of intervention.

"We're making progress in the first two steps, but have hardly made progress with step three," Goldsmith said. "There's a long way to go."

> "CIOs need to toot their horns on what they can do and make sure the right process is in place, along with the right tools. Then it's up to the mayor to expend the political capital to get it to work."

systems, with a GIS officer overseeing it. For years, GIS at the local level had mostly to do with parcel maps and urban planning. But its purpose has spread, and thanks to smartphones and Google Maps, cities and counties are finding more innovative ways to use geospatial data.

Several years ago, GIS software firm Esri began to see its customers place a bigger emphasis on trying to tackle social issues, such as homelessness, food access and affordable housing. It was new ground for the firm. But as Chris Thomas, director of Esri's government marketing operations, explained, the company had already begun to work with cities and counties on multifaceted issues, like disaster planning and resiliency. For Thomas, using maps and geospatial data to help solve social issues was a natural progression.

"To treat homelessness, you have the involvement of law enforcement, human services and health. Then you get planning involved and it becomes a much bigger thing. Eventually homelessness impacts infrastructure; now that involves public works," he said.

Like a disaster or an emergency, solving a social problem such as

DAVID KIDD

poverty or homelessness follows the same process, according to Thomas. "You need base information, then you need to know which sets of data are changing. Then you analyze where to put resources. It's all about allocating resources in a timely fashion."

Locating Food Deserts

The city of Anchorage used Esri's Survey123 app to create a point-in-time census of its homeless population. It also used Esri's Collector app to share maps and data on the camps' locations on mobile devices with the police and parks departments. The Office of Economic and Community Development, which manages the city's GIS, used other Esri tools to create a camp dashboard and to build a website that allowed citizens to report camps they had seen.

Another use for digital mapping is to connect the dots and understand how an urban community's food system works and what happens when access to healthy food is limited. In 2015, the city of Baltimore conducted a detailed study of how its population was accessing healthy food. The study was based on mapping data that exposed significant disparities in access to nutritious food, according to income. The report, *Mapping Baltimore's Food Environment,* found that one in four city residents live in areas identified as a food desert, that children are largely affected with 30 percent living in food deserts and that African-Americans have disproportionately low access to healthy food.

The report defines a food desert as an area where the distance to a supermarket or a similar retail food establishment is more than one-quarter of a mile, the median household income is at or below 185 percent of the federal poverty level, over 30 percent of households do not have a car available and the average Healthy Food Availability Index for food stores is low.

The data that made the findings from the report possible came from the Johns Hopkins Center for the Livable Future (CLF), which promotes research about

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the relationship between agriculture, diet, environment and health. In 2012, CLF began mapping the state of Maryland's food system using Esri's open data platform, and incorporating federal, state and local data sets into the map, which is publicly available online.

As the number of data sets steadily increased, CLF moved the data into Amazon's AWS cloud, according to Caitlin Fisher, CLF's program manager. That has allowed CLF and its food map project to host more than 170 data layers for more than 18,000 annual users. "Our goal is to make data accessible, allow people to use it and to improve the food system," she said.

Now that the maps have exposed the problem that Baltimore has with its food deserts, city officials are using the maps and accompanying data to plan and advocate for better access in the affected neighborhoods. "Maps are great tools for advocacy," said Fisher. "They allow people to see patterns and trends within the community. Ultimately the data and maps are about creating long-lasting solutions to the food system in Baltimore and Maryland."

Already, CLF is seeing evidence that the maps are improving the food system in Baltimore and elsewhere in Maryland. People are requesting more information about urban farming, which is becoming a growing trend in the state. Others are using the maps to assess diet and health in proximity to urban farms.

CLF's efforts have also brought valuable information about nutrition and education resources to food policy councils around the state. That information, in turn, is shared with local residents. CLF has even worked with emergency preparedness agencies to make sure they include food in their emergency plans.

But as Goldsmith pointed out, accessing and using data to help with decision-making is one thing — using it to predict outcomes is another. For CLF, one challenge lies with accuracy as it works with data of varying levels of quality from different sectors of government. Another is what Fisher calls "ground truthing" data so that it works for the communities that want to use it. A project like this, with multiple players, is "more than just numbers and maps," she said. "You need to take it to the next level of community

engagement and to really understand what's happening on the ground."

Model Warehouse

In 1999, in Allegheny County, Pa., the Department of Human Services (DHS) did something few local governments would have considered. It built a data warehouse as a central repository for the county's health and human services data, part of an overarching strategy to deliver integrated support to its most vulnerable citizens. While most data warehouses were oriented toward research or one-shot projects at the time, Allegheny County took a different tack and decided to use it for decision support for a range of social problems: behavioral health, child welfare, homelessness, aging and other disabilities.

The warehouse uses software from IBM and Oracle and has steadily built up the number of data sets it contains. As the data has become richer, the ability to conduct more comprehensive analysis, particularly around gaps in client coverage, has steadily improved. For example, in 2005, DHS developed an algorithm that helped officials spot clients who had multiple needs. The algorithm boosted the number of children in child welfare who received mental health support from 26 percent to 44 percent.

In 2009, DHS signed an agreement with the Pittsburgh Public School District to share data and improve both the education and well-being outcomes of children under its care. Since then, there have been data-sharing agreements established with another 20 school districts.

Last year, DHS began using its data warehouse to conduct the kind of predictive modeling that Goldsmith called the hardest for local governments to establish. The Allegheny Family Screening Tool helps with decision-making when a worker screens a call regarding a child who is at risk of possible maltreatment. It predicts possible outcomes with a fair degree of accuracy by creating a score for intervention based on the integration and analysis of hundreds of data elements. The higher the score, the more likely the

possibility of future maltreatment, giving decision-makers the kind of information they need to intervene and investigate. Studies have shown the tool to be ethically appropriate because it is more accurate than the alternatives currently being used.

Another tool used by DHS is a data dashboard. DHS has been able to help inform health providers whether someone who has died from a drug overdose had recently been receiving mental health or substance abuse treatment. It may sound like a simple correlation to make, but in government that kind of social service data sharing is not the norm, according to Erin Dalton, deputy director for DHS. "It seems straightforward, but there has been historically and funding-wise, real walls between mental health and substance services," she said.

In the realm of social issues, data sharing can be the most rewarding process, but also the most vexing. "When it comes to hurdles, there are technical aspects to data mining and integration that are fairly complex," said Goldsmith, "but data sharing is the most important and it's the one issue that can slow everybody down."

According to Dalton, Allegheny County has had to pay for strong, external legal guidance to manage data-sharing issues. But she believes too many government agencies misinterpret laws so they can

hold on to data rather than share it. "I think it's become pretty obvious that there isn't a legal issue in most cases, but really a policy decision that needs to be made," she said. "Those kinds of decisions should not be made by relatively low-level bureaucrats."

Most government officials who are trying to fashion data-driven solutions for vexing social problems would agree with that. What is required are strong data governance practices. A paper from the Ash Center at the Harvard Kennedy School, *Lessons from Leading CDOs,* states that strong data governance fosters interoperability and reuse of data across the enterprise. Data governance also addresses cross-agency sharing of who collects what, and for what purpose, to avoid duplication of data collection in different or competing formats.

An example of the kind of policy decision-making Dalton has in mind can be found at the state level. Indiana set out to improve data sharing in a secure and legal way while removing technical barriers. The starting point was an executive order signed by former Gov. Mike Pence, creating the Management and Performance Hub, where appropriate state data could be held securely and used to drive better government performance through analytics.

The problem the state wanted to address was a troubling health issue:

> "Seeking out technology doesn't come naturally from the social services side of the house. But technology has been a unifying force for bringing efficiencies internally and also for connecting with our community partners and the public."

Why were some infants dying in their first year of life while others weren't? For years, Indiana had been pursuing a policy that wasn't producing results. It was based on the prevailing belief that infant mortality was caused by pregnant moms who either smoked cigarettes, did drugs or drank too much alcohol.

With Gov. Pence's executive order, policymakers were freed up to share data between multiple agencies. Using analytics and data science, the state was able to uncover the real culprit in its high rate of infant mortality: lack of access to prenatal health care.

Taking down barriers to data sharing at the local level can be just as beneficial in the long term. Dalton's advice is to avoid having to go through a memorandum of understanding agreement every time data is to be shared. While she makes it clear that Allegheny always works within the law, she believes that signed agreements aren't necessary, just good governance and rules for data use. "Once you get into agreement mode, you might as well add three more years to the project," she warned.

Where Are the Analysts?

Like so many communities around the country, Marin County, Calif., is struggling with the fallout from an epidemic of opioid addictions. The county's Public Health Department is trying to get a grip on the problem, and one way to do that is by pulling together data from local law enforcement and public safety agencies, as well as from the state and federal government to help county officials track everything from the number of opioid prescriptions given out to the number of emergency room admissions for drug overdoses.

But the county faces two problems. First, figure out a way to spend more time exploring what the data means, and second, find people who can make sense of it. The answer to the first question is to use one of the new digital tools that can visualize the data. Marin County uses LiveStories. Other local governments, such as Allegheny County, use Tableau, while Esri has an arsenal of tools for teasing out stories from data. As for finding people who are not public health experts to be able to interpret the data, Marin's Public Health Department has had to consider more unconventional approaches, such as using volunteers to help make sense of the data and find correlations that might lead to better outcomes.

For Allegheny County, the situation is a bit different. With Carnegie-Mellon University's Heinz College of Information Systems and Public Policy nearby, the county government has an easy-to-tap

Hiring More CDOs

Alex Engler, program director of Computational Analysis and Public Policy at the University of Chicago, points to the role of chief data officer as a new position that is helping change how government tackles social issues. "The cities that seem to get the most done have a chief data officer," he said. Engler points to Chicago's Tom Schenk as someone who has been a trailblazer when it comes to data-driven policies and practices.

But the role remains relatively new and is still uncommon, especially at the local level. New York City was the first local government to appoint a CDO in 2011. This year, there were a dozen CDOs in city government and three at the county level, according to *Government Technology*.

Recognizing the growing importance of the CDO, in March 2016, Harvard Kennedy School's Ash Center for Democratic Governance and Innovation announced that it had been awarded a grant by the Laura and John Arnold Foundation to establish and support a national peer network of urban chief data officers, who will collaborate on shared projects that advance the use of data visualization and predictive analytics in solving important urban problems related to economic opportunity, poverty reduction, and addressing the root causes of social problems.

Since then, a handful of cities have appointed CDOs. But the role is expected to become more important in the coming years. Gartner is projecting growth of 1,600 percent in CDOs across all industry sectors over the next two years and expects by 2019 that 90 percent of large organizations will have one.

Philadelphia CDO Tim Wisniewski and San Francisco CDO Joy Bonaguro address a panel at Harvard's Summit on Data-Smart Government in November.

5 Trends Driving Data-Driven Progress

Chris Thomas, Esri's director of state and local government marketing operations, has worked with the public sector for decades and has seen mapping technology evolve to solve myriad problems. Now, he's seeing a similar transformation unfold in the field of social services. Here's his list of five technology trends that are making data-driven solutions for social problems more effective:

1. **Open data.** Once almost inaccessible, government data that is open and readily accessible is helping a growing number of communities better cope with homelessness and poverty. While most people perceive open data as something for the public to consume, some of the biggest users of open data are government agencies.

2. **Story maps.** This new concept in data visualization helps communicate what's going on and where the data is. It allows people to interact with data in a better way than having a single person try to explain what's going on to a room full of policymakers and stakeholders.

3. **Mobile solutions.** Collecting data in the field in a consistent manner so it can be shared easily has had a significant impact on tackling social problems for local governments.

4. **Dashboards.** This tool has provided workers with situational awareness for monitoring how a change in policy is doing against the norm.

5. **Data analytics.** Data-driven projects require analytics to support decision-making and to help predict outcomes. It can take a good project and make it into a transformative one.

pipeline of talent for conducting analytics. More importantly, the director of DHS sees data analysts as a priority, according to Dalton. Hiring analysts is not an option, but an investment decision, she said.

The explosion in data at the local level has led to a wide range of breakthroughs in the field of social services, according to Alex Engler, program director for computational analysis and public policy at the University of Chicago. He points to analytics in Chicago that allowed city officials to prioritize which homes needed to be inspected based on their likelihood of having lead paint. They were even able to single out at-risk homes prior to when a family with children moved into them. He also mentioned the city's ability to predict where rat populations were likely to occur and curb outbreaks before they happened.

The point, he said, is that predictive analytics can happen when analysts repurpose data that was initially collected for another reason. Yet, Chicago is one of just a handful of local governments that has figured out how to analyze disparate data sets in a useful way, a dilemma that Goldsmith and others have warned about.

"This type of shift in how data can be used is a big problem for public social services, because there's no one with the skill set to deal with it," said Engler. "The number of computer science graduates who go into public policy is unbelievably low. The public sector is about 30 percent of the economy, yet less than 10 percent of computer science grads go into public service."

Engler left a promising career as a data scientist working for Washington, D.C.-based think tanks and has returned to academia at the University of Chicago to recruit and train promising public policy students in the arcane world of data science and analytics. The education process centers around the practice of causal inference in public policy, which means looking retroactively at whether a program works, said Engler. As an example, he mentioned how changes to the Medicaid program can affect health-care prices, which can then impact consumer health care.

"The tools you use to teach causal inference are statistical analysis tools, such as Stata and SAS," he said. But a shift is taking place in academic data science, with more students learning analysis using open source tools, such as R or Python. At the same time, Engler believes the expanding universe of open data in government is helping to make possible more data-driven solutions for problems around poverty, homelessness and health. The universe of

In Chicago, data analytics help the city determine which houses need to be inspected based on their likelihood of having lead paint.

DAVID KIDD

data that could be beneficial to a local government's social problems keeps expanding, with more private data sets beginning to have an impact too.

"Today, we have to teach students how to use new tools such as Python and have them evaluate Yelp data for health inspections," said Engler.

The new generation of statistical tools are getting better, according to Engler, "and a lot of the best tools are free." But the tools are not getting dramatically easier to use. "There's no point-and-click solution to any of these things," he said. "You have to build an application that is going to integrate data coming in from various city services, as well as the private sector, and then build a platform for internal and external use."

Where Engler sees progress is with local governments that have a chief data officer in place with a small staff who partners with the community. He cites Tom Schenk, Chicago's CDO, as someone who has created a model data-driven strategy that is impacting a broad range of public policies, including social services. One thing Schenk has done to expand the impact of data on policies is use community volunteers to help sort through the vast amounts of data the city is collecting. Cities like Chicago are doing this as much out of necessity as for community engagement and improved outcomes.

Chicago, despite its size, struggles to find people who can interpret the data government collects and develop predictive models. In one project, the city turned to volunteers to pore over data that will predict with a high degree of accuracy when the city's beaches would be affected by an E. coli outbreak. Another data project is helping the city accurately gauge how much rainwater runoff goes into the city's sewers and how much can be diverted by more environmentally friendly methods.

Using volunteers to conduct data science utilizing dashboards and other tools does have risks. They might see some data that the government doesn't want them to see. Or, they may make correlations and predictions that could end up as inconsequential or even distracting. But for local governments that can't find or afford analysts with a background in public policy, using volunteers can be beneficial as long as the data is presented in the proper context and with the right parameters.

Technology as a Unifying Force

Tackling homelessness, poverty, food deserts, opioid addiction and other social ills draws in a lot of different experts and professionals from government agencies, nonprofits and even academia. But what is the role of the CIO? Stephen Goldsmith, who has worked with many technology chiefs in his career in public service, said CIOs play an absolutely critical role in getting technology into the process of fixing urban social problems.

"They should first focus on how much value they can bring: to help their elected officials, to hire better workers who can figure better solutions and to manage contracts more effectively," he said. More importantly, the CIO has to be clear about the value proposition around technology's role in data-driven solutions to social problems. "Then the role of the CIO is to have the mayor bring in the right legal support to develop policies around privacy and security to help create the right kind of data-sharing agreements," said Goldsmith. "CIOs need to toot their horns on what they can do and make sure the right process is in place, along with the right tools. Then it's up to the mayor to expend the political capital to get it to work."

Others counsel CIOs, data officers and social policy managers to focus on tactics that lead to small wins. Don't try to solve the opioid epidemic within one project. "Start with data collection or simple solutions, maybe an app that shows the location of opioid prescription drop-offs," said Esri's Chris Thomas.

While tackling social problems can be complex, the underlying technology and the process it drives don't have to be radically new or different. "We're seeing a lot of parallels between winning solutions in non-social areas, such as snow removal data, and how it can be applied to social problems and become a game-changer," he added.

For Nancy Burke, the role of technology in helping Anchorage come to grips with its homeless problem wasn't clear-cut at first. But the more she talked with her colleague Tina Miller, the more she saw the possibilities of what could be done with mapping, dashboards and mobile apps.

"Seeking out technology doesn't come naturally from the social services side of the house," she said. "But technology has been a unifying force for bringing efficiencies internally and also for connecting with our community partners and the public." gt

DAVID KIDD

Building 21st-Century Communities

Digital Communities are real places that understand and value the transformative power of broadband connectivity, core computing technologies and interoperable applications to improve the way government conducts business and interacts with citizens. The Digital Communities Program showcases solutions from leading technology companies that are specifically designed for communities and local governments that want to exceed the expectations of their citizens. In addition, the program provides a collaboration forum where community officials discover and share emerging best practices and innovative community technology deployments.

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Cities:
The Next Generation

From transportation to digital equity, connected communities keep citizen needs at the forefront. **BY SKIP DESCANT**

Technology is no longer confined to PCs or even smartphones. It's everywhere, in everything, and it aims to make life as easy as possible. Running into unexpected traffic on the way to work is fast becoming a thing of the past — your traffic app already warned you and rerouted you. Juggling numerous apps or credit cards to pay for rides on a bus, train, ferry or even bike could soon be as nostalgic a part of city life as fare boxes and subway tokens.

City leaders across the country have taken a number of steps — in some cases leaps — to steer their communities toward a course of improved efficiencies and smoother connections. They've done this by introducing an array of new equipment and software as part of a wholesale rollout of connected devices — think of the Internet-connected parking meter that lets you pay with an app on your smartphone.

It's a path many, but not all, leading jurisdictions are considering. The drive toward smart is gaining so much momentum that some leaders see less of a need for the term "smart" itself. "As 'smart cities' goes away and it just becomes 'cities,' much of that technology will just be applied," said Kansas City Chief Innovation Officer Bob Bennett. But we're not there yet.

While some jurisdictions were early adopters of connected tech (See *Where Are They Now?* p. 43), several more represent the next wave of cities working to become smarter, more efficient and more accessible. *GT* looked at Albuquerque, N.M.; Columbus, Ohio; and Las Vegas to learn about their journeys to becoming smarter communities.

INNOVATE ABQ

COLUMBUS, OHIO

SMART COLUMBUS

AN OVER-RIDING VISION for smart technologies in Columbus revolves around the concept of "equity" — where technology serves to better the lives of not only the young professional class, but also those residents pushed further to the margins: the elderly, poor or minorities.

"Our mayor considers equitable access to mobility to be the great equalizer of the 21st century," said Brandi Braun, deputy innovation officer of Columbus.

"Open access to transportation can put people onto ladders of opportunity, where they then have the ability to empower and improve their own lives," she explained.

So what does a more equitable transportation system look like?

In one case it means upgrading the bus system to create "smart mobility hubs" where riders can access features that make trip-planning easier. When the Central Ohio Transit Authority (COTA) launches its first bus-rapid-transit line early next year, it will include smart mobility hubs, essentially Wi-Fi-enabled stops with kiosks that can help point users (with or without smartphones) to the transit options that get them all the way to their destination. "There would be a rack of bike-sharing," Braun said. "And then there would be reserved parking for the car-sharing system.

"The thinking is that when you get off the bus at the bus stop, you have easy access to other forms of transportation," she added.

This brings up another avenue to increase equitability — closing in on what transit officials deride as the "first-mile, last-mile" problem: that gap between a rider's home and a transit station; as well as the gap between the transit station and the final destination.

"Part of being a smart city is embracing multi-modal transportation, especially as a way to help solve for that first-mile, last-mile challenge," said Braun, explaining an approach that views public transit as more than just one system, but one that seamlessly overlaps and connects with a car-sharing service like Uber or even a public bike-share.

"If we can create an application that lets people seamlessly plan a route from point A to point B, allowing easy access to multiple forms of transportation — whether it's our bike-sharing system, car-sharing system, Uber, Lyft, a couple of transit systems, and then whatever the next new innovative transportation system is — we believe that will be a system for that first-mile, last-mile challenge," said Braun.

Columbus is also working toward developing a common payment system where one transaction could cover the fare for a bus, train, bike-share or even car-share service. Currently, someone riding the bus, using bike-share and hailing a Lyft would pay for three separate transactions.

"We're working on a system where you could use three, four or more forms of transportation, but pay for them with one account," she added. A similar concept is cropping up in other major cities, like with Portland's Hop Fastpass.

Many of the ideas around transit options being pursued in Columbus stem from a $40 million U.S. Department of Transportation grant the city won for Smart Columbus, a partnership between local private-sector leaders and city government. The initiative went on to attract additional private funding for smart city experiments ranging from public transit to faster adoption of electric vehicles.

Smart mobility hubs will help connect bus riders with another mode of transportation to finish their trip.

COTA

In November, the first autonomous shuttle in the U.S. hit the streets of Las Vegas, carrying passengers in a 0.6-mile loop around the Fremont Street Entertainment District.

LAS VEGAS, NEV.

TECHNOLOGY INNOVATION projects in Las Vegas have to consider more than just visitors — tourism is the city's No. 1 economic driver — but also residents and business operators, said Michael Sherwood, CIO of Las Vegas.

"We want to ensure that all the technology we put in place works for everyone," he said.

Las Vegas has at least 85 active technology projects in the pipeline throughout its Innovation District, an area dedicated to serving as a test site for dozens of pilot programs to study potential impacts of smart technologies. Those projects are focused on several key pillars: economic growth, education, social issues such as homelessness, mobility and public safety.

Data serves as the building block for these projects, and Sherwood is always looking for new and creative approaches to gather, analyze and distribute this data.

Here's one example of how Las Vegas is putting data to work, making the city smarter in the process.

New business operators want to know precisely how much foot traffic happens on a street, and they could soon have that question answered with the click of a mouse.

"We can show businesses or prospective businesses, 'If you relocated, this is a great street for you to be on. It's got lots of vehicle traffic. It's got lots of pedestrian traffic. It's got a lot of cyclists,'" said Sherwood, explaining a pilot that tracks street activity — and distinguishes among users. It's a particularly useful tool for economic development because it offers a comprehensive set of empirical data.

To get this data, most cities "hire a person, or they have people on staff that sit in a lawn chair and count the vehicles that go by in a day," said Sherwood. "And they might do that once a year. The sensors I have are counting this every day. ... So I'm able to get a lot more robust information that we feel is very valuable as part of our economic growth strategy."

The data can also help inform decisions related to managing the flow of traffic by conveying when it is busiest.

"It's been extremely positive," Sherwood remarked on the feedback he's received. "They've never had this data before."

ALBUQUERQUE, N.M.

SMART CITIES TECHNOLOGIES should be about engaging residents, getting them to more fully participate in the city and making their lives easier, said Peter Ambs, CIO of Albuquerque.

"How are we increasing citizen engagement with the city, whether that's the provisioning of city services or making our city more livable through increasing the quality of life?" he offered.

Central Avenue, the fabled Route 66 in Albuquerque, N.M., and perhaps a one-time backdrop for gas-guzzling car culture, will soon be ground-zero for smart mass transit. The city is set to launch a new bus rapid-transit system along Central Avenue using battery-powered electric buses. The $130 million project will use dedicated lanes so the buses will avoid traffic snarls.

"With that, we are implementing technology along that corridor with video cameras for public safety," said Ambs, as he explained how this commercial spine — home to major businesses and large employers like the University of New Mexico and Presbyterian Health Care — is getting numerous smart city upgrades.

"Essentially we're putting in broadband — a digital backbone — down Central Avenue. And that's an eight-mile stretch. That's going to be used for open-access, so it's not going to have the restrictions and the things that would go along with a private-sector offering," said Ambs.

Albuquerque Rapid Transit is also set to launch a mobile-ticketing platform,

Albuquerque will soon launch a mobile ticketing platform and an electric bus system.

allowing riders to use their smartphones to purchase rides anytime and anywhere.

In this way, Central Avenue is becoming Albuquerque's "Innovation District," an initiative led by the city, University of New Mexico, the New Mexico Technology Council and others, to grow the downtown as a hub for technology-based business development. It has resulted in new building development and has breathed a new brand and identity into the now diverse, mixed-use area.

In addition to broadband and transit, downtown is connecting with the public on all fronts. The basis of smart cities, said Ambs, is about creating data — sometimes through crowdsourcing methods or with connected devices. "Taking that data and then synthesizing it into knowledgeable information is where we really start to see the benefit of systems and data and so on, so that we can become that smarter city," he added.

Ambs pointed to the city's Real Time Crime Center, where video from public safety cameras will go for analysis.

"These cameras are really a very key tool to have for the crime-fighting efforts in the city," he said. "We see the public safety component along with the public transit along Central as being really important."

Downtown is also getting "smart parking," and the city will begin replacing some 30,000 streetlights and upgrading them to LED lights with the ability to also house sensors, Wi-Fi and cameras. This project is currently in progress and will take about 18 months to complete.

Much of the philosophy behind Albuquerque's smart city thinking is simply how to make life easier for residents and for them to engage with the city. That's why more and more services can be accessed online or through an app, such as business licenses and permitting, and non-emergency police reports.

"The information you enter into that app goes right into the police report, into the record," Ambs said.

Features like these reduce calls into the police department and cut the time police officers have to devote to filling out paperwork.

"We want to be citizen-centric," Ambs explained. "As opposed to the past, we had 19 different departments doing 19 different things. And guess what? We interacted with a citizen 19 different ways." gt

Peter Ambs, CIO of Albuquerque, N.M.

WHERE ARE THEY NOW?

Smart city projects in Atlanta, Chicago and Kansas City, Mo., were pioneering efforts. Here's what they're up to today.

TO UNDERSTAND WHERE smart city projects are going, one must understand where they've been. Atlanta CIO Samir Saini does this by dividing these projects into three phases: Smart Cities 1.0, Smart Cities 2.0 and Smart Cities 3.0.

Smart Cities 1.0 is tech that predates the phrase "smart city," going back about a decade to utility and energy companies that first used industrial control systems made of basic sensors to collect data for analytics work. Smart Cities 2.0 is where most cities are now, starting to use limited Internet of Things (IoT) tech to sense what's happening at surface levels and to control systems. Smart Cities 3.0, which is where most CIOs want to be, will transform municipalities into unified data platforms that give government prescriptive and predictive analytics capable of improving quality of life.

"Most cities are just doing demos," Saini said. "No one's really done a full, citywide scaled deployment of IoT yet, and neither have we. So, from an IoT perspective, we're not so different than most other cities — doing demonstrations to prove the value of sensing and control-based projects."

Atlanta, however, has its eye on Smart Cities 3.0 status, as do two of the nation's other pioneering smart city jurisdictions, Chicago and Kansas City, Mo. What exactly this means, however, varies by city.

ATLANTA

Atlanta is collaborating with academia, specifically with the Georgia Institute of Technology (Georgia Tech), on predictive analytics in transportation, starting to use advanced sensors to predict potholes and identify intersections with frequent near-

Atlanta CIO
Samir Saini

crashes. With this data, the city can direct resources to fix potholes before they happen and make changes to dangerous roads, thereby improving efficiency and reducing costs.

Atlanta is also working with Georgia Tech on public safety through a machine learning algorithm that uses natural language processing to draw connections between thousands of case reports generated by police. This project seeks to identify similarities in cases in real time, a vast improvement over manual review.

"With the algorithm, we can see there are five cases that have five investigators, but these five cases have a 0.8 and above probability of being correlated to each other," Saini said, "which means we should probably have these investigators work together. If they do, it's likely we can find the bad guy sooner, get a conviction and maybe even avoid future crimes."

CHICAGO

Chicago has also established itself as a groundbreaking smart city with its Array of Things project, which Chicago CIO Danielle DuMerer said has drawn interest from 90 other jurisdictions, including Denver, Seattle and Boston. Chicago has proven a productive testing ground for this project, which is made up of hundreds of outdoor nodes, because the hardware must stand up to the Windy City's weather. Since the project launched more than a year ago, developers have improved the nodes to reduce issues such as interior condensation.

A collaborative commitment to smart cities has also taken root in Chicago. On

High-res cameras like these help collect data for the sensor-based Array of Things project in Chicago.

ALEX GARCIA

"There's nothing sexy about this but it's deadly effective, it saves money, and that's what gets people's attention."

the data side, the city is working with the University of Chicago to break down silos and funnel smart cities data into a platform called Plenario, which funnels info back through an API and makes it available around locations. To create hardware that can be seamlessly placed throughout the city, Chicago is also collaborating with the School of the Art Institute of Chicago on stylish hardware boxes. Other efforts are underway at Northwestern University, which, like Georgia Tech, is studying applications in transportation.

It's all in service of broader goals: creating data about what's happening through the city and making that data available to public agencies, community groups, researchers and residents. Chicago has kept this at the forefront as it expands its Array of Things projects and advances toward Smart Cities 3.0 status.

"One of our goals is really to find locations where we've got the city, universities and communities that are interested in a platform and leveraging it collectively to solve challenges," DuMerer said. "Those are the locations that will move forward most quickly."

KANSAS CITY

Kansas City, Mo., was at the forefront of smart city tech in 2015, embracing expanded broadband access, smart streetcars with video sensors capable of finding badly parked cars, traffic lights to keep streets moving, and digital kiosks serving as city guides.

Kansas City Chief Innovation Officer Bob Bennett said recent progress has involved expanding existing initiatives, as well as improving data analytics platforms. Potential uses of analytics are wide-spanning and nuanced, with examples including the parks department putting pools in overheated neighborhoods to reduce

crime, or economic development tools identifying areas in need of resources.

Expansion also continues with the city's smart streetlight plan, which is set to grow to 7,200 units. Other growth has taken place with public Wi-Fi and traffic cameras, which now collect data from all main thoroughfares connecting highways to city streets. The city is also using sensors to direct water during storms, and, like Atlanta, to predict potholes. Bennett said results have been fantastic for government efficiency, even if the average Kansas City resident is unaware.

"There's nothing sexy about this," Bennett said, "but it's deadly effective, it saves money, and that's what gets people's attention." gt

Internet of Things Lab Rises in Indiana

Officials in Fishers, Ind., are looking to the facility to bolster and even supplant the state's longtime powerhouse industries.

By Theo Douglas / Staff Writer

Occupying nearly 25,000 square feet, Indiana's first Internet of Things Lab is slated to open in early 2018.

Northeast Commerce Park in Fishers, Ind., is getting closer to hosting the one business that might truly cement a reputation for economic diversity: the state's first Internet of Things Lab. The former home of Bates Technology, a maker of honing stones and machine shop tooling that moved to another Indianapolis suburb, it doesn't look revolutionary from the outside.

But the city's mayor and two local entrepreneurs are adamant that technology and the Internet of Things (IoT) will continue to transform this city of more than 86,000 and yield huge dividends for the state and region.

The issue has also been a focus for Indiana Gov. Eric Holcomb, who visited Fishers to announce the lab in February. His Next Level Fund, part of a legislative agenda of the same name, will invest a quarter-billion dollars over the next decade into venture capital, a potential boon for startups.

"To maintain our position as a leader in the new economy, IoT must be part of our strategy for the next generation of Hoosiers," Holcomb said.

Rapid growth

Fishers is far from an unknown quantity. The freeway-adjacent community has grown so swiftly that it asked for a special census in 2003 from the U.S. Census. It became a city in 2015, and last year, officials conducted another partial special census to assess high-growth areas.

Simultaneously, Fishers is building a reputation for supporting technology. Launch Fishers, a co-working space near the IoT Lab, opened in 2012 under the aegis of entrepreneur John Wechsler, its CEO and founder; Mayor Scott Fadness; and John McDonald, CEO of IoT systems integration business ClearObject.

Discussions at Code and Coffee, a weekly development group meeting in the co-working space, helped create CrimeWatch, an app one of its developers built in consult with the Fishers Police Department. The app lets residents report suspicious activity; more than 5,000 have downloaded it.

Agency360 has created field training software that lets law enforcement officers quickly, easily and accurately document trainees' progress. The company is headquartered at Launch Fishers.

Despite examples like these, McDonald immediately called the lab — adjacent to Launch Fishers — a "bold move" and a "calculated risk" from a city "well ahead of most of its competitors in the U.S. and maybe in the world." By supporting IoT, Fishers hopes to create a technology generator that could produce the state's next bumper crop of signature industries.

Fadness, the city's first-ever mayor, started with Fishers as an intern in 2006 and said officials have set a bold outward agenda even as they pursue IT modernization intended to integrate solutions enterprisewide and enable the free flow of data among departments.

He said he sees the IoT Lab as "what's next," as do McDonald and Wechsler.

The state does three things well: agriculture, distribution and manufacturing, the mayor said, and ranks in the top five in each category as a state.

"The challenge with all three of those is they're about to be disrupted by the IoT in a way that they've probably not seen since the Industrial Revolution," Fadness said. "And what we want to make sure in Indiana is that we have an economy that's growing around these technological innovations."

Tech-fueled disruption

Fishers is closely involved in the 24,562-square-foot IoT Lab at 9059 Technology Lane. Similarly to Launch Fishers, the city will pay for the lease of the building, while Launch Fishers, a 501(c)(3) nonprofit, will pay for the lab's day-to-day operations through membership fees and sponsorships.

More than 50 members have joined at a fee of $1,000 each, which entitles them to work out of the facility when it becomes available. Major sponsors include Comcast, AT&T, Indiana University and DeveloperTown, an Indianapolis ideation, app development and design company.

The lab's grand opening date will likely be in early 2018, with resources including a laser cutter, 3-D printer, a pick-and-place printed circuit board maker, and a stereolithography (SLA) printer that deploys advanced 3-D printing technology.

Being immediately south of Launch Fishers could stimulate some interesting connections, McDonald said.

"We're trying to get it up and running, and we'll kind of build the airplane on the way down in terms of what this is going to be in the marketplace over the long term," Wechsler said, referring to the strategy as both "offensive and defensive."

He characterized it as "an opportunity for us to extend our leadership position and kind of define the next industries that will lead our economy."

The lab has yet to find its exact market position, but Fadness said it could one day offer employment to Indiana residents as existing jobs in agriculture and elsewhere become more automated.

Looking at the bigger picture, the mayor — who was successful, McDonald noted, in wooing ClearObject to relocate from Indianapolis to Fishers — said he'd like to convince Cummins Inc., headquartered in Columbus, Ind., to utilize it for developing IoT devices for their diesel and alternative fuel engines.

Depending upon its path and the solutions it creates, the lab could also play a role in providing IoT solutions to public agencies, Wechsler said.

"I think it's not only smart from an economic development perspective to foster innovation in this space, but it could lead to better municipal services as well," he added.

McDonald agreed, but pointed out that despite the city of Fishers' dominant support, not every solution will have a place in the Indianapolis suburb. One issue, he said, will be leveraging the data.

"Just because you can collect it doesn't mean it's useful. And all too often, the challenge of municipalities has been in how do you apply the data to something productive for the running of a city," McDonald said, noting that some solutions that have done well elsewhere like ShotSpotter, the gunshot detection system, would be out of place in low-crime areas like Fishers.

But even these issues, he added, could be an entry point for the lab.

"We're struggling with the use cases in smarter cities. The lab can explore those things and do interesting things and be an incubator for ideas just the way they're an incubator for private reasons," McDonald said.

Fadness said cities need to be "thoughtful" about the problems they're trying to solve with IoT — but in Fishers, he emphasized, "we have always opened our doors to new technology." gt

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SuperClusters:
Getting Smarter Faster

NIST is convening a handful of idea-sharing groups to advance best practices around smart cities.

By Zack Quaintance / Staff Writer

SHUTTERSTOCK.COM

Seeking to better connect all stakeholders interested in smart cities, the National Institute of Standards and Technology (NIST) has created Super-Clusters, international networks that share ideas in order to accelerate the development of smart city technology with the potential to improve residents' lives.

The idea behind SuperClusters is simple: create a group that can easily learn from the victories (and setbacks) of others pursuing similar goals. NIST, which is part of the U.S. Department of Commerce, brings cities and other stakeholders together to share lessons and new ideas by using its vast federal convening powers. What happens when the SuperClusters are assembled is then entirely up to the participants, who are subject to zero federal oversight.

"It's to share best practices," said Bob Bennett, chief innovation officer of Kansas City, Mo., and chair of the City Platform/Dashboard SuperCluster. "Probably more importantly it's to explain what they've done that didn't work, so that folks from a different city don't re-create failure."

Currently there are SuperClusters in five areas: transportation, city platform/dashboard, public safety, energy/water/waste management and public Wi-Fi. Officials expect to add more groups soon, likely related to procurement strategies, data governance and cybersecurity, although agriculture and rural broadband are also under consideration.

The creation of the SuperCluster concept dates back about four years, when Sokwoo Rhee came to government from the private sector as a Presidential Innovation Fellow. When Rhee began working at the federal level, he looked into how best to encourage deployment of practical IoT applications. Ultimately he determined that the biggest obstacle was fragmentation between sectors, research facilities and local

Sokwoo Rhee

governments. To combat this, Rhee and his cohort started the SmartAmerica Challenge, which fostered collaboration among innovators in the service of better government. The idea was to demonstrate how Internet-connected devices could facilitate economic opportunity and tangible improvements to communities.

That iteration has since run its course, but a decision was made to continue the program within NIST, turning it into an agency called the Global City Teams Challenge (GCTC), and Rhee was brought on as a permanent staffer. The SuperCluster concept grew from that, and now connects cities, private companies, universities, nonprofits and other public agencies such as school systems. They all focus on activities that Rhee said must share one overarching goal: that "the final beneficiary of the activity should be the residents and citizens, whether it goes through city government or goes directly to the citizens."

Coming from the private sector, Rhee's expectation was that such technology would

grow exponentially, but instead he found it happening in slower increments. His goal is to create a standardized international collaboration network to change that.

"It's very fragmented if you look at it," Rhee said. "Every city is doing their own things. There's really no coordinated efforts and there's no standards. This lack of coordination and the fact that they're all fragmented is really slowing down the adoption and growth in the industry, and the benefits for the citizens."

One of the biggest values of this concept, to Rhee's mind, is that the focus is always on deployments, not untested ideas or PowerPoint presentations. In fact, in order to be approved as a participant, a stakeholder must show a real-world deployment.

SuperClusters generally bring participants together in the same room for at least one annual event, in locations that range from Bellevue, Wash., to San Jose, Calif. Tony Batalla, the IT manager/director for San Leandro, Calif., is one of

> **"The final beneficiary of the activity should be the residents and citizens, whether it goes through city government or goes directly to the citizens.**

the co-chairs of the public Wi-Fi SuperCluster, and he said he's seen immense benefit for everyone involved.

His work with SuperClusters has involved assembling a 74-page blueprint that takes readers through every nuanced aspect of a public Wi-Fi framework, including different avenues that are available, funding models, legal concerns, project management, procurement, case studies and more. Batalla called it an unprecedented level of collaboration, and noted that every team has put together "these really rich blueprints, and, going forward,

we're going to look at how they overlap and intersect."

The future of the program looks bright, with membership steadily growing. Amazon has even created an Amazon Web Services Marketplace specifically for GCTC apps and companies. This platform is a good example of why private companies are eager to participate in the concept as well, in that it organizes some of the solutions that have been conceptualized and created through the work. **gt**

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product news

By Miriam Jones | Chief Copy Editor

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

◀ Snappy Notebook

The Fujitsu Notebook LIFEBOOK E5 features a new fingerprint sensor that responds instantly to provide one-touch login and system unlock. The 15.6-inch or 14-inch notebook comes with the 8th Gen Intel Core processor and features a choice of HD anti-glare displays, and provides daylong battery runtime. The laptop contains embedded 4G/LTE, support for classic VGA outputs and a full-size Ethernet port. Also included are a more accurate touchpad, with support for three-finger gestures as featured in the latest version of Microsoft Windows 10, and a sculpted, ergonomic palm rest. **www.fujitsu.com**

Rich Protection ▶

Mujjo recently added olive to complement its current selection of black, tan and gray leather finishes of iPhone X cases. The cases are fully leather-wrapped to reinforce their durability and closely follow the phone's contours. The case interiors are lined with a satiny microfiber, providing soft padding for the phone. The leather wallet case for iPhone X features a leather card pocket that fits two or three bank, ID or commuter cards. The full-grain, vegetable-tanned leather will acquire a patina over time, deepening the color. **www.mujjo.com**

◀ Enterprise Smartphone

The Samsung Galaxy Note8 Enterprise Edition is an unlocked smartphone designed for the enterprise, and the small and medium-sized business markets. Samsung Knox Configure lets IT admins quickly, securely and remotely configure and deploy branded, custom mobile experiences. Samsung Enterprise Firmware Over-the-Air enables IT admins to comprehensively manage a fleet of devices through a centralized operating system and software version control and scheduled updates. Features include IP68 water and dust resistance, fast wireless charging, 6 GB RAM and a 10-nm processor. The Note8 has 64 GB of storage, expandable up to 256 GB with an additional MicroSD Card. **www.samsung.com**

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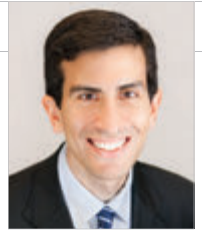
State Credit Freeze Laws Need a Reboot

Following major data breaches, states must revisit their policies and protect citizens.

When Equifax announced hackers had stolen the personal information — names, Social Security numbers, birth dates and addresses — of 145.5 million Americans, it marked one of the most significant data breaches to date, not only because it affects over half of U.S. adults, but also because the stolen information is the key to obtaining credit. While the Equifax breach has shown the need for the federal government to replace outdated and overused Social Security numbers with a modern digital equivalent, it has also highlighted the failure of state laws to protect consumers, as state laws on obtaining a security freeze on credit reports too often put the interests of the credit agencies ahead of consumers.

While a credit freeze will do nothing to protect consumers against fraud on existing accounts, it is one of the most effective tools to prevent criminals from opening new ones. A credit freeze works by restricting access to a consumer's credit report. Without seeing a credit report, most creditors will not open a new account, and thus a credit freeze keeps consumers safe from identity theft.

Unfortunately, many existing state laws on credit freezes make this fraud prevention method

impractical for most consumers. Credit bureaus can charge consumers fees, ranging from $5 to $10, for applying for a credit freeze, and again every time they need to lift it. Moreover, since consumers do not always know which of the three main U.S. credit bureaus a creditor will check, they may have to do this for all three credit bureaus. Complicating the situation further, each credit bureau has its own process to make this request, and credit bureaus can take a few days to "thaw" a credit report. These costs and delays make credit freezes a poor solution for most consumers.

Ideally the federal government should address this situation. Just as consumers have benefited from a federal law allowing them to get a free copy of their credit report once per year from all three credit bureaus through a single website, they would similarly benefit from a one-stop shop to freeze and unfreeze the credit reports at no cost.

But in the absence of federal action, states can and should address this problem. First, they should pass a law requiring credit bureaus to allow all consumers to freeze and unfreeze their credit at no cost. Maine, for example, already requires this of the credit bureaus for all of its residents. Many states allow consumers to freeze their credit at no cost if they are victims of identity theft, but obtaining the "proof" can be more cumbersome than simply paying

the fees. Moreover, it makes no sense to only extend this protection to people who have already been victimized rather than trying to stop fraud before it happens. Following the Equifax data breach, states should expand this service to everyone.

Second, states should impose strict time limits on how long credit bureaus can take to unlock credit reports. States like New York have required credit bureaus to lift credit freezes within 15 minutes when the request is made by phone or online. These time limits are necessary to ensure that credit freezes do not interfere with legitimate inquiries when consumers need to open new accounts. If consumers cannot unfreeze their credit quickly and easily, they will not take this step to protect their credit.

Finally, policymakers should consider whether consumer credit reports should be frozen by default, rather than the reverse, and whether consumers should have real-time access to their credit online, rather than only receiving these once per year. After all, most consumers are not regularly applying for more credit, and regular monitoring would be more effective at detecting fraud than annual reviews.

Given the rising levels of identity theft, it is time to rethink some of these policies. While states may not be able to stop all data breaches, they can at least take steps to protect consumers from the fallout of such incidents. gt

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

Listen Up

Finding a place in the podcast universe for the voices of state and local government.

Earbuds are ubiquitous. They're lodged in the ears of walkers, runners, passengers and cubicle-dwellers everywhere. But the mix of what's playing is changing. Sure, there's lots of music. And NPR. Then there is direct-to-your-device listening.

A decade and a half after their introduction, podcasts are a growing part of the listening habits of 25 percent of Americans. According to Edison Research, monthly podcast listenership grew 24 percent in the last year among a core audience of 18- to 54-year-olds.

There is plenty of competition for what Edison calls "share of ear." The Apple podcast directory, through which almost two-thirds of podcasts are consumed, lists more than 400,000 titles. What's more, RawVoice, a podcast hosting and analytics company, reports that at least 1,000 overtly political podcasts have been added to the mix in the year since the 2016 presidential election.

So where do explicitly nonpartisan podcasts that give voice to state and local government fit in this world of spoken-word audio delivered directly to your personal device? Fred Dews, a writer, editor and podcaster at the Brookings Institution, set out to find an answer. His scope included all public agencies — including the federal government and nonprofit organizations. On a first pass, he noted that only one public entity cracked Apple Podcasts' top 200: a cleverly named show from NASA called *Houston, We Have a Podcast*. Countless searches and much scrounging later, Dews curated a list of 175 shows to see if there are common through lines in public podcasting.

Dews found wide variation in production quality, longevity (some were almost brand-new, and some dated back to the introduction of the now discontinued iPod), and diverse, eclectic subject matter. The California Driver Audio Handbook from the state's Department of Motor Vehicles was syndicated as a podcast early on, as was a show for and about prison and probation officers in Michigan.

Dews drew three key lessons from his extensive listening tour around the world of nonprofit and government podcasts: (a) they can demonstrate an organization's relevance; (b) they are often started as skunk works within agencies and sold up within the organization; and (c) for the size of the sector, there really are not too many podcasts in this space.

Beyond Dews' list, we have been listening to a number of state and local podcasts. Engaging Local Government Leaders (ELGL), the people who brought you the #cityhallselfie, also produce *GovLove*, a podcast that introduces listeners to the people who do the work of local government. Eighteen months ago, the International City/County Management Association (ICMA) offered its own take on managing local government with its podcast series *Local Gov Life*. And from the town of Gilbert, Ariz., Chief Digital Officer Dana Berchman hosts *Government Gone Digital*, a podcast that chronicles how local government life is changing.

At about the same time, Salem, Mass., Mayor Kim Driscoll and Ruston, La., Mayor Ronny Walker each began their own podcasts. Last summer saw the launch of the eponymous *Mayor Greg Fischer Podcast* from Louisville, Ky. Mayor Rahm Emanuel changed up the model earlier this year when he began telling *Chicago Stories* by sitting down with everyday Chicagoans for surprisingly candid conversations.

We're talking the talk too. Our podcast *Not Safe for Government (NSFG)* helps unpack what new technologies mean for states and localities. And *Governing* magazine's flagship podcast, *The 23%,* features conversations with women who serve in government.* You can find both (among others) at govtech.com/podcasts.

Podcasting is a crowded, loosely organized, noisy world. It is also in an in-between state — big and mature enough to claim a permanent spot in the media landscape but still open to experimentation and new voices. Discover. Listen. Subscribe. And maybe even start your own. **gt**

*Governing is part of e.Republic, Government Technology's *parent company.*

Paul Taylor is the chief content officer of e.Republic, *Government Technology's* parent company, and co-host of the Not Safe for Government Podcast.

868 FEET: Standing 264.5 meters, or about 868 feet, from ground to tip, construction of the world's tallest wind turbine began in a small town near Stuttgart, Germany, in October. Not only does it set a new height record, but it also introduces a new form of energy storage: the water battery. Part of a four-turbine pilot project, the towering giant will have at its base a water reservoir for a nearby pumped-storage hydropower station. This boosts the turbine's height, allowing it to more efficiently capture wind, and also acts as short-term energy storage to help ensure grid stability. The company constructing the turbine, Max Bögl Wind, anticipates it will start supplying energy to the German power grid in 2018.

SOURCE: NEWATLAS.COM

THE WALL IS LAVA

One of the key ways to ensure a secure connection between your Internet browser and the website you're visiting is to encrypt it, a process done by generating completely random strings of numbers that are difficult to hack. There are computer programs that can create these numbers, but external sources of randomness are also up for grabs. The San Francisco-based headquarters of the Web security company Cloudflare has taken a groovy approach to randomness: A wall of 100 lava lamps is recorded and sent in a live feed to a server, which then takes all the tiny lava movements and extracts random, unpredictable chains of encryption from them. It then sends those around the world to help generate encrypted keys for secure Web connections. Since Cloudflare encrypts about 10 percent of all Internet traffic, there's a good chance your own security online relies on that wall of psychedelic light.

SOURCE: DIGITALTRENDS.COM

Japanese 101

Before Amazon's Echo and Dot devices were released in Japan in mid-October, Alexa had to go back to school, so to speak. The digital assistant built into Amazon's devices was "rebuilt from the ground up for Japanese customers, including a new Japanese voice, local knowledge and over 250 skills from Japanese developers," said Alexa Senior Vice President Tom Taylor. So that third-party developers can continue to tailor the devices to Japanese culture, Amazon is giving them access to Alexa's Skills Kit.

SOURCE: ENGADGET.COM

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

Social Media Analytics 101

It's not enough to just have social media — government must understand how to make the most of it.

Many important decisions made within a government agency happen after collecting and analyzing pertinent data. Reviewing analytics about your agency's social media presence is smart, but many agencies just don't do it.

Part of the challenge is that a lot of government agencies still don't have a dedicated social media coordinator. In an "other duties as assigned" situation, the nice-to-have aspects of a social media program, such as reporting on analytics, often get pushed aside because there isn't enough time or manpower.

The other challenge is discerning what data is the most meaningful to government agencies.

What Data Should We Track?

Most mainstream social media platforms have some amount of usage and performance data available to profile administrators. With so much information, what type of data is important to analyze as a social media manager?

The easiest number to track is how many followers your agency's profiles have. But can that alone tell you about the effectiveness of your social media presence? While having many followers is good, properly interpreting how social media achieved real-world results is even better.

Knowing what age groups generally use the platforms your agency is on can be helpful. For instance, your Snapchat followers are likely going to be younger, while you can probably find many of your older constituents on Facebook. It's common for government agencies to have various programs designed for both youth and seniors, so very targeted messages on the appropriate platforms help save time.

Also, when does your audience check social media most frequently? Are they most active at 10 in the morning or 10 at night? What day of the week are they most active on a particular platform? To get the most from each post, you'll want to schedule posts when the most people will see your content.

Examine data that shows where your audience is located. It's helpful to know if your content is reaching people beyond your jurisdiction. For instance, you'd want a broader geographical reach for your economic development initiatives such as bringing new businesses to your community, while a narrower approach is fine for promoting local events.

Why You Should Look at Engagement

Many of the social media platforms you'll be using can track both impressions and reach. Impressions refers to the number of times your content was displayed, while reach refers to how many people your content was displayed to.

Both methods don't really tell you if people just skipped over your content or if they did something with it. This is why we like to track something called engagement: It's a measurement of how many times people interacted with your content. Depending on the platform, engagement could be likes, shares, retweets, replies or mentions.

When your citizens take the time to do one of these, it shows that they're actively involved in what your agency is doing. If your engagement stats are low, it could mean that you need to re-evaluate the type of content you're contributing to social media. **gt**

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

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