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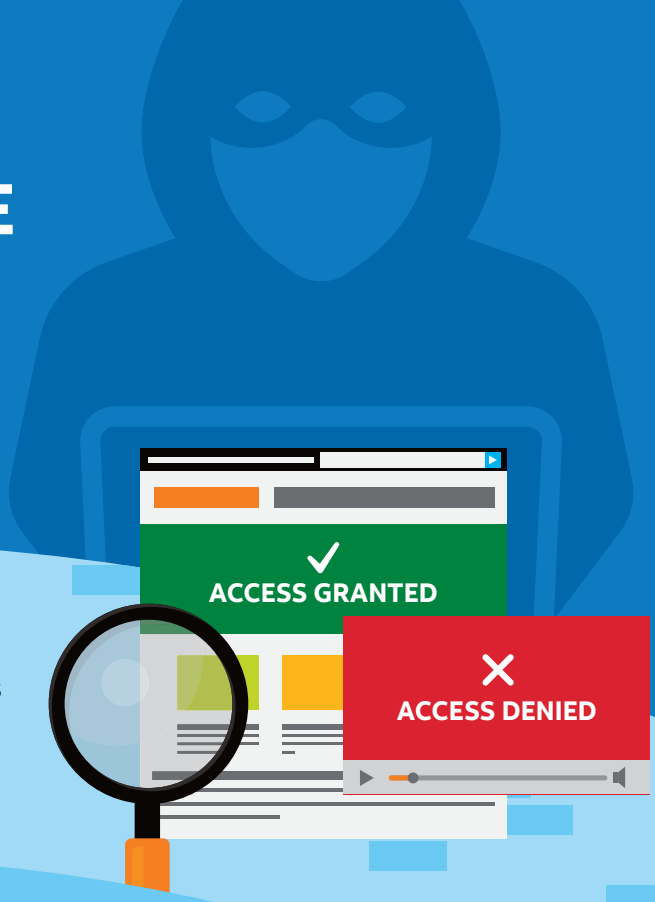

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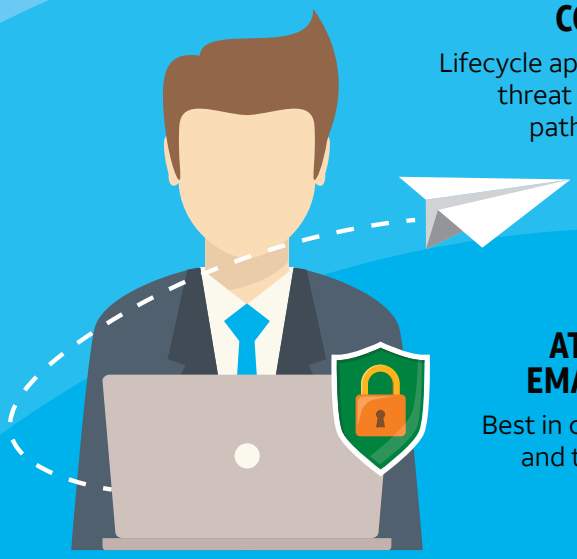

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DAVE MOSER

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e.Republic BPA WORLDWIDE

By Noelle Knell / Editor

Transparent Transformation

This month's magazine is focused on government's imperative to operate in a manner that is citizen-centric. Even the back-of-the-house technical staff, whose work may be a few steps removed from front-line service delivery, are making sure systems are able to support and facilitate interactions between citizens and government.

In recent years, interest has grown in the potential of new technologies like artificial intelligence (AI) to help power more effective government. While it was a new concept a few years ago (at least by that name), public-sector chief information officers and their colleagues whose work is dependent on tech now largely agree on its promise.

A precise definition for AI (and what constitutes its use in government) is somewhat elusive, but at a basic level, technology powered by AI is capable of learning patterns and making assumptions based on what it learns and using those assumptions to act, independent of human intervention.

But at its heart, someone is programming those core algorithms, and to many, that's the scary part. Of course, there's the potential for a bad actor to corrupt those codes to serve dark purposes — stealing identities en masse, fraud or outright theft — but as many critics of tools like predictive policing have argued, bias, even unintentional bias, has the potential to creep in and affect outcomes in a way that's at odds with societal values.

New York City Councilmember James Vacca introduced a piece of legislation last December to address some of these concerns. "As we advance into the 21st century, we must ensure our government is not 'black boxed,'" he said. Vacca's aim with the bill was "not to prevent city agencies from taking advantage of cutting-edge tools, but to ensure that when they do, they remain accountable to the public," he said when introducing the bill to the Technology Committee.

New York City uses AI in a number of ways: to make bail determinations, to place students in public schools, and to locate public safety resources like firehouses and patrol officers. Enacted in January, Vacca's measure provides for a task force to be chosen by Mayor Bill de Blasio with a broad cross-section of interests represented, including those affected by city policies reliant on AI. The group will evaluate the city's use of the technology to ensure it is administered fairly and fully understood. Among the groups hoping to influence the panel's membership is the New York branch of the American Civil Liberties Union, who lobbied for the bill.

On the other side of the table during legislative discussions was the New York Police Department, worried that overly cumbersome disclosure requirements would hamper the department's tactical position, and technology companies protective of the proprietary code in their software.

Rutgers law professor Ellen Goodman suggests that transparency doesn't need to mean revealing source code, but contracts could be written to ensure the public interest is served, and independent audits should be scheduled regularly.

"Propriety interests should not tromp on public access," she told *Government Technology*.

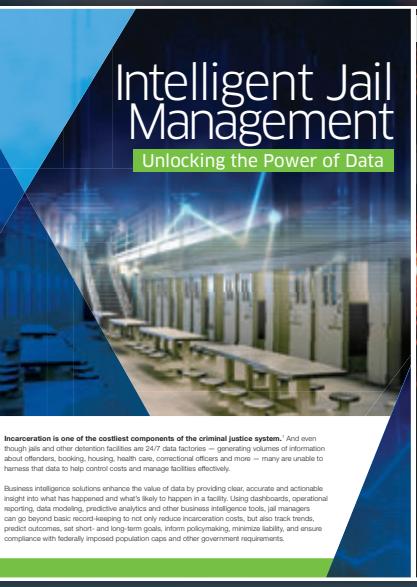
While opinions vary as to how valid these concerns from industry are, surely a compromise that serves the public good and instills trust in tech-driven decision-making will help ensure the public sector can realize the benefits of artificial intelligence and other emerging technologies.

New York City's handling of the issue could give other jurisdictions a model to emulate. gt

RAISE YOUR VOICE

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

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

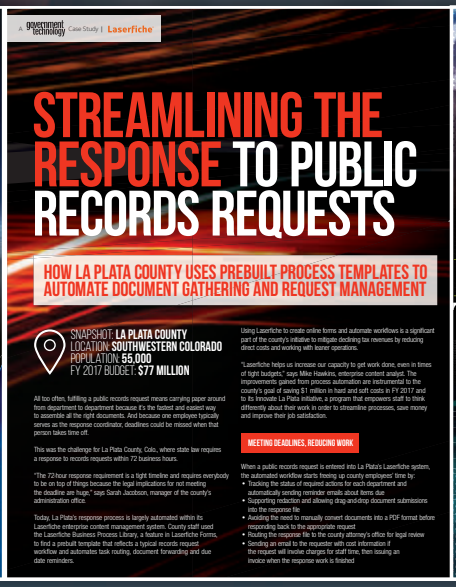


Intelligent Jail Management

Unlocking the Power of Data

Incarceration is one of the costliest components of the criminal justice system.[1] And even though jails and other detention facilities are 24/7 data factories — generating volumes of information about offenders, booking, housing, health care, correctional officers and more — many are unable to harness that data to help control costs and manage facilities effectively.

Business intelligence solutions enhance the value of data by providing clear, accurate and actionable insight into what has happened and what's likely to happen in a facility. Using dashboards, operational reporting, data modeling, predictive analytics and other business intelligence tools, jail managers can go beyond basic record-keeping to not only reduce incarceration costs, but also track trends, predict outcomes, set short- and long-term goals, inform policymaking, minimize liability, and ensure compliance with federally imposed population caps and other government requirements.



A government technology Case Study | Laserfiche

STREAMLINING THE RESPONSE TO PUBLIC RECORDS REQUESTS

HOW LA PLATA COUNTY USES PREBUILT PROCESS TEMPLATES TO AUTOMATE DOCUMENT GATHERING AND REQUEST MANAGEMENT

SNAPSHOT: **LA PLATA COUNTY**
LOCATION: **SOUTHWESTERN COLORADO**
POPULATION: **55,000**
FY 2017 BUDGET: **$77 MILLION**

All too often, fulfilling a public records request means carrying paper around from department to department because it's the fastest and easiest way to assemble all the right documents. And because one employee typically serves as the response coordinator, deadlines could be missed when that person takes time off.

This was the challenge for La Plata County, Colo., where state law requires a response to records requests within 72 business hours.

"The 72-hour response requirement is a tight timeline and requires everybody to be on top of things because the legal implications for not meeting the deadline are huge," says Sarah Jacobson, manager of the county's administration office.

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

Using Laserfiche to create online forms and automate workflows is a significant part of the county's initiative to mitigate declining tax revenues by reducing direct costs and working with leaner operations.

"Laserfiche helps us increase our capacity to get work done, even in times of tight budgets," says Mike Hawkins, enterprise content analyst. The improvements gained from process automation are instrumental to the county's goal of saving $1 million in hard and soft costs in FY 2017 and to its Innovate La Plata initiative, a program that empowers staff to think differently about their work in order to streamline processes, save money and improve their job satisfaction.

MEETING DEADLINES, REDUCING WORK

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

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

DIGITAL TRANSFORMATION:

Enterprise Strategies for Maximizing the Value of Your Investment

Mobile Technology Improves Public Safety While Driving Down Costs

The cities of Montebello and Lexington tap mobility solutions to better serve citizens and improve efficiencies.

We've become painfully aware in recent years that vehicle safety means more than just careful driving. Violent incidents caused by passengers and drivers are changing how we think about risk and posing complex challenges for government agencies.

Forward-looking municipalities are using technology to address these issues. To help overcome public safety risks and improve response times when incidents occur, the city of Montebello, Calif., recently installed a mobile video security system on the public buses it operates.

"The world is changing, and so many things now happen on public transportation," says David Tsuen, information systems manager for Montebello. "We need to use mobile technology to protect our riders."

"The world is changing, and so many things now happen on public transportation. We need to use mobile technology to protect our riders."
David Tsuen, Information Systems Manager, City of Montebello

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Making Connections

Cincinnati is installing 20,000 feet of fiber-optic cable around its central business district, while also bisecting the area with another line of cable. The project is structured as four separate conduits, with two to serve municipal needs and two available for the private sector. This will open up connectivity for government and will also offer the city the opportunity to monetize its investment. As it builds the downtown fiber network, Cincinnati is laying the foundation for improved traffic management and other smart city initiatives, as well as offering the kind of communications infrastructure necessary to grow the region's economic development efforts.

DAVID KIDD

Big names are getting into the gov tech market. Martin O'Malley, former Maryland governor and current adviser to MetroLab Network, has joined the board of directors for ClearGov, which offers local governments and school districts interactive statistics dashboards as well as back-end data analytics. In many ways, O'Malley's experience aligns well with what the company does. During his time with the city of Baltimore as well as the state, he achieved notoriety for working data in as a driving force behind government operations, including the launch of CitiStat, a program that gathered performance data for Baltimore's municipal operations.

WHO SAYS?

"If all you have is public data ... then you'll only go so far."

Govtech.com/quoteMarch2018

Homeward Bound

With the help of a database created by the U.S. Department of Housing and Urban Development (HUD), the Albuquerque Heading Home project is having an unprecedented effect on homelessness in the New Mexico city. When the program started in early 2011, 900 homeless individuals were identified on the city's streets; by 2016 there had been an 80 percent reduction. Albuquerque has seen some $5 million in taxpayer savings by using tools including a vulnerability survey that plugs its results into HUD's Homeless Management Information System, identifying local programs that could provide housing and tracking individuals who have been helped. Plus, the program has found that it is 31.6 percent cheaper to house people than it is to have them living on the streets, and after the first year, jail costs associated with homelessness decreased by almost 96 percent.

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2,545 VIEWS

Facebook's Newsfeed Algorithm Will Negatively Impact Government
2,309 VIEWS

Florida's First Geographic Information Officer Maps Out a Statewide Strategy
1,872 VIEWS

tech/bytes

21%

The drop in shootings Chicago saw after taking a high-tech approach to law enforcement, including large-scale deployment of gunshot detection technology ShotSpotter.

18K

The number of words in Michigan's old application for public benefits, now trimmed to just 3,904 through a partnership between design studio Civilla and the state's Department of Health and Human Services.

$2.2M

The amount blockchain-based voting startup Voatz raised to expand its efforts to eliminate problems with existing elections systems.

64%

of drivers surveyed by Advocates for Highway and Auto Safety said they were concerned about sharing highways with self-driving vehicles.

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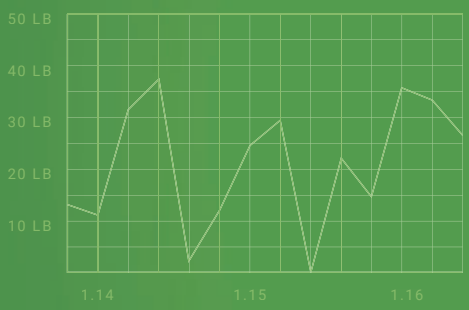
CONTAINER MODEL SD-42	**SOFTWARE** V. 1.14	**LAST CHECK-IN** 1/16/18 08:14

MEASURED WEIGHT

WEIGHT HISTORY

1/12/18 00:00 – 13 lb	1/13/18 02:04 – 28 lb
1/12/18 03:27 – 17 lb	1/13/18 06:38 – 35 lb
1/12/18 07:43 – 15 lb	1/13/18 11:19 – 33 lb
1/12/18 13:16 – 43 lb	1/13/18 17:55 – 3 lb
1/12/18 19:08 – 9 lb	1/13/18 22:31 – 28 lb



STATISTICS

AVG. FILL LEVEL AT COLLECTION
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AVG. WEIGHT AT COLLECTION
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AVG. TIME BETWEEN COLLECTIONS
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Carrying a Torch

While the Olympic Games are rooted in ancient tradition, the modern events seem to only get more futuristic. As part of the Olympic torch relay in the runup to the 2018 Winter Games, at a stop in Daejeon, South Korea, the symbolic flame was briefly carried by Hubo, a humanoid robot. Hubo was the winning design from the 2015 DARPA Robotics Challenge, part of a project from the U.S. Department of Defense to develop robots that can help in emergency and disaster situations. In the relay, Hubo received its flame from Professor Dennis Hong from the University of California, Los Angeles, who was riding in an autonomous vehicle. Hubo then walked nearly 500 feet and drilled through a wooden wall, passing the torch to the robot's creator, Professor Oh Jun-Ho of the Korea Advanced Institute of Science and Technology. All told, some 85 robots participated in the Games as waiters, janitors and even skiiers.

 By Stephen Goldsmith

Beyond Duck-and-Cover

In an increasingly tech-centric world, emergency preparedness means including data in drills.

"The more we rehearse disaster, the safer we'll be from the real thing. Life seems to work that way, doesn't it?" This line from Don DeLillo's novel *White Noise* satirizes an American obsession with preparation — and indeed, drills have long been an important feature of government's emergency preparation work, from the duck-and-cover drills of the 1950s to the hurricane and wildfire evacuation drills that proved immensely important this last year.

However, at the Data-Smart Summit hosted by Harvard's Civic Analytics Network in late 2017, city officials discussed an element of emergency drills that has long received inadequate attention. According to James McConnell, assistant commissioner for strategic data for New York City Emergency Management (NYCEM), the devastation of Hurricane Sandy in 2012 revealed flaws in the city's data infrastructure and protocols. One reason for these problems? "The data component was not being fully tested in our drills," McConnell said.

Recognizing the inadequacy of its data infrastructure testing, the city began to implement a new type of preparation: data drills. Led by NYCEM and the Mayor's Office of Data Analytics (MODA), data drills stress-test the city's data protocols in an emergency.

Data drills may take many forms, but often consist of city officials and data experts gathering at a table, starting from a hypothetical emergency situation and proposing a series of response steps. Participants might ask questions about what data they would need to find, what agencies they would need to contact to access information and how they would use that data to resolve problems.

In these drills, "you want to ensure that there's something specific you're testing," said Mitsue Iwata, project manager for MODA. Defining a piece of data infrastructure or protocol to address is critical to making the drill focused and productive.

However, the insights leaders derive from these drills aren't limited to those questions they set out to test. Data drills are useful not only for testing the data infrastructure a city has put in place, but also for discovering potential gaps that the city hasn't even considered.

At the summit, former NYC Chief Analytics Officer and Harvard Ash Center Fellow Amen Ra Mashariki used a story from his time in New York to illustrate the potential of data drills to reveal unknown information gaps. In 2015, following an outbreak of Legionnaires' disease caused by infected cooling towers, MODA was tasked with identifying every cooling tower in the city. Because no database with this information existed, the project required a rigorous, time-consuming analysis of New York building data from various agencies. Naturally, the city saw fit to reform this process, and so MODA developed the Building Intelligence tool, a 360-degree reconciled database for buildings that could provide information more quickly and easily in the next emergency.

However, MODA's work was not finished here. The city realized that in the next emergency, it would not simply be building data that agencies would require, but "something we don't know we need," Mashariki explained. He described this information as "unknown unknowns" — data that the government does not yet realize it doesn't possess. "How do you collect data on anything that you might need?" Mashariki asked.

He pointed to data drills as an answer. When you simulate an emergency, you come upon challenges and data gaps that arise in real crises. As a result, you become aware of needs that you never would have predicted — and can then fill those needs before a real emergency strikes.

And it's not only a matter of identifying useful data sets, but also of improving practices across the board in ways that you might have never thought necessary. "Data drills are a good way to bring agile practices into the city enterprise," said Francoise Pickart, director of Risk and Analytics at the Department of Health and Mental Hygiene's Office of Emergency Preparedness and Response. These drills constantly bring to the surface new problems and drive iterative design.

Data drills are a way for cities to more effectively prepare, informing investment not only in tools and processes that were needed in a prior emergency, but that also may be needed in a future crisis. According to Pickart, these drills teach cities "how to design for the next disaster, not the last one." 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.*

Danielle DuMerer

CIO, Chicago

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Danielle DuMerer was Chicago Mayor Rahm Emanuel's choice for CIO, affirmed by the City Council in June 2017. While in her current post less than a year, DuMerer is a longtime innovation and technology department staffer who joined the city in 2008 and was previously its acting CIO, chief technology officer and first deputy commissioner. She described her experience, and working for a tech-forward mayor, as great enablers.

"We are sometimes resource-constrained, but through partnerships and collaboration and just our nature of rolling up our sleeves and getting things done, all the teams here have been able to achieve quite a bit," she said.

1 What is the city working on to improve service delivery to citizens? The city has really been a leader in terms of how we use data and leverage that information to address policy and operations and decision-making. I think one of the things we really need to focus on now is more of that user experience, and how our residents and businesses interact with us.

There's a number of ways that we're addressing that particular issue while at the same time transforming and modernizing. The first is the city's 311 modernization project. We are in the process of re-engineering all of our existing processes and then we'll be implementing that in a new platform. You'll be able to interact through an online portal. You'll be able to interact through an app, text, social media and phone.

We also recently added a role. We have a design director, Jason Kunesh. He is helping our team think about how we're going to build our technology and processes in ways that are going to be easier for people to use as a whole.

2 What's the latest on the Array of Things project? I think the launch of [data streams] will be very exciting. We are looking to do that this quarter. And then we're going to continue to roll out more nodes over time. Right now … I think we're getting close to the initial 40 [nodes] that were identified. Our goal is to roll out several nodes a week over the course of the year.

3 What is the status of the new CityKey ID card effort? It's in pilot right now. It's a government ID, but it's also your transit card, your library card and they're looking to add in additional services and features as we go forward. It is nice to have that more streamlined service without having multiple cards in your wallet; and pairing that with what we're doing with 311, to have these key tools, whether it's a physical tool or a virtual one, is getting you access to services and the things you need around the city.

4 Chicago's redesigned website, launched in October, was designed to adapt to resident input. What were the priorities with the new site, and how are responses helping change the website? We needed to prioritize improving the mobile experience and accessibility because we know that more than half of our users come from mobile devices. And then, we also looked at making some changes with the navigation to streamline some of it.

We are collecting feedback and we've had some response — not as much as we would like, which is why doing concerted community engagement around the 311 project is going to be really helpful because it's more about meeting people where they are to collect that feedback. gt

— Theo Douglas, Staff Writer

TRANSPA
REVISITE

Liz Rowe serves as chief data officer in New Jersey, a role the state codified into law in 2017.

RENCY

D HAVE OPEN DATA EFFORTS DONE WHAT WE THOUGHT THEY SHOULD?

BY ADAM STONE

DAVE MOSER

Since about 2010, state and local governments have poured time, money and resources into publishing data sets and building portals to facilitate access to this wealth of information.

Are these open data initiatives succeeding?

Well, that depends a lot on your definition of success. If transparency alone is the goal, success might lie in the sheer number of available data sets. Some say open data should deliver more, that it should drive economic benefits, enhance public trust, boost government performance.

These are issues worth considering, as the first decade of open data turns into the home stretch:

✔ What are the stated goals of open data?
✔ How are governments measuring success?
✔ How is the evolving role of the data officer helping to drive ROI on open data?
✔ And, finally, is it working?

Answers begin to emerge when we consider the goals of open data. What is it actually supposed to be doing?

MORE THAN JUST TRANSPARENT

The goalposts for open data have shifted. Early efforts simply looked to publish the information and make it reasonably accessible. More recently, chief data officers (CDOs) and others have looked to raise the bar.

"At first the thinking was: We'll find a use for this later on, but being transparent is inherently the right thing to do," said Kansas City, Mo., CDO Eric Roche.

In fact, some early implementers found that transparency, while laudable, was not a sufficient end in itself.

"Going back five or six years, everybody made a mad rush and they made all these wonderful data sets available, but what I saw was that nobody was coming to them," said Cincinnati's City Manager Harry Black. He compared notes with other civic leaders, many of whom had reached the same conclusion. "We counted the clicks and we saw that these portals just weren't being used."

Today, data stewards increasingly are looking beyond data availability, making data usage a key policy goal.

Among external users, this means that data should spark civic engagement, a free flow of new ideas, said Julia Richman, chief innovation and analytics officer (and interim CIO) for Boulder, Colo. Internally she's looking to open data to drive new efficiencies. "Cross-departmental collaboration in government is tricky, tracking down the finance person or the information from public works. Those things take time, so there is real value in opening up information across departments," she said.

Some say this pragmatic mindset is helping to drive government adoption of open data.

"We proposed that a robust open data platform could be used by agencies to proactively publish often requested information and mandated publications," said Liz Rowe, New Jersey's chief data officer. When she highlighted these practical outcomes, agencies "recognized the benefits — ultimately reducing open records requests and freeing up resources for mission execution — and were more interested in participating in the effort."

Texas has had a data portal since 2014 — so the transparency is there — but Statewide Data Coordinator Ed Kelly is pushing to get more agencies involved and more people tapping that data. "For us, the goal now is to make it more flexible and easier for the constituent to get information," he said.

As cities' open data ambitions evolve, advocates admit that it can be difficult to align disparate and sometimes-vague open data policies and goals with anything resembling ROI.

"The most common goals are lofty and conceptual: 'We are seeking to increase transparency, innovation, collaboration, accountability,' all sorts of democratic words. But it often leaves a lot of open questions about what success means," said Stephen Larrick, open cities director at the Sunlight Foundation.

How, then, to measure success?

Cincinnati City Manager Harry Black established the Office of Performance and Data Analytics to encourage and measure engagement with open data.

"AT FIRST THE THINKING WAS: WE'LL FIND A USE FOR THIS LATER ON, BUT BEING TRANSPARENT IS INHERENTLY THE RIGHT THING TO DO."

LOOKING AT THE NUMBERS

Government data leaders generally pursue a couple of tracks in their efforts to gauge the effectiveness of open data. There's the objective approach, counting data sets and tallying clicks on open data portals. Then there's the subjective angle, the use of customer satisfaction surveys and other soft metrics to determine whether people are engaging with the data on offer.

San Mateo County, Calif., uses open data to build public trust, to open a conversation between the county and its citizens. With that in mind, CIO Jon Walton said he leans heavily on user feedback forms and satisfaction surveys to track success.

With customer satisfaction charting steadily at over 90 percent, "we know people like it and we know people are using it. We know they are satisfied with how it is working technically," he said.

It's possible to take a quantitative approach to satisfaction. Cincinnati's system tracks data requests from initiation to completion, following up with a short survey. "Based on that survey we have been able to see our customer satisfaction rate increase 7 percent in two years, which is significant," Black said.

In Kansas City, Roche charts success by measuring how long it takes to fill "sunshine requests" under the state's open records law. With open data, "we can close out a request almost immediately, and they are not waiting days or weeks to get that data," he said. That's a measurable outcome.

Some dig deeper still. In Boulder, Richman's open data site includes a page tracking Open Data Engagement. The site charts progress toward specific goals, such as having 75 percent of city departments represented in the catalog. (Presently Boulder is on track to hit 65 percent soon.) With a goal to publish 100 data sets, the city had about 70 released at the close of 2017.

It makes sense that data people would be eager to apply data methodologies to their own efforts.

In Gilbert, Ariz., a city of 237,000 people, Data and Technology Analyst Derek Konofalski tracks a wide range of metrics. "We know how many times people have downloaded the raw sets. We know how many times people have viewed the data sets. We provide APIs and we know how many times people used them in apps to connect to the data sets. And we also know how many times people have looked at Alex, which is our data avatar, our tour guide to the portal," he said.

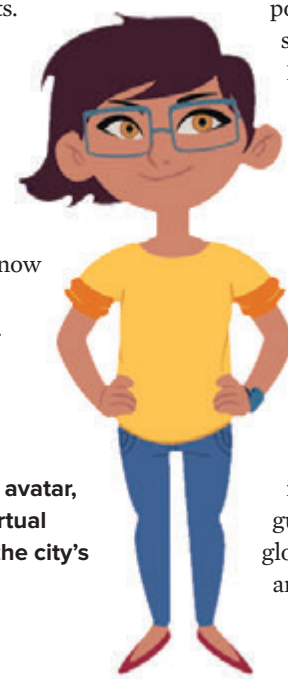
Even in its early days, Gilbert's data effort is racking up big numbers. An open data portal drew more than 3,500 hits in the first two weeks after its December 2017 launch, and the Alex avatar got 2,500 views in that same time.

In Texas, Kelly measures three key statistics in tracking the progress of the state's open data effort. "We look at the total number of data sets that are out there, what we are offering up. We count visit clicks, and lastly, we look at how many downloads are actually being done off the open data portal," he said.

How do those numbers look? At the close of 2017, a dozen entities were publishing through the Texas portal, including 10 state agencies plus two transportation authorities, with 370 data sets available. The site had drawn 119,923 clicks and 91,299 downloads since launching in 2014.

Counting data sets and tallying clicks helps to give Kelly and others a sense not just of how much information agencies are opening up, but also whether that data is being put into play.

How best to put that information to work? Increasingly, open data has evolved into a joint enterprise. No longer purely the province of technologists, open government is a shared responsibility, with data gurus and IT chiefs working hand in glove to develop the policies, procedures and protocols that ensure information is available, useful and usable.



Gilbert, Ariz., has a data avatar, Alex, who serves as a virtual concierge to visitors of the city's open data portal.

ALEX.GILBERTAZ.GOV

WHO'S AT THE TABLE

With the emergence of the chief data officer, chief data scientist and similar titles at the state and local level, open data has enjoyed a kind of professionalization in recent years. Once it was the purview of IT leaders who had the tech chops to cobble together siloed data sets and make them visible to citizens. Increasingly, data specialists take the lead in driving strategy, with the CIO continuing to fulfill the vital back-end tasks of aggregation and publication.

In Cincinnati, City Manager Black has instituted an entire management layer around data since 2014, when he first established the Office of Performance and Data Analytics. He has created positions for a chief data officer, a chief performance officer, and a data and performance analyst.

All work closely with the chief technology officer, who puts their ideas into action. "The CTO is another teammate. The CTO and his office, they provide technical assistance as it relates to some elements of software and hardware, but they don't drive the process," Black said.

This division of labor is not uncommon today. In Gilbert, for example, Konofalski drives data under the umbrella of a chief digital officer, while IT operates on a parallel track. "My job is to go to the departments and do the culture change," he said. "Then IT manages the databases. They do the technical work to collect that data, to make sure it has been pulled properly from the source systems."

In other municipalities, the work of opening up government data is at once more collaborative and more complex. More than just a binary system — data gurus who chart the course, and IT leaders who fulfill — these cities see a more complex interplay.

In Kansas City, for instance, the chief data officer has the support not just of a chief information officer but also a chief innovation officer. The latter is able to coordinate with both agencies and vendors to track down needed data sets, something CDO Roche couldn't easily do on his own. "Smart cities is a full-time job, so I am really grateful to have those people

The cost of open data

OPEN DATA ADVOCATES are not enthusiastic about notions of "return on investment."

"I'm not against the term 'ROI,' but it is not dissimilar to saying: What's the ROI on a mile of paved highway? It serves the public good, but how do you measure the positive impact of that?" said Jon Walton, CIO of San Mateo County, Calif.

Walton actually knows the cost of his open data effort: With a $200,000 Socrata subscription plus staff time, it's between $400,000 and $500,000 a year. Others find it difficult to be so precise.

Many in government say that without its own line item in the budget, open data typically has to piggyback onto other expenses. That makes it hard to do the math.

"We spent nothing on the platform, because we utilized tools we are already using," said Gilbert, Ariz., Data and Technology Analyst Derek Konofalski. "For the open data portal, we run the back through our existing Esri ArcGIS hub, which already hosts a lot of town data. In terms of manpower, we looked at data sets that people were already using, that we already had access to. We don't have the money to do data in a way that adds to people's workloads, so we try to manage it around things we are already doing."

Texas Statewide Data Coordinator Ed Kelly said he's tried to quantify the cost of data, but it isn't a straightforward calculation. "We've tried to identify the cost of posting a data set, for example. If we could identify what the agencies' time is, we might get a better feel for the overall cost of the portal," he said. "I know some of the costs at the administrative level — what my time is, what we pay a contractor to manage the portal. But we don't know the overall cost."

How to work the finances around open data, when hard numbers are hard to come by?

New Jersey's State Chief Data Officer Liz Rowe said the answer will become more apparent as data becomes more institutionalized as a government function.

"Unless you have clearly defined business outcomes and the data strategy to achieve them, it will be very difficult to quantify the costs of your data efforts," she said. One strategy would be to create specific "cost and profit centers" in support of data:

- **Information Governance —** Policy and standards development, compliance and enforcement (cost)
- **Data Management —** Life cycle from generation to purge, including data as a service, cleansing, transformation, maintenance, auditing and archives (profit)

DAVE MOSER

Pointing out practical benefits like fewer records requests helps Rowe gain agency support for open data efforts.

working on that. They can run the smart cities projects and I can go to them when I need to get the data out," he said.

In Boulder, the mix is even more eclectic.

"Everything we do from an innovation platform standpoint, we do with resources in multiple departments collaborating on these processes. My open data team has a couple of IT people, a couple of GIS people, others who know what questions to ask about data," Richman said. "Then we have data stewards in the various agencies — financial analysts or business analysts or administrative support people — folks who are domain experts who interact often and deeply with the data."

Richman needs open data proponents who can go beyond the traditional bounds of either IT or data expertise. "They also need to be really effective storytellers," she said. "It's not just about accessing data, but about the ability to link that to strategy, to share that with our communities. It's about putting a narrative around charts and graphs."

Cities tell that story best, she said, when their data teams reach across agencies and embrace subject matter experts along with data visionaries and IT leaders.

THE BOTTOM LINE

Having looked at the policies driving open data, having considered the metrics of success and explored the talent mix, we'll conclude by asking: Is it working? Is the open data movement meeting the expectations of the founding generation, those who have toiled for the better part of a decade to make government information more visible and easier to use?

What one may safely say, in a global sense, is that in the places where it is working, it's working very well indeed.

The Sunlight Foundation reports that more than 100 cities, counties and states now have open data policies. Its U.S. City Open Data Census charts availability of data in almost 20 key areas — crime, zoning, budget and so on. The top performers are stars: some three dozen cities with solid wins in a large number of categories.

Then it trickles off fast. Culver City, Calif., which ranks No. 43 among the most open cities, reports that it has data available in just eight categories. Ferndale, Mich., makes the list at No. 65 and yet has data fully available in just three categories, with partial availability in four more.

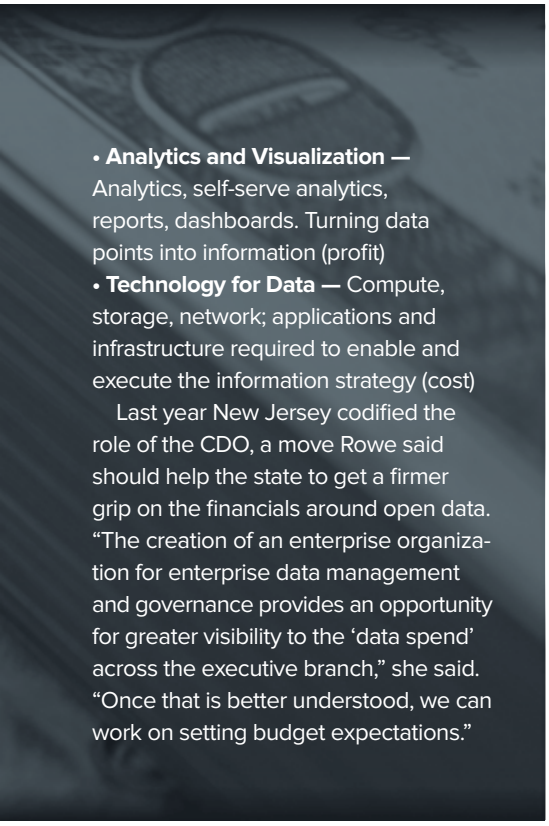
"Overall, a lot of cities are meeting the threshold of availability. There is a lot of information that you can find and use. But the larger, better-resourced cities score higher. The cities that have been doing open data longer score higher," Larrick said.

"Cities at the top have made a lot of progress. For the cities that are newer at this, many are not even meeting the minimum threshold: Is basic information about government operations available online? For the vast majority of mid-sized and smaller cities in this country, the answer is still no," he said. "We can get distracted by the cities that make the most headlines, but there are a lot of cities that are still just starting out."

Larrick is only talking about availability, and while that is a key metric, it's not the only measure of success. Data managers say that in their fondest dreams, they'll do more than count data sets and track clicks. They are looking for metrics that connect open data to social outcomes.

Are babies healthier because of open data? Are streets safer? That's the holy grail of open data metrics, and data chiefs from cities large and small agree that we're not there yet. In these still-early days of open data, there's no algorithm that will cleanly and clearly describe the impact of open data on society at large.

"There needs to be more conversation at the national level about how to measure success, especially on the public side," Roche said. "Maybe there needs to be a standard set of metrics across cities to let us benchmark the use of open data. It's something we all need to be exploring." gt



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• **Analytics and Visualization —** Analytics, self-serve analytics, reports, dashboards. Turning data points into information (profit)
• **Technology for Data —** Compute, storage, network; applications and infrastructure required to enable and execute the information strategy (cost)

Last year New Jersey codified the role of the CDO, a move Rowe said should help the state to get a firmer grip on the financials around open data. "The creation of an enterprise organization for enterprise data management and governance provides an opportunity for greater visibility to the 'data spend' across the executive branch," she said. "Once that is better understood, we can work on setting budget expectations."

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REDEMPTION FOR THE DMV

Once the laughingstock of government technology, today DMVs are in the fast lane when it comes to innovation.

BY TOD NEWCOMBE

On Jan. 31, 2013, California pulled the plug on a long overdue modernization of its Department of Motor Vehicles (DMV) IT systems. Originally scheduled to be completed that March, the state and its prime contractor had only managed to finish one portion of the $208 million system overhaul.

But California was not the only state to stumble. From coast to coast, DMVs struggled to drag their IT systems into the 21st century. Instead of creating new efficiencies for driver's licensing and motor vehicle registrations, states were reporting false starts, failures and lawsuits. Meanwhile, as Americans were growing used to one-click, online orders for retail purchases, they found themselves still heading down to the local DMV office to stand in line, where wait times were lengthening while IT upgrades languished.

Worse still, the deadline for Real ID, the law passed by Congress requiring states to follow federal security standards when issuing licenses, was fast approaching. After years of fighting, all states finally agreed to meet the act's compliance standard by October 2020. That meant every state DMV had to have the capability to verify that a license applicant was in the country legally and to verify with biometrics the authenticity of the person applying for a license or ID card. Try doing that with technology that's 25 years old — or older.

But five years after California, the nation's largest state by population, halted work on its DMV modernization, the landscape looks much different. A growing number of DMVs have modernized, pulling the plug on legacy systems, which have been replaced by integrated platforms that have re-engineered business processes while offering customers faster counter service or, even better, the opportunity to conduct transactions online, eliminating the need to visit the DMV office. The new systems have made it simpler to comply with Real ID while also making it easier to add emerging technologies.

So, what happened? Why have so many state DMVs gone from being the laughingstock of IT to showcases of modernization?

When asked how old New Mexico's legacy DMV technology was, Alicia Ortiz, acting director of the Motor Vehicle Division (MVD), responded that it was built in the late 1970s, a time when mainframes were still new technology, Jimmy Carter was in the White House and the Internet was nothing more than an academic experiment funded by the Department of Defense. Ortiz admitted it was probably the oldest and worst-performing IT system among state DMVs. But New Mexico's was not the only agency that had clung to old tech. Scores of states have kept their big iron technology operational, despite the growing maintenance costs and shrinking resources, not to mention the lack of skilled workers who could code in COBOL, the computer language that runs mainframes.

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Ironically, the problem was that mainframes were well-built and designed to last, said Frank Dean, head of marketing and customer relations at Fast Enterprises. "Mainframes have always been solid and reliable," he said. "The problem is that they are limited in what they can do, and now DMVs have reached the capacity for change that mainframes can handle."

Nothing highlighted that capacity problem better than Real ID, according to Dean. "Real ID is a great example of something that comes along that the mainframe isn't designed to handle," he said. "It's another reason why states are deciding to modernize and look at other options."

A third factor in favor of modernizing is the impact new technology is having on the

market and customers. Call it the "Amazon effect." Drivers now expect online services, and DMVs are finally responding. "DMVs are moving toward more online transactions, where the customer doesn't have to come down to the DMV in person," said Ian Grossman, vice president for public affairs at the American Association of Motor Vehicle Administrators. "It's become a big push in many states, with an emphasis on cutting down on visits through Web services or the mail."

For early adopters, however, the transition from mainframe to modern would prove painful. Rhode Island began modernizing back in 2008, but the state suffered a series of setbacks and delays, trading lawsuits with contractor DXC (originally Hewlett-Packard) before launching its new system last July. Walter "Bud" Craddock, administrator for the state's Division of Motor Vehicles, attributed the troubles to the use of a traditional waterfall implementation method.

"It did not go well," he reported. "But once we switched to an agile methodology, we made progress." Today, the state has a Web-based system that is fully integrated and compliant with Real ID.

In 2008, the waterfall methodology, which has reigned over IT implementations for years, was considered the status quo. It also has been the source of many big system failures in government. Unfortunately what state DMVs want these days is a highly configurable system, not something that is going to take months to customize and build, according to Frank Dean.

Along with trying to build more flexible systems, early adopters also faced the challenge of re-engineering business processes that were decades old. Further, modernization called for the integration of what were once separate driver's licensing and motor vehicle systems. Trying to change culture and business, and to integrate disparate systems, while adding brand-new, online services, is not for the faint of heart. The result, said Dean, was a series of modernization projects that turned into battlefields. "There was carnage all over it," he said.

To avoid the problems that plagued the early adopters, states began to take a more innovative and comprehensive approach to modernization. In Colorado, the Division of Motor Vehicles realized that if it was going to succeed, it had to focus on four key areas: the organization, the processes, the facilities and, finally, IT.

While technology would be critical to its success, the DMV began to gather more comprehensive metrics on how it served existing customers. "That allowed us to set down standards in terms of what we wanted to achieve," said Michael Dixon, DMV's senior director. The DMV ran two Lean projects to identify problems, eliminate waste, and demonstrate that it was willing to change both processes and culture. "That helped us in terms of getting the money to make the necessary technological changes," said Dixon.

Colorado launched its new driver services in early 2017, part of a two-phase project that will be completed later in 2018. The new system will radically change how workers are able to access information and run transactions. One big benefit: No longer will staff have to memorize codes, which will result in less time spent in training and more time in front of customers. The new system is also designed to reduce errors and increase accuracy. For customers, the new technology will allow for more online transactions, which can reduce the number of visits to DMV offices.

What makes Colorado's new system, known as DRIVES, unique, is that it's the only DMV in the country to run as a software as a service. The entire platform for driver and vehicle services is hosted and maintained by the vendor, Fast Enterprises. Dixon said that by allowing its DMV system to operate in Fast Enterprise's cloud, the state will have technology that is refreshed regularly — instead of 25 years with the mainframe system — and it won't have to compete with the private sector to attract highly skilled workers who can maintain the software while keeping it secure.

DRIVERS' LICENSES GO DIGITAL

At the same time as DMVs move toward Real ID compliance, five states and the District of Columbia are moving forward on mobile or digital drivers' licenses in 2018. The hope is that app-based, encrypted licenses and electronic technology to read them will cut costs, create efficiencies and increase safety for both citizens and law enforcement. While there's no sign that high-tech licenses will replace the traditional form anytime soon, governments are seeing the advantages of a digital option.

Leading the pack is Iowa, where in 2015 the state piloted a 90-day mobile driver's license project with identity company MorphoTrust USA, now IDEMIA, and is now working to expand the project statewide, making the tech available for both iOS and Android smartphones.

And in a pilot with digital security company Gemalto, with the help of a two-year grant from the National Institute of Standards and Technology, five jurisdictions — Colorado, Maryland, Wyoming, Idaho and Washington, D.C. — are exploring practical ways to implement digital driver's licenses. Phase 1 of the project in 2017 looked at use cases, such as presenting app-based IDs to purchase lottery tickets or buy alcohol at sports events. Phase 2 in 2018 will expand to cases that include "attribution sharing," where a user can provide a trusted third party, like a car rental company, with personal information from their digital license.

“DMVs have reached the capacity for change that mainframes can handle.

According to Dean, DMVs are interested in having their software hosted in the cloud, but state laws restrict the location of where identity data can be stored, which limits its use. As a result, the company doesn’t push cloud as a solution. “We would rather give them what they want, what solves their problem, than push a trend.”

New Mexico’s MVD is another example of how a state stumbled with its first attempt to modernize, only to try again and succeed. In 2012, the state shut down a modernization project that had cost $5 million so far. But that setback turned into a valuable lesson, according to Ortiz, leading to a second effort that resulted in a fully implemented, integrated driver’s and vehicle services system by 2016.

MVD spent a considerable amount of time talking with other states, documenting business processes and checking business rules against state statutes to make sure there weren’t any gaps between policies, procedures and technology. More importantly, the agency invested considerable resources in data cleansing. “We had three separate systems and everything was out of sync,” said Ortiz.

The goal was to move away from the siloed approach for data management to an integrated platform that was more customer-centric. After investing $36 million, the state has a system that makes it easier to process transactions with a higher level of accuracy, while drivers can access a growing number of online services. “The new system has given us a lot more flexibility to respond to new technologies as they emerge, such as electronic titles or anything that relates to autonomous vehicles,” said Ortiz.

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As DMVs modernize, interesting trends have begun to emerge. Ortiz and other DMV directors have hinted at how mobile technology promises to open up the field of licensing in ways not seen before. In August 2017, Radius Global Market Research and MorphoTrust USA released a report showing a majority of Americans were interested in having mobile driver’s licenses that would be available through a smartphone app. Several states, including Iowa, Maryland and Colorado, among others, have initiatives underway to test the capabilities of a mobile license.

The challenge will be in overcoming the complexity of providing security, so that the license can be validated in real time, according to Frank Dean. “The system on the back end has to be very responsive so that law enforcement can take pieces of information from the mobile license and validate it with the DMV in real time,” he said.

As DMVs modernize and improve their ability to accurately identify and verify a driver, they have emerged as the most reliable government agency when it comes to identification. Federal agencies, including the Social Security Administration, now use a program called DLDV (driver’s license data verification) to properly identify a person who needs to replace their Social Security card. According to Dean, states that have motor vehicle divisions operating within the department of tax or revenue will use an individual’s license number as a form of verification when issuing tax refunds, to reduce fraud.

“There are more and more transactions taking place online without people ever being in the same building together,” said Dean. “To have that level of trust in an economy that is becoming increasingly electronic means you have to have a way to verify that trust. The DMV is the only agency in the U.S. that still regularly sees people and records identity information about them.”

In essence, DMVs have become identity hubs for government agencies at every level. And without modernization of their IT systems, such a system of trust wouldn’t be possible or practical. gt

Who are the 2018 GT Top 25?

They're master collaborators, who are consolidating, modernizing, securing and transforming how state and local governments work with technology.

government technology

Meet Government Technology's **2018 Top 25 Doers, Dreamers and Drivers**, and see what else they're up to in the April issue.

TOP 25

DOERS, DREAMERS & DRIVERS

Ignition by inductive automation

Ignition Gets Data Flowing for Water District

Western Municipal Water District replaced their full SCADA system using Ignition

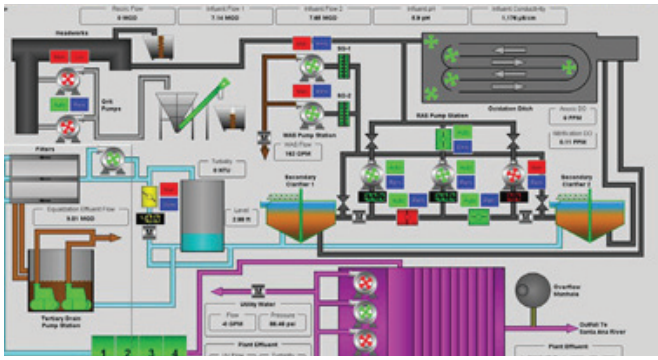
Replacing a full supervisory control and data acquisition (SCADA) system is a big undertaking, and for Western Municipal Water District, Ignition by Inductive Automation® was the perfect choice. Ignition is an industrial application platform with a variety of tools for building solutions in SCADA, human-machine interface (HMI), and the Industrial Internet of Things (IIoT).

The SCADA system at Western Municipal's Southern California wastewater plant was no longer sufficient, so the district asked system integrator Trimax Systems to implement a new solution. According to Trimax's former director of operations, Western Municipal asked Trimax to make a detailed comparison between Ignition and Wonderware, which was the SCADA software that Trimax normally used. Trimax ran a 14-point, side-by-side comparison of the most important features, including cost, capabilities, and compliance with modern IT standards. Ignition was the clear winner. Trimax implemented Ignition for Western Municipal, and also for all of its other projects.

With Ignition, Trimax solved several problems at one of the district's wastewater plants. Western Municipal was seeking a new system that had the ability to display multiple, full-featured SCADA clients on different devices such as computer workstations, mobile devices, and operator interface terminals (OITs). The OITs were located in the field, so remote access to devices was a key requirement. The district also needed a unified SCADA solution across all its facilities. Ignition proved to be powerful and flexible enough to become the new standard across the entire district.

Unlimited Access

The old SCADA system placed limitations on where, how, and by whom SCADA screens could be accessed.



HMI screens can be accessed throughout the entire facility with Ignition.

This was especially problematic in the case of certain control panels. Before Trimax replaced the old system with Ignition, the only way to check on the control panel was to have someone physically go and look at the control panel's OIT, and then that person had to use the radio to tell someone else what was happening. Once Ignition was in place, that entire process changed.

Ignition doesn't put restrictions on how many people can be given access to the SCADA system. Ignition's web-based architecture allows unlimited clients to be launched on any device equipped with a web browser, so plant employees can view SCADA screens where and how they want.

Trimax put new industrial PCs as panel views all around the plant, so now with Ignition, operators and managers can access the system from desktops, on the plant floor, or on their mobile devices.

In the plant's old SCADA system, the control panel OITs had limited visibility and functionality because they ran

a very basic, native software application. It was important for the new system to have the ability to display full-featured SCADA screens at the control panels, as well as at multiple other locations across the plant. Thanks to Ignition's open, server-centric architecture, this was easily done.

Once Ignition is installed on one server, clients can be instantly deployed without limit. This allowed Trimax to create a SCADA project in one place and share it all around the plant. With Ignition, operators and managers at Western Municipal can see screens anywhere throughout the plant and remotely. By having visibility to the whole system, they can see and control the system for the entire plant from any location. Ignition also reduces the time spent on project development because users can create one project for the entire plant — and can make changes in one place and see Ignition create the updates throughout the project.

Cross-Platform Compatibility

Previously, at different sites across the district, a mishmash of different SCADA programs were being employed, ranging from well-established systems to small, proprietary, custom-built applications. The combination of these systems was confusing and as a result the communication between different sites was much less than optimal. Ignition cut through the confusion and got the entire plant on the same system.

Ignition's cross-platform compatibility allows it to run equally well on any operating system, including Windows®, Mac, or Linux. This flexibility made Ignition a perfect solution to unify the various systems at the wastewater plant and beyond.

Trimax's former director of operations explained that it was very important to Western Municipal that the new SCADA solution be a unified system. Trimax devoted a large part of its work to forming a plan to standardize the SCADA system across the entire district for years to come. The new system not only had to work at the first plant, but also needed the flexibility to work at all the plants in the district. With Ignition, Trimax made that happen.

Bright Futures

Western Municipal Water District now has the SCADA system it needs and a solid plan to move forward. After Ignition was installed at the first facility, the water district expanded Ignition to two other facilities and moved forward with a plan to make Ignition the SCADA standard across the district.

Trimax Systems also has a bright future with Ignition. Since the completion of this project, the company has done multiple projects with Ignition and has become certified by Inductive Automation as an Ignition Premier Integrator.

Trimax Systems, Inc., is a worldwide systems integrator, specializing in all areas of industrial automation with a high level of expertise in system design, software development, startup, and training. Trimax's expertise in integration services can provide everything needed to take a project from conception to startup. For more information, visit ***www.trimaxsystems.com***

See all Water/Wastewater Case Studies at:
inductiveautomation.com/case-studies

THE QUEST FOR DIGITAL EQUITY

A LOOK AT THE EVOLUTION OF THE CHALLENGE TO ENSURE ADVANCES IN TECHNOLOGY BRING BENEFITS TO EVERYONE.

BY ZACK QUAINTANCE

Connectivity, most agree, is pretty important to modern life. Perhaps no entity is more aware of how unevenly it's distributed than government.

For many years, this concern was known as the digital divide, and, for the most part, it referred to whether populations had access to hardware, specifically to computers. As technology evolved and became more complex and nuanced, however, so too did the breadth of this concern. Now, discussion of the digital divide is framed in terms of whether a population has access to hardware, to the Internet, to viable connection speeds and to the skills they need to effectively use it. As such, the nomenclature has also changed, with a national conversation that now frames the matter as one of digital equity.

Digital equity refers to whether people can access and effectively use the technology necessary to participate in modern society. Another phrase, "digital inclusion," denotes efforts to remedy deficits in digital equity. Simply put, digital equity is what cities and states want, and digital inclusion is the work they and their partners are doing to create it.

Advocates for digital equity, as well as many public servants within governmental tech and innovation departments, stress that this issue has grown into one that is vital for the success of our communities, and it will become even more important as technology continues to advance and services continue to migrate online. Overcoming major obstacles — such as having to travel to a public library to use it or lacking the skills to find resources and forms — positively impacts

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"Those who have those opportunities, they are accelerating with speed into whatever the future holds, whereas those who may not have access — a data plan, a fast enough smartphone, whatever it may be — are just as quickly falling behind or have the potential to be left behind."

— Chance Hunt, community technology manager, Seattle Information Technology

communities, leading to kids doing better in school, senior citizens having an easier time receiving health care, and adults being able to get and keep better jobs, said Angela Siefer, executive director of the National Digital Inclusion Alliance, a nonprofit group that advocates for digital equity.

For businesses, digital equity means a better and more competitive workforce. For taxpayers, it means being part of a community where everyone is equipped to thrive, to contribute and to succeed. While there is still hesitation to support aggressive digital inclusion efforts by some within government, particularly at the federal level, Siefer said the matter is presenting our nation with a weighty question.

"Where does the United States want to be in this regard?" Siefer said. "Do we want to be leaders? Do we want to make sure everybody has access, because we know that it lifts everyone — the same way it does when people have access to electricity? If everybody has a telephone, it's more valuable. If everyone has access to the Internet, the Internet itself becomes more valuable. Or do we want to just get by, because that's basically what we're doing now. We're just getting by and that's fine, for some of us. Some of us, however, have to use our parent's mobile phones to do homework. So, what do we want that to look like in the future?"

Basically we know technology and its associated capabilities will continue to accelerate and evolve, but the question is what can we do in the face of that to minimize the number of people being left behind?

THE STATE OF DIGITAL EQUITY

There are, essentially, two major issues within digital equity. The first is access to digital infrastructure. This largely affects rural areas, and it relates to whether residents have broadband available where they live. The second is access to sufficient speeds and to digital services, which addresses whether citizens have the money or knowledge they need to effectively use and benefit from technology.

It can often be hard to quantify these issues in order to get a read on the current state of digital equity in the country, Siefer said. Data about Internet usage, connection speeds and cost of services must be provided by private telecommunications companies, and the data required of them by the FCC is far from comprehensive or precise.

With this in mind, digital equity advocates point to the *Home Broadband 2015* report by the Pew Research Center as the most comprehensive data about the state of digital equity. In that report, researchers found that broadband access has essentially plateaued, and that the number of Americans with it at home actually decreased to 67 percent from 70 percent in 2013. A second major finding in the report was that the decrease in high-speed Internet within the home has corresponded to an increase of adults who can only access the Internet through a smartphone, and that smartphone adoption — which is at 68 percent of Americans overall — is roughly equivalent to the number of Americans who have broadband at home. Of that group, 13 percent only have smartphones, which represents a 5 percent increase from 2013.

Awareness that gaps in digital equity exist is a shrinking problem, but still, Siefer said, there are times when government's push toward cheaper and more efficient online services can leave segments of the population behind.

"Online services, whether they're provided by the government or a for-profit or a nonprofit, there are often assumptions made that everyone is online," Siefer said. "Take GRE [Graduate Record Examinations] tests. In many states now, it's all online. You can't take your GRE test on paper, which seems really logical, but if you haven't used a mouse and the whole thing just intimidates you, what will that do to your score? Digital skills impact — as a society — these systems that we've set up."

True digital inclusion, then, means ensuring that broadband Internet is available and affordable for everyone, and that everyone has access to relevant skills training.

NONPROFITS AND LIBRARIES

When the recession hit in 2008, libraries in Portland, Ore., were inundated with people who had been pushed out of the workforce and had never before used a computer to apply for a job. In response, the city government in Portland teamed with libraries to offer a grant program around providing laptops to these job seekers.

This is an example of a library spotting a need for digital inclusion work in a community and the government there helping to support the library in addressing the issue, and this model has largely become a guidepost for Portland's expanding digital equity efforts.

Fostering comprehensive digital inclusion is a massive and complex undertaking, to be sure, and while it's a relatively new one for many jurisdictions, most areas of the country have existing outreach organizations, such as libraries, which have been doing the work for some time. The potential that community groups and libraries have in digital inclusion is easy to see in Portland. In 2016, Portland crafted its Digital Equity Action Plan (DEAP), which grew from a joint effort between the municipal

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MEETING USERS WHERE THEY ARE

How mobile responsiveness and site design can bridge gaps created by digital inequities.

Access to a mobile device or a high-speed Internet connection means little if a user is too intimidated by technology to have a productive experience with it.

This is the reality state and local governments must deal with when creating and designing digital services. In the private sector, developers have the luxury of building sites and products aimed at certain customers. Government, however, is responsible for reaching and serving everyone.

This responsibility has given rise to a new trend in governmental digital services design: simplification. Gone are the days of convoluted and labyrinthine websites constituted largely of dense pages of text. In their place is a new era in which services are more direct, easier to understand and considerate of end users who may not have much education, or who have come to the digital realm later in life.

Rhode Island's state government, for example, is like many agencies increasingly concerned with digital equity. In fact, the state's Office of Innovation has launched a program called ConnectRI, which works to ensure that as technology evolves, none of Rhode Island's more than 1 million residents are left behind. Like many municipal governments, Rhode Island is doing what it can to prepare for the deployment of 5G mobile tech by researching any infrastructure barriers that might interfere. The state also sees itself as a convener of digital inclusion efforts, able to partner with other groups already doing the work and help them leverage resources. One example of this is a series of literacy workshops on which the state teams with libraries and public housing agencies.

Meanwhile, the state's innovation office has worked to commit itself to inclusive design on all Web platforms, said Kevin Parker, the office's director of government innovation.

"We have a Rhode Island digital services team focused on how we design platforms and making sure the user experience on RhodeIsland.gov is friendly and intuitive," Parker said.

Central to this work is doing end-user research, conducting surveys and identifying trends.

This sort of design and development is also foundational to work being done by Code for America (CfA), a nonpartisan and nonprofit group that uses tech to make governmental services simpler and easier to access. This is especially true of one of its most mature projects, GetCalFresh, which helps eligible Californians apply for state food assistance programs.

In designing GetCalFresh, developers learned that 40 percent of searches for info about food stamps were being conducted via mobile devices, said ST Mayer, chief program officer for CfA. GetCalFresh also takes into account that many users lack extensive data plans, so developers built in functionality that provides alerts and info via SMS text. Making the service accessible also means writing sign-up questions in a clear way, once again shaped by end-user research.

"Everything we have done has started with users and trying to understand what is standing between someone who is eligible for CalFresh and receiving the benefits," said Dave Guarino, a senior software engineer with CfA.

This is what equitable design and development is all about.

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government, the Multnomah County government and the Multnomah County Library. Members of those groups, as well as from other organizations in the community, came together to form Portland's Digital Inclusion Network, which is now working closely to help the DEAP come to fruition.

Rebecca Gibbons, the digital equity program coordinator for Portland, and Julie S. Omelchuck, a program manager with the city who has been heavily involved in the DEAP, said both the network and the plan came after the library identified a need for better digital inclusion. The library is now primarily tasked with overseeing the implementation of Portland's DEAP, while the city has tried to embrace a less direct role in digital inclusion efforts.

"Our approach here has really been that the city's role is to facilitate relationships and capacity-building of our libraries and nonprofits, and we're really trying to augment their efforts," Omelchuck said. "They're the on-the-ground providers. They're the organizations that really know what their constituencies need, and they're the ones who are going to be providing classes and doing outreach and working one-on-one with folks that are having a difficult time getting online for whatever reason."

The city has worked diligently to incorporate participation of nonprofit community groups such as Human Solutions, which works to provide low-income and homeless families with housing, and Free Geek, which refurbishes discarded electronic devices to give back to those who need them in the name of digital inclusion. This capacity as a convening and supporting body is gaining ground with many governments.

STATE AND LOCAL GOVERNMENTS

Digital equity issues vary by region, and, as a result, so too does the work that state and local governments are doing to address them. Taking a look, however, at some of the more mature efforts can start to bring into focus the work happening all over.

Boston, like Portland, has hired a staff member within the city to focus expressly on digital equity. Anne Schwieger's official title is broadband and digital equity advocate, and for the past two years she has worked with people across the city to make fast and affordable broadband available for everyone in Boston.

In Boston, as in many cities engaged in digital inclusion, the local government's efforts have been varied. In October, the city launched a digital equity fund that aims to fund individuals and communities that are engaged in the digital skill-building part of this work, including the libraries and community groups that are already working to teach people how to more effectively use the Internet and computers. This fund is managed by a group of individuals involved in workforce development, local economic development, innovation, education, the media and social justice. The idea behind the fund is to ensure that as technology continues to advance, no one who lives in the city will be left behind. In the first year, money for the fund came from the city's operating budget, and officials are currently exploring options to support it moving forward.

> "WE SEE DIGITAL EQUITY AS FOUNDATIONAL TO ALL OF THE THINGS WE CARE ABOUT AS A CITY AS THEY RELATE TO ACCESS OPPORTUNITIES IN EDUCATIONAL SPHERES, WORKFORCE SPHERES. IT'S JUST SOMETHING THAT'S PROFOUNDLY FOUNDATIONAL TO ALL OF OUR OTHER PRIORITIES."

Boston is also a great example of an urban area where broadband is available to everyone, but cost acts as a barrier for a certain segment of the community. Schwieger said that the city's approach is that fostering affordable access to broadband and providing opportunities for skills training are all part of the same inclusive ecosystem. The city has worked hard to create conditions that enable private investment in broadband to flourish by incorporating digital infrastructure considerations into its permitting processes. One example of this is a questionnaire in the proposal stage of construction that seeks to proactively ensure that developers are considering broadband in their plans.

"We see it as all fitting together," Schwieger said, "and we really believe that you can't have one without the other. We see digital equity as foundational to all of the things we care about as a city as they relate to access opportunities in educational spheres, workforce spheres. It's just something that's profoundly foundational to all of our other priorities."

Seattle, meanwhile, has long been a pioneer in terms of municipal digital equity efforts, and much of the work done there has inspired or influenced that done in other cities, including Boston and Portland. David Keyes was the first community tech planner hired by a city government in the country back in 1997. He's still with the city today and has remained heavily involved with digital inclusion efforts. Also, the city recently celebrated the 20th anniversary of its Technology Matching Fund, which helps community groups provide tech and skills training to those in need, by increasing its financial commitment to it.

"There have been a nice mix of things happening here," said Chance Hunt, community technology manager for Seattle, "partially because we have the technology sector here and the philanthropy."

What has emerged in Seattle is a picture of what funding for state and local digital inclusion work may look like in the future. Funding comes from a patchwork of sources, including philanthropy, negotiated franchise deals with telecommunications companies and other sources.

"Private dollars or public dollars or franchise or regulatory fee dollars all by themselves are probably not going to cut it moving into the future," Hunt said. "Getting more creative in developing our funding structures and the various sources that we pull funding from, I think that's definitely where we need to go, and there are some examples — Nashville is one of them — that start to point toward much more public-private partnership to develop a supportive environment that will be conducive to this sort of work in the future." gt

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The Algorithmic Aftermath

Efforts to shake up the amount of commercial content on Facebook are affecting how government reaches constituents.

By Elizabeth Zima / Staff Writer

In January, Facebook announced that it would change users' news feeds in what has caused a huge shift in government social media professionals' ability to communicate with their constituents.

Mark Zuckerberg announced in a personal blog that the company would change the algorithm that guides news feeds to focus more on posts from friends and family, rather than allowing commercial posts to dominate.

"We've gotten feedback from our community that public content — posts from businesses, brands and media — is crowding out the personal moments that lead us to connect more with each other," he said. "The first changes you'll see will be in news feed, where you can expect to see more from your friends, family and groups."

User posts have been on the decline for the social media platform, according to *USA Today*, and teen users have been migrating to the likes of Snapchat and Instagram in large numbers. The shift is seen by some as a means of reducing sponsored content to force businesses, brands and media to buy more advertising on the platform.

But beyond the speculation about what is driving the change, government entities, which have been swept into the category of private business, have seen a real drop in social engagement — a drop they felt coming in advance of Zuckerberg's announcement.

"After the new year, we saw a decline," Bronlea Mishler, the communications coordinator for Skagit County, Wash., said.

Mishler, the sole social media engagement employee in the rural county, said the change was discouraging. "Our followers total about 1,700, between 3 and 600 people would see the post and 3 to 7 would engage," she said. After Jan. 1, she said, her posts are being seen by fewer than 100 people.

Mishler said the news feed changes could cause a problem in trying to reach the public during an emergency situation.

"Facebook and government must get together on crises and make sure the information that is offered to the public is vetted," she said.

Other jurisdictions are also concerned about how they will be able to communicate through Facebook if they have an emergency. The Mountain View, Calif., Police Department has also seen a dip in post views and is looking to other platforms to take up some of the slack.

"We have seen a great reduction" in our numbers, said Katie Nelson, the department's social media and public relations coordinator. It is important that the police department be able to communicate in an emergency. "I need to reach residents immediately," she added.

In the middle of last year, social media efforts had seen a steady increase in user follows, which reached a high of 18,000 followers. The police department account was used to seeing a steady increase, she said, that has since flatlined. "This will affect first responders. I am not sure if [Facebook] understands the end game."

And while the department has not left Facebook, it has looked at other avenues for its communication needs. "We are not sitting around," she said. "We have moved onto Nextdoor where I can reach a larger number of residents immediately."

"Nextdoor is a great way to connect with residents," she said, noting a 79 percent increase. "Our reception has been incredible."

The city also uses Snapchat to communicate with younger residents. "You wouldn't think that they would follow the police department, but we have 450 followers," she said.

Not only are government social media experts turning to different platforms, they are creatively coming up with ways to defeat the limiting Facebook algorithm.

Concerns about decreased reach on Facebook will lead to more experimentation by government account managers, said Kristy Dalton, a columnist for this magazine and CEO of Government Social Media, an organization dedicated to social media training and best practices.

"I think you will see government explore other social networks," she said. "Agencies using Nextdoor will find they get greater reach than they did on Facebook."

"You might hear they are abandoning Facebook, but I don't think they would do that," she added. "They do not want to appear out of touch."

The city of Boca Raton, Fla., is looking at the Facebook news feed changes as "an opportunity to push some innovation and creativity, as well as sharing best practices," said Communications and Digital Media Coordinator Mary McGuire. She manages the city's main social media platforms and provides oversight, training and support for more than 30 city staff members. She thinks it's a bit too soon to know the effects of the changes.

"As a government agency, we have a responsibility to share information regarding city meetings, business and topics," she said. "Sometimes these types of posts won't necessarily drive engagement, but the information is important."

Most agencies say they would like to engage with Facebook about the news feed changes. The Mountain View Police Department said Facebook should sit down with local Silicon Valley government agencies and gain an understanding of how they use the platform.

"We need to have an honest, open and fair dialog about these changes," Nelson said. "They need to understand how the changes affect government."

And while McGuire sees some success in the creative use of engagement to circumvent Facebook's algorithm, she agrees that there is a need for dialog with the company. "Facebook already recognizes the unique niche that government and public safety have on their platform," she said. "But, there are definitely opportunities where Facebook can continue to assist in our work to reach our residents and inform them in a timely manner."

So far, Facebook hasn't indicated an interest in sitting down with anyone to get feedback. "We have great connections on Facebook," Dalton said. "But so far, when we have asked questions about the news feed change, we only get a stock answer."

Dalton hopes that government pages can be reclassified to resolve the issue. gt

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5 Tips for Dealing with the Facebook Apocalypse

For public agencies that use Facebook as a constituent engagement tool, take these steps to continue reaping the benefits of social media.

1 / GET SMART While spontaneity can impart personality to social accounts, make sure you have a digital strategy foundation in place, which should include a social media policy.

2 / "MEANINGFUL INTERACTIONS" Take advantage of Facebook's engagement features: reactions, comments and shares. Populate an editorial calendar with engagement-based content: asking questions, addressing timely issues, and eliciting feedback.

3 / GO LIVE What won't work anymore? Bland, self-promotional content. Use Facebook Live video as a way to open up government and bring audiences into the room; Live video outpaces prepackaged video in engagement.

4 / PAY TO PLAY Treating Facebook as a free, guaranteed publishing tool should be a thing of the past. Consider dedicating an advertising budget to overcome dwindling organic reach with boosted posts and to satisfy specific goals using this available technology.

5 / DIVERSIFY If the role of government is to serve all its people, an agency's digital plan should meet users wherever they are. That means using a range of social media channels, maintaining a regular email schedule and hosting a user-friendly website.

— Lindsay Crudele, Crudele Digital

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Shot Spotting

Chicago police cut crime with major upgrades to analytics and field technology.

By Theo Douglas / Staff Writer

The Chicago Police Department (CPD) is deploying predictive and analytic tools after seeing initial results and delivering on a commitment from Mayor Rahm Emanuel, a bureau chief said earlier this year.

The issue, as the mayor said during his 2018 Annual Budget Address, is how best to ensure that a rise in shootings and murders dating to 2015 continues to decline. Emanuel emphasized and police officials agree that using the latest in IT, including video surveillance and computer analysis of incidents, is reducing violent crime in the city.

Last year, CPD created six Strategic Decision Support Centers (SDSCs) at police stations, essentially local nerve centers for its high-tech approach to fighting crime in areas where incidents are most prevalent.

Jonathan Lewin, chief of CPD's Bureau of Technical Services, revealed plans to expand the number of centers at the annual Consumer Electronics Show early this year. Effective immediately, CPD will add four additional SDSCs, Lewin told an audience of more than 100 on Jan. 11 in Las Vegas.

"I'm happy to say that in the first six districts that went live, we were able to tie together a range of technology into a single platform," Lewin said during a discussion of "Paving the Way for Connected Emergency Vehicles."

Connecting features like predictive mapping and policing, gunshot detection, surveillance cameras and citizen tips lets police identify "areas of risk, and ties all these things together into a very consumable, very easy to use, very understandable platform," said Lewin.

"The predictive policing component ... the intelligence analyst and that daily intelligence cycle, is really important along with the room itself, which I didn't talk about," Lewin said in an interview.

"There's an actual physical room that's built out in each of these districts. It's like a fusion center, but it's an actual room," he added.

The nation's second-largest police department also has a large-scale deployment under way of ShotSpotter, the gunshot detection technology. It's currently live in four of the city's 22

policing districts with plans to add two more this spring.

Ultimately, CPD intends to add ShotSpotter in 13 districts by summer, covering areas where crime is highest, according to Lewin.

"It will be the largest ShotSpotter deployment in the U.S. It will be in about 110 square miles," he said.

Results thus far are promising. Citywide, shootings dropped 21 percent in 2017 compared to 2016, Lewin told the a udience; and in districts Nos. 7 and 11, on the city's southern and western sides — home to the first two SDSCs — shootings are down 33 percent.

In each of the six districts initially equipped with SDSCs, shootings declined an average of 20 percent, CPD First Deputy Superintendent Kevin Navarro said in October.

In a video presented at CES, CPD said its strategy of "smarter policing, fewer victims" includes SDSC personnel using data analysis and technology to provide officers with real-time information and deploy them more effectively; crime forecasting software to identify areas most at risk for violence; and "360-degree feedback" to analyze data transmitted from officers in the field.

How do you develop insights from all these different data points? How do you translate them into actual intelligence?

"The ultimate goal of the SDSCs is to provide a process and environment for collaboration and analysis, resulting in fewer injuries," according to the CPD video.

Most CPD patrol vehicles now have in-car cameras, while some have license plate readers. The department is moving toward equipping vehicles with wireless routers — ultimately connecting in-car and body-worn cameras and offering on-demand, real-time streaming.

CPD partners with the University of Chicago Crime Lab on data analysis and has worked with the New York City Police Department to develop best practices. But Lewin acknowledged in a tweet last year that the department will likely continue to face challenges.

"We have literally hundreds of millions of rows of data. And how do you develop insights from all these different data points? How do you translate them into actual intelligence? That's what we're very focused on right now," he said.

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Cut on the Bias

Research shows that Internet searches can contribute to social inequity. What can be done about it?

Safiya U. Noble, Ph.D., is an assistant professor at the University of Southern California Annenberg School for Communication and Journalism. Her work over the past few years centers on the impacts of technology on the public interest. But before that, she spent 15 years in marketing and advertising for various Fortune 500 companies. Her latest research, as discussed in her book *Algorithms of Oppression: How Search Engines Reinforce Racism*, examines the algorithmic bias of commercial search engines. Noble recently talked to *Government Technology* about her findings and her ideas for a more democratic information infrastructure.

By Noelle Knell / Editor

Tell me about your current research. How did you get going in this direction?

I wrote this new book to think about the implications of the kind of information that search engines — large, commercial search engines like Google — provide to the public. And this primarily comes from my research. My area of expertise is information science, and I have watched slowly over time the erosion of support for libraries and archives and other kinds of information institutions that the public is highly reliant upon, like public libraries, for example, or academic libraries for scholars and students. Increasingly people are starting their queries for information on the Internet. Of course, as you're looking for information, if you don't know exactly where it lives, you don't know the precise URL, you're reliant upon a search engine. It's in some ways the guide, broker or facilitator to finding things. What I noticed several years ago is that when you are looking for information for various identity-based groups, there were a lot of problems.

This started in about 2009, 2010, when I was looking, for example, at what happens when you do keyword searches on the words "black girls," "Latina girls" or "Asian girls." And what you would get is overwhelmingly pornography or hypersexualized content. This is a huge problem because the porn industry has a lot of money and they've been able to pay, in essence, to have a premium to those words, to associate those words with their content. For me this was a public interest issue because, first of all, the content was really about women, it was not girls. It wasn't children or adolescents. The content reflected women in a pornographic way, and women and girls really don't have the financial resources to compete with the porn industry to put the kinds of content that they might be interested in up against pornography. A commercial search engine is really an advertising platform, and so people who are willing to pay the most are able to kind of control certain keywords and ideas. And that's really what launched me into this line of research about how information gets biased and what happens to people who have the least amount of

resources in our society in terms of how they get represented in these platforms.

I also started thinking about, what is beauty? What is beautiful? I didn't expect, in Google image search, to get back almost exclusively white women in bikinis or lingerie. You might think of a concept like "beautiful" being nature or something that's more universally conceptualized as beautiful. If you look for images of professors — I'm a professor — it's almost exclusively men who get represented. These things become important particularly for young people who are exploring the Internet in unguided ways and maybe they're imagining themselves in a future occupation. There's a lot of gender stereotyping in occupational images in Google image search.

On a darker note, we have some more troubling case studies that we've seen. One in particular is the case of Dylann Roof, who in his own words in his manifesto says that he was doing Google searches to understand the media circus that was happening around Trayvon Martin and George Zimmerman. He really didn't understand what the polarizing issue was around that trial, and he does a search on the keywords "black on white crime" and is immediately led to white supremacist sites. This is because the phrase "black on white crime" is a red herring that gets used by white supremacists, white nationalist sites and organizations. Research shows that most people who engage with large search engines think that the information they're getting is accurate and trustworthy, fair, credible. So Dylan Roof thinks these are legitimate sites, and he says that this helped him develop his racial identity, and then he acts upon that with the murders of nine African-Americans in Charleston, S.C. Those kinds of things are particularly concerning for the public. Because what he didn't get, for example, were FBI statistics that showed that the majority of violent crimes or homicides happen within [one's] community. So black crime, violent crime, happens against other African-Americans, but crime against white Americans is perpetrated by other white Americans, largely. That's what the FBI stats show. You don't get in that kind of a query any scholarly information that would help you understand the history of a phrase like that and why that's used to radicalize white men in particular, white youth in the U.S. and in Europe. You don't really get any context in the kinds of queries that you do, particularly when you're searching loaded terms, and those are of great interest to the public.

This research seems particularly timely, given recent discoveries of Russian influence on the last presidential election.

I think we're at a historic moment in the United States where we see that there are many competing interests over controlling the values and the agenda of our national political landscape. And if there were ever a time for us to have a high degree of media literacy, particularly Internet literacy, it's now. We see what the effects of both low levels of literacy and high degrees of control of media companies, in which I include tech companies, have in shaping the outcomes of our elections. So of course, we would not want the tech sector or any other sector to so dramatically and disproportionately affect the outcomes of our political elections, so this is a moment we cannot leave to chance. This is a time where activists, community members, even teachers and educators, should be thinking about the influence of social media and search engines on the outcomes of not just electoral politics, but also how communities are represented. These are the things that are affecting our ability to enact democratic values and live in a society that we want to live in. We have an incredible amount of political and racial division, economic and class division, and we need interventions that can close those gaps. Certainly information plays a huge role in that.

What can state and local governments do, given their stated goals of serving all citizens fairly and equitably?

One of the things that I call for in the book is deeper federal, state and local investment in public-interest technologies that have a different mission, which is curating content and making different forms of knowledge more accessible. For example, we have the Library of Congress. For me, that would be an amazing partner to have at the table with scholars like me, with heads of academia, libraries from all over the United States, public and private, where we could talk about the information needs for a democracy. And how could we be relevant players in that commitment, rather than turning that over to private advertising companies, like Google search. It doesn't make sense to allow Google or Yahoo or Bing to fill that information void because most librarians, for example, in the academic sphere, are interested in a particular type of curation of information and knowledge: books, articles, things that are published, informal channels. They're really not interested in indexing the open Web, but they have an incredible, deep knowledge about information organization. These are the experts, so we should be tapping the experts in information organization to do that in a way that serves the public, rather than in a way that benefits advertisers.

Given your findings, where do we go from here?

I'm a media and information cultural critic. I think people would characterize my work in that way, but I also try to conceive of creative solutions and alternatives because I don't think it's enough to just be critical. I've spoken with a number of university librarians from some of the top institutions around the country, all of them very interested in having a seat at the table and thinking about these things with me. What we don't have is the kind of money and resources that a company like Alphabet has to implement these ideas. Just like we invest in our infrastructure of highways and roads and bridges, we need to deeply invest in our information infrastructure that also is a benefit to the democracy. We wouldn't turn over our public infrastructure to General Motors even though they benefit a lot from selling cars that run over that infrastructure. We have a lot of diversity in that industry, and we understand that there's a place for different companies and what they're interested in doing, but the system works when it's a benefit to everyone, and not just those who drive cars but also those who need a train or a bus, or who need alternatives. We don't really have a lot of good public-interest alternatives in our information infrastructures. gt

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DAVID KIDD

FOLLOWING ARRIVAL OF NEW MAYOR, SEATTLE CTO RESIGNS

After four years as chief technology officer of Seattle, Michael Mattmiller's last day in the position was Feb. 2. His departure was one of many that followed the first weeks of Mayor Jenny A. Durkin's administration. Seattle's IT chief of staff Tracye Cantrell will serve as acting CTO while the city conducts a national search for Mattmiller's replacement.

Nevada CIO Steps Down

After nearly three years at the helm of Nevada IT, CIO **Shanna Rahming** announced she would leave her post on March 3. At press time, her next move remains unclear.

MILITARY VETERAN TAKES TOP FLORIDA INFORMATION SECURITY JOB

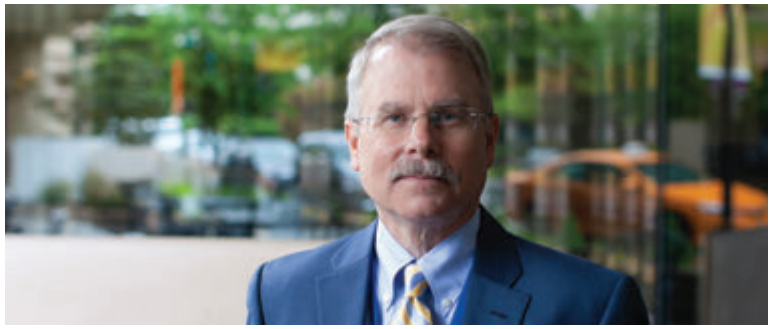
Thomas Vaughn, who served in the U.S. Army and Coast Guard for more than 20 years, was appointed Florida's chief information security officer in early December. He also spent time working as a Department of Defense contractor for the Army and Air Force, and wants to explore how the state can "better share information, how we can form stronger partnerships and collaborate a little more closely in terms of sharing that information." Vaughn takes the place of Danielle Alvarez, who left for the private sector in June.

Alaska's Deputy CIO Steps Down

Deputy CIO **Jim Steele's** last day with Alaska was Jan. 12, having served the state since 2015. He also took on the role of interim CIO after the departure of Jim Bates in 2016, and resumed the duties of deputy following consolidation of the department and Bill Vajda's appointment in February 2017. Steele will return to work in the private sector.

WHITE HOUSE NAMES NEW FEDERAL CIO

On Jan. 26, the Trump administration announced that **Suzette Kuhlow Kent**, a principal at Ernst & Young, will serve as the fourth federal CIO. Kent fills a position that's been empty since the departure of former CIO Tony Scott, who stepped down when President Trump took office last January.



DAVID KIDD

Baden Leaves Post in Minnesota

After more than three decades of government service, Minnesota CIO Tom Baden announced his retirement effective Feb. 2, citing health issues. Baden was head of Minnesota Information Technology Services (MNIT) since January 2015, having previously served as CIO of the state's Department of Human Services, as well as tech roles in other agencies.

DAVID KIDD

Shake-ups in Montana IT

Effective Jan. 19, Montana CIO **Ron Baldwin** stepped down from his post after leading the State Information Technology Service Division for five years. Baldwin, who has accepted a position with Deloitte, was a key architect of the state's IT consolidation, as well as its transparency, data and business portals. Chief Technology Officer Matt Van Syckle will act as interim CIO while the state seeks a permanent replacement.

Concurrent with Baldwin's departure was the arrival of new Chief Information Security Officer **Andy Hanks**, a 20-year IBM veteran and former manager of its global security program. Hanks takes the place of Lynne Pizzini, who in December left Montana for a private-sector role after a 25-year career in government.

DAVID KIDD

Roest Retires, Saini Named NYC CIO

Following a 30-year government career, New York City Department of Information Technology and Telecommunications Commissioner Anne Roest announced her retirement in January. Taking her place is Samir Saini, who has been Atlanta's CIO for three years and leaves as the Southern city's new mayor takes office. Both Roest and Samir were winners of *Government Technology's* 2017 Top 25 Doers, Dreamers and Drivers award.

Florida Hires First Geographic Information Officer

On Dec. 27, Ekaterina Fitos joined the Florida Agency for State Technology as the state's first-ever geographic information officer. She most recently worked in the private sector but has more than a decade of state-level public-sector experience. Fitos has been tasked with developing a statewide GIS strategy, which they hope to publish by June 30, the end of the 2017-2018 fiscal year.

CIO Steps Down from Key California Agency

Peter Kelly, chief deputy director and CIO of the California Health and Human Service Agency's Office of Systems Integration, is stepping down from that role after a year in the position, although his next move is not yet known. His place will be filled in the interim by Matt Scheuller while a permanent replacement is found.

AS NEW GOVERNOR ARRIVES, NEW JERSEY CTO LEAVES

New Jersey's first-ever chief technology officer, Dave Weinstein, left his role with the state Jan. 15 as the new administration under Gov. Phil Murphy prepared to take office. Weinstein was appointed to the role by Gov. Chris Christie in June 2016, and said his next move will be outside of the public sector. At the time of his departure, Weinstein spoke positively of the Murphy administration's prioritization of IT, praising its "understanding that this is an issue that transcends politics."

D.C. Selects Interim Chief Technology Officer

Following the departure of CTO Archana Vemulapalli in early January, Washington, D.C., appointed its first-ever chief data officer, Barney Krucoff, to fill the role in an interim capacity. Krucoff has been in his current position under the Office of the Chief Technology Officer since August 2016.

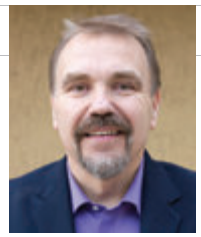
PHILADELPHIA SEARCHES FOR NEW CIO

In mid-January, Philadelphia announced that CIO Charles Brennan was leaving the city, and that Mark Wheeler, deputy CIO for enterprise data and architecture, will serve in the position during a national search for Brennan's replacement. "While Charles Brennan has made important contributions to [the Office of Information Technology] in the past two years, the administration has determined that a change in leadership is appropriate at this time," said a spokesman for Mayor Jim Kenney.

Head of Kansas IT Resigns

Following the arrival of incoming Gov. Jeff Colyer, Kansas Chief IT Officer Phil Wittmer tendered his resignation effective Feb. 2. Wittmer had served in the position since July 2015, and Chief Operating Officer Donna Shelite will take over as interim CITO.

By Paul W. Taylor



The Routine Citizen Experience

As government websites evolve, a simple vehicle registration renewal takes on new meaning.

There's a relatively short list of interactions most of us have with government every year. Setting aside next month's tax filings, the ones that come to mind most readily involve licensing people and things: drivers, professionals and vehicles. Of them, annual vehicle registration renewals may be our most frequent touch points with state government — particularly if you, like me, own more than one vehicle.

These transactions are relatively rare and routine. But those qualities also mean they have a disproportionate impact on our impression of public agencies. Governments only have a couple of chances a year to make their next impression. That idea is at the heart of the Government Experience Awards, a program introduced last year by *Government Technology's* sister organization, the Center for Digital Government. As the name suggests, the awards were developed to recognize government agencies that are focusing on designing and delivering an overall experience for the citizen that is accurate, speedy and secure.

So when a renewal notice for my aging pickup arrived earlier this year, I paid a little extra attention to the process.

The renewal email notice from the state of Washington included the plate number and VIN for the truck, how much it would cost to renew the tabs (called "tags" in many states), and information about the three ways to renew: at a licensing office, online or through an express portal that requires a signup but serves as a licensing one-stop that you can return to over time.

The email also included a link to a disclosure on the department's site about the 19 requirements for renewing my car registration tabs. (It is worth noting that this seemingly daunting list is the distillation of the 135 sections of the administrative code that governs vehicle licensing in the state. No mean feat in the transition from an atom-based past to a bit-based present.) Not much had changed since the renewal about five months earlier of another vehicle, so that lengthy list proved to be more visual noise than things that had to get worked through. Curiously, my password management software apparently misremembered my credentials in the intervening time, but resetting them was simple, much like the best of the dot-coms.

The experience was not bad for government. It was relatively quick to complete, and probably as simple as it could be, given the many regulatory requirements that the department sought to streamline. The most confusing part of the experience was losing track of the renewal link as I paged through the informational links. A big "Renew Now" button would have been handy.

Of course, the site used Hypertext Transfer Protocol Secure (https) on its transactions pages. It also included a badge at the bottom of those pages declaring that they were secured by the state's single sign-on application gateway, but the badge did not link to anything — not even the "About" page for the gateway.

Opacity around a password-based access system is all the more striking when experience-changing models are gaining traction. The financial services industry is shifting toward invisible authentication, which learns trust by getting to really know users and their interaction with applications — even (and maybe especially) on mobile devices. It comes to the question of secure access through the lens of risk, location and reputation, and device attributes, among other factors, all of which happens in the background and, as the name suggests, is invisible to the end user.

Car tabs are just car tabs. In that way, renewing them is just a routine transaction. But the renewals are conducted by the public agencies that hold unique records about personal identity to which others refer. Getting that experience right has consequences well beyond a simple transaction. gt

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

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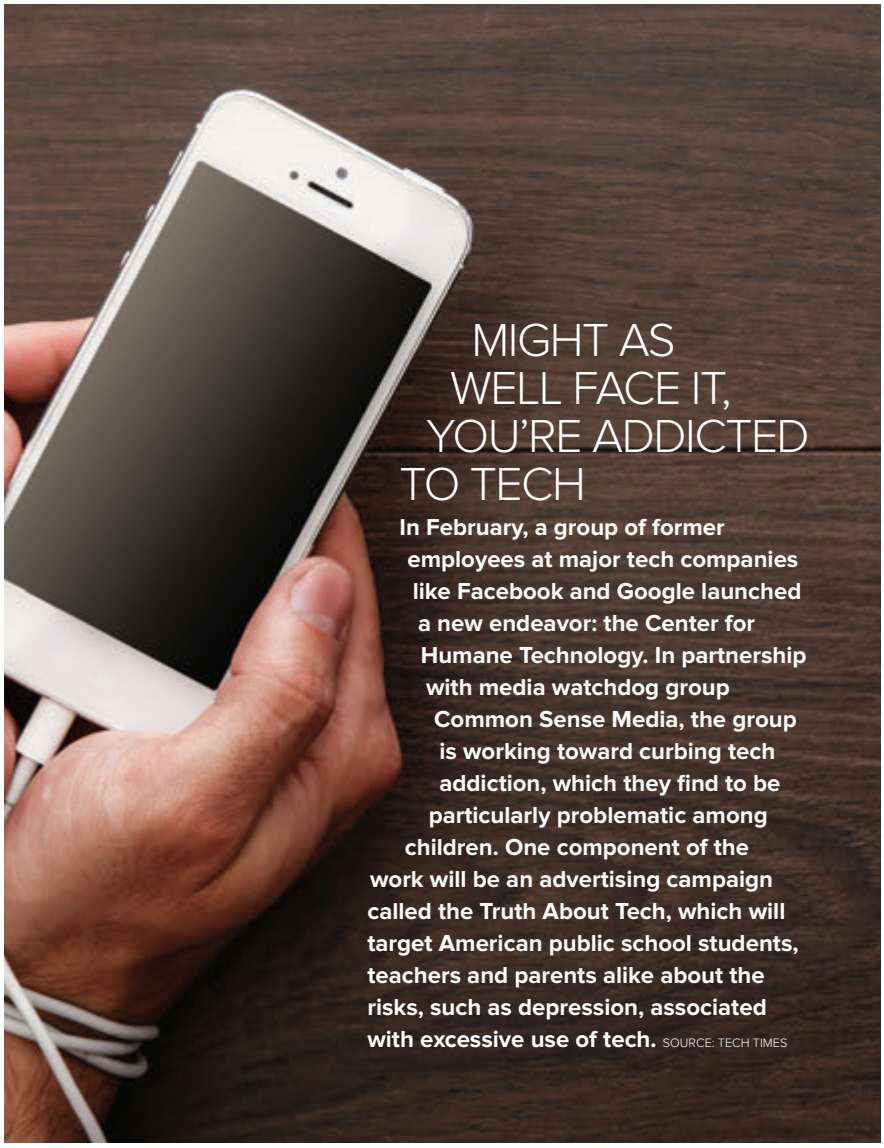

MIGHT AS WELL FACE IT, YOU'RE ADDICTED TO TECH

In February, a group of former employees at major tech companies like Facebook and Google launched a new endeavor: the Center for Humane Technology. In partnership with media watchdog group Common Sense Media, the group is working toward curbing tech addiction, which they find to be particularly problematic among children. One component of the work will be an advertising campaign called the Truth About Tech, which will target American public school students, teachers and parents alike about the risks, such as depression, associated with excessive use of tech. SOURCE: TECH TIMES

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Hey, Alexa?

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After too many mishaps of an Amazon Echo accidentally waking at the sound of its own name on, for example, a TV commercial, the tech giant has developed a solution that will ensure its home assistant responds only to its users. Using what Amazon calls "acoustic fingerprinting," Alexa can differentiate between uses of its name that come from an ad and its users' voices. A patent filed for the tech describes the two ways Amazon keeps Alexa from waking accidentally: An element of a commercial will be transmitted to the Echo before it airs so it knows the false command in advance; and as a commercial plays, it could send the device a silent signal to ignore the wake word.

SOURCE: BLOOMBERG TECHNOLOGY

30%

The state of South Australia is teaming up with Tesla to create what they are calling the world's largest virtual power plant, a network of home-based solar photovoltaic and battery systems that generate and store energy, and feed any excess energy that the home doesn't need back into the grid. In the first phase of the rollout, 1,100 publicly owned properties will be outfitted with a 5kW solar panel system and a 13.5kWh Tesla Powerwall 2 battery. If that pilot goes well, the program will expand to include 24,000 more publicly owned homes and then 25,000 private households can opt in to the system. Homes participating in the solar power program are expected to lower their energy bills by 30 percent. SOURCE: THEVERGE.COM; IMAGE: SHUTTERSTOCK.COM

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

EXTENDING IT SERVICES TO BUSINESS PROCESS AUTOMATION

Howard County uses an IT management platform to create a services portal and streamline IT and business workflows

What started as a goal to improve IT support and service delivery has now become a vision for streamlining many work processes — including citizen requests — in Howard County, Md. In 2016, the county chose cloud-based ServiceNow software to replace a mix of on-premises applications, spreadsheets and documents used to manage IT projects and support cases.

Initially the county wanted to automate internal IT processes. But technology leaders realized they could also use ServiceNow to automate the county's business processes. The county is also creating a public web portal for citizen requests.

"At its core, there are things that ServiceNow does extremely well, and you can take those building blocks and create all of these other systems," says Tom Yeatts, Howard County's deputy CIO. "Automated workflows aren't just for IT. The same thing can be applied to human resources or customer relationship management. Once we show a department the benefits of using a single automation platform, we can help it streamline workflows — the return can be almost exponential. It's really exciting to see what the possibilities are."

Howard County is already seeing these results. As an example, the county now needs just one afternoon to complete an activity that used to take four to six weeks.

Automating IT Processes

The first task for the Howard County IT team was to standardize and enter information about infrastructure elements and services into the ServiceNow configuration management database (CMDB).

Each service relies on interacting IT components, including databases, physical and virtual servers, networks and cloud services. By mapping both the infrastructure and the business services, the team could clearly see the relationship between the two. With one system of record replacing multiple applications, spreadsheets and documents, they can readily understand the health of their environment, quickly evaluate service impacts and proactively fix problems.

"The business service mapping allows us to see the impact of infrastructure service problems on specific user communities, which means we can target alerts and status messages instead of sending a broadcast message to everyone for every incident," says Yeatts.

With the configuration database in place, the county focused on automating IT workflows and processes. The first IT processes automated included requests for system access, password and account lockout resets, and routine or specialized equipment. This effort prompted IT staff to analyze and document existing processes, define approval and activity flowcharts, and identify where exceptions might apply.

"There's a benefit to simply clarifying a process and making it repeatable, so we can easily adapt it for other workflows that handle similar tasks," says Yeatts.

Once these IT processes were defined and automated, the team saw tremendous gains in productivity and in their ability to meet or exceed service level agreements.

Automating Workflows Beyond IT

Yeatts also saw the potential to automate paper-based business processes. To demonstrate this potential, his team chose to automate the highly visible process for contract approvals.

Multiple people must review and approve a county contract in a specific sequence, including the department head, finance director and the county executive. What once took four to six weeks as a manual process can now be completed in an afternoon because of the automated workflows defined in ServiceNow and integration with digital signature software.

In addition to the contract workflows, the county also automated processes for employee on-boarding, transfers and off-boarding. As of late 2017, the IT department has automated more than a dozen business processes and expects to automate more than 200 in the coming years.

Snapshot: Howard County IT Department

200 applications and systems managed by IT

200+ projected business workflows suitable for automation

3,500 county employee users

85 IT employees

"We are initially automating high-impact processes," says Yeatts. "But we've also given our IT liaisons an open invitation to submit paper-based processes that hinder productivity in their departments."

A One-Stop User Portal

Howard County leaders also created a single place for county employees to access IT and non-IT support. The county developed what they call SNAP (ServiceNow Application Portal), which interfaces with the ServiceNow platform. SNAP gives users a one-stop site to find answers, and initiate and track requests. Workflows in the portal are clearly defined in an online service catalog maintained in the ServiceNow software.

"Most people initially look at ServiceNow for incident reporting and IT operations management," says Yeatts. "But when we add the service catalog, our clients will see that we are building a central point for requesting and reporting anything related to IT and, in the future, to many other departments. We want to encourage employees to start using the SNAP portal now so it's familiar as we add services."

To encourage users to try the new portal, the IT department hired an outside marketing agency to develop a SNAP logo and visual brand.

"We wanted to get some buzz going among our users and interest them enough to explore the portal, then spread the word with their coworkers," says Yeatts.

A planned public contact portal within the ServiceNow customer service management (CSM) platform will help connect the county's citizens to their government. The Howard County constituent relations team will use the portal to forward a citizen's request to the appropriate department, then track the request status and response. A single portal and automated workflows will make it easier for citizens to initiate requests, improve responsiveness and productivity, and increase citizen satisfaction with county government.

Tips for Success

Based on Howard County's experience with a user portal and automated processes, Yeatts offers several insights for other public sector IT departments.

Implement in IT first. The initial focus of a service management solution should be to automate IT processes. This allows IT teams to gain experience and build capabilities that other departments can leverage. During this process, IT can involve department stakeholders to help them understand the value of automating their workflows.

Start with high-visibility processes. Look for processes that have a high level of awareness and require significant time and effort.

Cultivate executive sponsorship. Plan to involve key executives from across the organization to help choose processes to automate.

Look for repeatability. Develop processes in a way that allows IT to save development time and effort by adapting defined workflows to handle similar tasks.

Understand work roles. Some processes require specific people to participate, while others require only a particular role. For example, many public safety processes require notification or approval by the person who is serving as commander for the current work shift. The process definition should accommodate these variations.

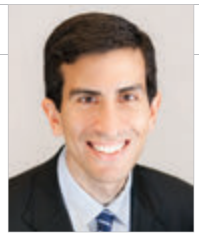
Establish robust ITIL knowledge. Howard County sent its IT staff to train on Information Technology Infrastructure Library (ITIL) principles to gain background knowledge for the ServiceNow implementation.

Finding Value Beyond Automation

By automating workflows with ServiceNow, Howard County gains another valuable but unanticipated advantage: capturing knowledge that may exist only in an employee's head. The analysis to define workflows often brings out this knowledge so it can be retained and built upon for improvements in other areas.

Says Yeatts: "We hold conversations that take institutional knowledge, organize it and put it into a system of record so we can standardize repeatable processes — and that benefits the entire organization, other departments and soon citizens requesting information or services."

By Daniel Castro



Drawing Outside the Lines

Putting algorithms in charge of redistricting could fix gerrymandering.

Every 10 years, following the decennial census, states redraw district boundaries to ensure that Congress and state legislatures represent the electorate. This process is prone to political gamesmanship as elected officials draw district lines in ways that protect incumbents or make their party more competitive without consideration of the impact it has on voters. The worst offenses have been found in states where a single party controls the state legislature and can unilaterally push through a partisan map. While states have proposed various independent commissions to lessen partisan fights over the design of these maps, the best solution might be to simply take humans out of the loop, and put an algorithm in charge.

There are relatively few requirements on how states draw district boundaries. At the federal level, the U.S. Constitution requires that districts contain equal populations, and the Voting Rights Act prohibits states from drawing lines that deny minorities the right to elect representatives of their choice. This latter requirement is designed to combat "cracking" — splitting minority voters into small pieces across multiple districts so they have little chance to impact an election — and "packing" — putting as many minority voters as possible into particular districts so that they have less impact elsewhere.

Many states have additional regulations, such as requiring districts to be contiguous, follow existing political boundaries, be reasonably compact and preserve communities of interest (i.e., people with shared social, cultural or economic interests). A few states have also tried to minimize political interference by having the state legislature turn over redistricting authority to an independent commission.

While courts have ruled congressional maps unconstitutional when they have found evidence of racial gerrymandering, they have been less likely to act in purely partisan cases. Given this leeway, multiple states have reshaped districts to achieve party control. For example, in Wisconsin, Democrats won the popular vote in 2012, but only 39 percent of the seats in the state Legislature. And in North Carolina, Republicans won 53 percent of the popular vote in 2016, but 77 percent of the state's congressional seats.

It is likely that the Supreme Court will address this issue again soon. Earlier this year, a federal court ordered North Carolina lawmakers to redraw the state's congressional map, ruling that the one proposed by the Republican-controlled Legislature was unconstitutional because it appeared to be designed to significantly hurt the viability of Democratic candidates (the Supreme Court later blocked this order). Similar cases over partisan gerrymandering are pending in Wisconsin and Maryland.

Data-driven analysis can better quantify gerrymandering. While there is no standard metric for measuring gerrymandering, many mathematicians are exploring possible solutions. For example, one technique involves computationally creating more than a billion randomly generated maps and then comparing any proposed map to this database to determine if it is an outlier in terms of partisan impact. Statisticians have served as expert witnesses in many of the cases over partisan gerrymandering, and their analysis can allow states to assess the effectiveness of different policies to address the problem, such as showing that states with independent commissions produce less partisan maps.

States could also try to simply eliminate human bias by using algorithms to design their maps. Algorithms can be designed to optimize features desirable for voting districts, such as compactness, and minimize undesirable characteristics, such as splitting neighborhoods. The idea is not new — it was proposed in the 1960s — but although states have flirted with the possibility, they have never fully embraced the idea. On the contrary, states are more likely to use digital redistricting tools to design highly partisan maps. The problem, of course, was not the algorithms, but those put in charge of using them. This is a lesson states should learn from today.

Given the current level of gerrymandering, it is time to re-evaluate how to engineer a fairer process for redistricting. It should be clear that humans are often the weakest link, and so states should explore reforms that automate the redistricting process using consistent metrics and open source algorithms. Doing so will create a more accountable process that is less likely to be subverted by partisan interests and more likely to restore voter confidence. 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.

By Miriam Jones | Chief Copy Editor

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

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By Kristy Dalton

Is Government Blogging Dead?

Exploring an underutilized outlet for engagement.

People aren't talking about blogging like they used to — is it still relevant for social government? While it may have lost some traction as a big buzzword, blogging may be an underutilized resource for government agencies looking for a way to tell their narrative without some of the limitations of other social outlets.

When done well, a blog can be a useful collection of stories and multimedia posts. The key here, however, is "done well." Remnants of the late-'90s-style blog design are still active on the Web and can make an agency look dated and out of touch. Yet the core function of blogs can be useful.

Components of a Blog

We've seen agencies use native website functionality to create a blog, or they integrate it via tools like WordPress, Medium or Tumblr. But what distinguishes a blog from a simple news feature on your site? In both, entries are posted in reverse chronological order, so the newest items are at the top. But a blog is usually further distinguished by having an RSS feature so visitors can subscribe to posts using a feed aggregator.

Another major tenet of a blog involves having a personal voice. Posts should be written by a named person or people who work for your agency. If having an "About the Author" area on every post would be weird, then what you have is probably not a blog.

Blogs are also written in the first person — not in the usual press release third-person style that works for content on your news page. This takes effort because it involves staff training and likely an editorial review by a communications designee. It's also the best part of a blog, because it speaks to people on a conversational level and tells the story of your agency.

Owning Your Narrative

The purpose of a blog in the private sector is to make money. Companies use content to build a sales funnel or they establish the blogger as a thought leader in their industry, both of which drive sales.

But government agencies aren't driven by revenue collection in that way, so what's the primary purpose of a government blog? I can't stress enough the value of owning your narrative and how telling your story humanizes government.

And keep in mind that comments are extremely important for the conversational intent of blogs. Ensure that your content elicits feedback and ideas from citizens, and that comments are enabled and simple to use. Even though you're telling your own story, you don't want your message to be a one-sided piece — you want it to be a conversation with the public, which means you should also reply and encourage back-and-forth interaction.

What Would a Modern Government Blog Look Like?

A modern blogging strategy incorporates multimedia. A "vlog" is a video blog in which content is filmed instead of written, but there's no reason a contemporary blog can't combine multiple formats.

An inherent challenge with social media is that it's fleeting by nature. Social posts are designed to live in the moment. However, a blog can be a collection of your best material, a compilation of personal voices from within your agency. It can be a place to combine social media posts from several outlets, embedding your top YouTube videos, a collection of Instagram images, and your most engaging tweets and Facebook posts.

With the ever-shifting algorithms on social media, businesses and governments are seeing far less reach for their efforts. Perhaps breathing new life into an agency blog is one way agencies can take back ownership of their social content. 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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