ROUTE FIFTY

Innovation in Action

VOLUME 4

Innovation in Action, Vol. 4

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MICHAEL GRASS
Executive Editor, *Route Fifty*
Government Executive Media Group

ROUTE FIFTY

Pittsburgh's Innovation Chief Pushes a Big Municipal 'Cultural Shift'

Mayor Bill Peduto brought Debra Lam from the consulting world to help transform city government. "It's about the people, it's about systems, it's about mindset," she says.

BY BILL LUCIA

Pittsburgh's chief innovation and performance officer, Debra Lam, said that getting a whiteboard for her office wall took six months.

While having a whiteboard is not critical, it's still nice, she said. The amount of time it took to get the board highlights one of the bigger adjustments she's had to make since leaving behind her consulting career to head the city's Department of Innovation and Performance.

"I'm probably still impatient, I'm still, at times, frustrated by how long things take," she said. Referring to her effort to get the whiteboard Lam said: "I had to go through our standard procurement system and that process was pretty tedious."

But Lam also pointed out that the city is working with a group of Code for America fellows on a procurement reform effort, which her department is helping to support.

Mayor Bill Peduto chose Lam for the newly created position shortly after he was elected in 2013. She was charged with transforming a department which was largely focused on IT, called City Information Services, into the Department of Innovation and Performance.

"We basically created the department around her," Peduto said.

As of February, the department was just one year old, but during that time, Lam and her team have carved out an ambitious new role for themselves within the government of Pennsylvania's second-largest city. They are currently involved in about 90 projects, she said, which are wide-ranging in type and scope.

Working with the Department of Public Works they launched an online system for tracking snowplows last winter, which generated a flurry of attention. But Lam's staff also has a part in looking at options for citywide LED streetlights, figuring out how to release more of Pittsburgh's data online, digitizing paper records and piloting a Lean Six Sigma program.

Lam describes the old responsibilities of City Information Services as more along the lines of updating passwords and replacing old computers. So, within the department, the transition toward concentrating on innovation and performance was about more than a name change. It's been a big deal. "It meant a massive

cultural shift," she said.

Although she's a Pittsburgh native, Lam, who is in her early thirties, was a rookie city official there when she took the job as innovation chief. During her time in consulting, she advised governments. But she points out that "as a consultant your role only goes so far."

One important difference, she noted, is that her new position stretches beyond making recommendations, into the realm of implementation.

The reimagined department involved changes on multiple fronts. It meant working out new relationships with other city agencies. It also meant that some department employees would need to take on changed and expanded responsibilities. And while Lam was a newbie in Pittsburgh government, some of her staff had over a decade of experience with the city.

So how did she begin shepherding her team through such a fundamental transformation?

Lam began by trying to figure out where the department stood. She said that during the first few months on the job she was "just listening, learning, observing, trying to understand the lay of the land." She wanted to know the roles of different employees, their strengths and work interests. One of the things Lam found was that "we had some really strong core managers."

Still, she said, there were projects that had inexplicably gone unfinished even though some were 80 percent complete. "You ask people why, and there's no reason why," Lam said.

As part a push for greater communication and accountability, Lam began holding a series of weekly meetings with the 10 managers in the department.

On Mondays, they get together to discuss day-to-day operations, "firefighting" as she calls it. During those sessions, managers let one another know what they're doing, what their priorities are, and how their workloads look.

> **"It's been a big deal. It meant a massive cultural shift."**
>
> DEBRA LAM, CHIEF INNOVATION AND PERFORMANCE OFFICER, CITY OF PITTSBURGH

On Fridays, there's a strategic meeting. This is where the team focuses on long-term planning, budgeting, staffing and the overall direction of the department.

There are also three project-level meetings spaced throughout the week that concentrate on the departments main focus-areas: technology advancement, performance excellence and sustainable leadership. All 10 managers are assigned to one of those three areas and at these meetings they report on the progress of their projects.

The meetings are intended to keep all of the managers in the loop. "Everyone has a say," Lam said. "Everyone talks." She explained that these discussions are also

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“Our job is not only to release the data ... but to then make it visually compelling”

DEBRA LAM, CHIEF INNOVATION AND PERFORMANCE OFFICER, CITY OF PITTSBURGH

meant to create “redundancy” within the department by avoiding “fiefdoms or silos.” If one manager is out sick, for example, another can jump in and take care of what needs to be done in their absence.

Performance matters. “Every manager is accountable,” Lam explained. “They know that there is a timeline and if they don’t hit that timeline, I will be asking questions.”

Despite that tough-sounding tone, she is quick to give credit to her team. “It’s amazing,” she said. “They know that we’re no longer reactive, we’re proactive at the strategy level.”

Although much of the work the department does is related to technology, Lam believes that it’s not “some sort of gadget, or software, or tool,” that can solve all of a city’s problems. Many of the tough civic issues facing the town are complex and entrenched, she said. And the root causes are hard to find. So how do you solve these sorts of problems?

“It’s about the people, it’s about systems, it’s about mindset,” Lam said.

Providing online access to more of the city’s data is one of the bigger technology initiatives the department is currently working on.

Lam declined to offer specifics about which new data the city plans to release in the near term, other than some would include information from Pittsburgh’s 311 system. But she did say that, in her view, opening the data means more than just posting spreadsheets online.

“Our job is not only to release the data,” she said. “But to then make it visually compelling, make it searchable, make it easily accessible, and make it understood.”

“We should release the raw data, but it’s not sufficient,” she added.

Peduto shares a similar vision.

He believes that any new data the city releases should “make people more effective at solving their own problems in their own communities” and that it should be “readily accessible and easy to use” for regular citizens, like community group leaders and Little League coaches.

“And it needs to be at the same place that you can find out the information about the snow plow tracker, or that you can rent a pavilion, or you can find out whether it’s recycling week this week or next,” the mayor said. (The city recently rolled out an online portal that lets residents punch in their address to find out their trash, recycling and yard waste pick-up day.)

Peduto is confident that Lam is the kind of person he wants helping to guide these sorts of projects for the city. “She has an ability to understand the adaptation of technology to change the way government serves people,” he said.

Depending on where a resident stands in Pittsburgh's fast-changing economic landscape, the types of government services they see as important could vary. The city continues to see a technology boom. Anchoring the blossoming tech economy, are companies such as Google, and academic institutions like computer science powerhouse Carnegie Mellon University.

But neighborhoods like Homewood and the Hill District are fighting to find their place in the new economy. And citywide, 22.6 percent of people had annual incomes below the federal poverty level, according to the most recent available U.S. Census Bureau figures. That's higher than the statewide figure for Pennsylvania, which is 13.3 percent.

"In Pittsburgh we've got a lot of good stuff going on, but we've also got a lot of poverty and we've got a lot of people who aren't connected to the economic transformation," said Bill Generett, the CEO of Urban Innovation 21.

The group works to build ties between underserved communities and the more innovative segments of the Pittsburgh's economy through internship programs and other initiatives.

Generett said that Lam gets this. "A big thing that she's done is really made it known that if our city is going to be the city it has the potential to be, we're going to have to figure out how a lot of the progress we've made because of innovation can incorporate more people," he said.

"That's big," Generett added. "That hasn't happened in the past."

Asked about the types of initiatives the department was pursuing to serve the city's poorer communities, Lam pointed to a number of efforts that are in the works to increase Internet access. These include a push to set up wireless connections in places such as senior centers and recreation centers, as well as weighing options for local Internet networks that would be owned and operated by communities.

Lam notes that Pittsburgh has a history of resilience during tough times. "We went through an enormous downfall when [the] steel [industry] left," she said. "Today we're known for education, health care, technology." Lam added: "We've been able to transform ourselves."

"We've got a lot of people who aren't connected to the economic transformation."

BILL GENERETT, CEO, URBAN INNOVATION 21

ROUTE FIFTY

Transit-Guide Bots for Blind Passengers?

An assistive robotics project is exploring how advanced technology could make it easier for people with visual impairments to navigate cities.

BY BILL LUCIA

A blind person is traveling on the subway. The train they're riding on pulls into a stop, the doors open and the person exits. Waiting there on the platform, to help guide them through the station, is a robot.

"Making a robot do that, there are some challenges, but it's not as challenging as it used to be," said Aaron Steinfeld after describing the scenario involving the guide-bot in an interview. Steinfeld is an associate research professor at Carnegie Mellon University's Robotics Institute in Pittsburgh, where he specializes in human-robot interaction.

He and others at the university are working on a project that aims to incorporate robots, smartphones, mobile applications and crowd-sourced information into a system that can help blind people navigate complicated and unfamiliar urban environments, such as transit stations.

"If you have a disability, it can be rather difficult to just get up and go somewhere because of the planning and the information that you need at your disposal," Steinfeld said. "That's where information technology and assistive robot systems could really shine."

Though it is not the only challenge blind people and others with limited vision face when moving around in big cities, navigating a subway system can among the toughest, especially for those who don't do it often. The robotics research taking place at Carnegie Mellon is just one example of how technologists, nonprofits and transit agencies are looking for ways to make that experience easier.

Before Bots, Beacons

While the guide-bot research is still in its early stages, a different effort with a similar goal is unfolding in Washington, D.C. If it goes according to plan, there could be new devices to help blind people find their way through Metrorail stations before the end of summer.

A nonprofit group, Columbia Lighthouse for the Blind, or CLB, is pushing that project forward. It involves installing guidance beacons in five to seven Metrorail stations. The beacons could be in place in the Gallery Place-Chinatown and Metro Center stations by July or August, and in three to five more stops by year's end, according to Brandon Cox, the organization's senior director

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of rehabilitation and education services.

Already in use in the London Underground and San Francisco International Airport, the beacons send information to a person's bluetooth-enabled mobile phone about their location and surroundings as they move through a space.

"Basically you get within 20 feet of a beacon and it will either send you a text message, or an audio message, whatever you decide," Cox said. "It tells you whatever you're near."

The beacons will be positioned along routes described in audio files posted in an online database. So, ultimately, a person should be able to walk through a Metro station, listening to a route description on their smartphone, while getting an alert that they've reached a certain point as they pass each beacon.

According to 2010 U.S. Census Bureau figures, 2 million Americans were blind or unable to see and 8.1 million had difficulty seeing newsprint even when wearing glasses or contacts.

There's no readily available data for how many of these people ride subway trains each year. But Chris Danielsen, public relations director for the National Federation of the Blind, pointed out that mass transportation can be critical for the blind because they cannot drive.

"Public transit is obviously extremely important to blind people where it's available," he said.

"We don't always demand that the most cutting-edge technology be used," Danielsen added. "But we do demand a certain level of accessibility."

'It's Overwhelming at Times'

Brenda Loughrey lost her vision at the age of six in an accident.

She now works with the Pathfinder School in Bethel Park, Pennsylvania, teaching visually impaired school-age students how to use technology, such as keyboards, digital books, wayfinders and global positioning systems.

Though she is not a frequent subway rider, Loughrey has traveled widely for her work.

"All my adult travel years, I've been totally blind," she said. "And I've traveled a lot. My first dog and I were in 38 states, many cities in some of those states, in one year."

Referring to the instances when she has used subways, Loughrey said: "It's overwhelming at times."

"You're down in there, and everybody's moving different directions, and you're trying to stop somebody who's in a hurry to ask them for directions," she explained. Loughrey noted that

"Public transit is obviously extremely important to blind people where it's available."

CHRIS DANIELSEN, PUBLIC RELATIONS DIRECTOR, NATIONAL FEDERATION FOR THE BLIND

Smartphones and mobile applications are also important components of the research.

noise and the lack of cellphone reception can further complicate attempts to get information.

While she is open to new technology to help blind people travel, Loughrey stressed that, on its own, it is not a panacea.

"We have to have so many listening skills, you have to have that cane protecting you, or know how to pay attention to your dog and take their signals," Loughrey said. "Even following a robot, if that comes to be, if you don't have the ability to watch out for things on the floor, or people in front of you, you're not going to be able to use it."

Steinfeld explained that the Carnegie Mellon team is not trying to build technology that encourages over-dependence on robots. "Ideally you'd like these kinds of systems to help people learn a new route, get through an unfamiliar place that they may only go once in their life," he said. "For example, if they're visiting someone or traveling."

A systems-based approach is central to the work taking place at Carnegie Mellon. The researchers there are not only exploring the idea of a robot that can act like a guide dog. In fact, there's another robot that they're experimenting with first, which has arms, and cameras in its hands, and is envisioned as station agent of sorts that could assist blind travelers.

Called Baxter, the "humanoid" robot is commercially available. With two arms and a computer screen for a face, it is designed for applications like machine-tending and packaging, and can retail for $25,000. Steinfeld said the research team is looking at ways it could prove useful for helping a blind person identify items they are holding, or tracing directions for how to get through a space onto the person's hand to reinforce information communicated verbally.

Smartphones and mobile applications are also important components of the research.

For instance, an expert in blind navigation, or another trusted source, might mark-up a path through a transit station using a smartphone app. This information would be shared not only with blind and visually impaired app-users to help them get through the station, but also with the robots, who could factor it into the guidance they might offer.

The idea, Steinfeld said, is to design a system of robots and smartphone technology that can provide "deep local knowledge of what's going on in the station and in the surrounding areas around the building, so that you're getting appropriate information for the time and place."

"You can do some really interesting combinations when you take a systems level approach," he said. "You don't want to have just a freestanding robot, or just a smartphone."

The principal investigator on the project

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is another associate research professor at Carnegie Mellon's Robotics Institute, M Bernardine Dias.

Dias has also headed-up a project called NavPal, which seeks to offer a number of tools to help blind and visually impaired people navigate in urban environments. These include a mobile app that offers audio directions, an online tool that allows for pre-planning of indoor routes and software for creating and editing maps of buildings.

other Metro stations as well.

The directions and descriptions can be downloaded as audio files, or accessed over the phone through a dial-in service.

People can also get the directions through the ClickAndGo Wayfinding mobile application, which became available earlier this year. The goal is for the app to interact with the beacons once they are installed, providing additional information as a person moves through a station.

"It doesn't teach a person how to travel, it's basically just a map."

BRANDON COX, SENIOR DIRECTOR OF REHABILITATION AND EDUCATION SERVICES, COLUMBIA LIGHTHOUSE FOR THE BLIND

A $978,571 National Science Foundation grant is funding the assistive robotics research. It is currently scheduled to last through 2019 and will also look at how robots can assist blind and visually impaired people during emergency evacuations from buildings.

The beacon project that is getting underway in Washington, D.C., will build on the Columbia Lighthouse for the Blind's earlier work involving the city's Metrorail system.

Last year, in collaboration with a St. Paul, Minnesota-based company, ClickAndGo Wayfinding Maps, the group launched a website that provides 110 sets of audio directions to guide people between the Gallery Place-Chinatown Metrorail station and nearby locations. The site also features audio descriptions of the layout and entrances of

With Innovation, There's Some Skepticism, Too

CLB's Cox is not quick to embrace the latest gadgets and apps designed to help the blind.

"I'm very skeptical of any kind of blind tech," he said.

What he likes about the beacons, and the technology that ClickAndGo provides, is that they're not overwhelming and are also free to use. "We also like the fact that it doesn't teach a person how to travel, it's basically just a map," he said.

If the beacons prove to be successful after they are installed in the initial five to seven demonstration stations, Cox said Columbia Lighthouse will press the Washington Metropolitan Area Transit Authority to put the devices in all 91 of the system's Metrorail stops.

The Metropolitan Washington Council of Governments approved a total of $250,000 for the beacon project. Of that amount, $200,000 is from a Federal Transit Administration grant.

The money will also pay for route and stop descriptions, and high-resolution maps to aid people with low vision, for the stops where the beacons are installed. The beacons themselves tend to cost about $35 each and run on lithium batteries, according to Cox.

"It's not going to be this huge investment into physical infrastructure," he said.

While she was not referring to the work Columbia Lighthouse for the Blind is doing, Loughrey, the specialist for the Pathfinder School in Pennsylvania, did say that it would be useful to have detailed audio descriptions online about facilities like airports and major subway stations.

But she also acknowledged that a Baxter-style robot in a station could be useful as well, because there's not always time to do research on a facility beforehand.

As for the guide-bot, she said: "That would be pretty cool."

But Loughrey also highlighted a more fundamental problem that blind people encounter when navigating cities, one that new technology may not necessarily solve.

"The inconsistency, there's no standard," she said, noting that everything from floor textures demarcating dangerous areas, to audible signals at crosswalks vary from town to town.

"A lot of people have very interesting ideas about how to make things more accessible, and some of them work beautifully, but if you don't live there, and aren't familiar with them, they aren't very helpful," Loughrey continued. "It's a challenge, and almost a game, traveling right now, because you do have to really prepare, and you have to think it through."

"You have to have really good travel skills," she added. "No matter how good the technology gets."

"Everything from floor textures ... , to audible signals at crosswalks vary from town to town."

BRENDA LOUGHREY, TEACHER

ROUTE FIFTY

With Open Data, Delicate Questions Arise Over When to Release What

In Philadelphia, the process for publishing municipal data can be a balancing act.

BY BILL LUCIA

Stored in a mainframe database in Philadelphia is a vast number of records about financial payments the city has made.

City staffers tried diving into that data about a year-and-a-half ago. Their goal, according to Philadelphia's chief data officer, Tim Wisniewski, was to see if the information in the database could be published on the city's open data portal. But some of what they found in a column of data that contained descriptions of each transaction was quite sensitive. Information like Social Security and credit card numbers and names of foster care recipients.

"Those are only the things that we happened to stumble upon," Wisniewski said in an interview. "The problem is that's a decentralized system, so no one person actually knows all the stuff that's in there and what to redact even if we could do it automatically."

Wisniewski and the other city staff considered removing the transaction description column. But then they noticed that one of the categories in the database documented fees paid for legal settlements. "We thought, wow, what if those are the settlements that we agree not to disclose the amounts for," he said. "Are we then violating our settlement agreement?"

"These are the types of questions that make a dataset like that hugely complicated," Wisniewski said. "And god forbid we put something like that out there and the city gets sued."

Philadelphia is considered a leader when it comes to local government open data. The Open Knowledge Foundation ranks the city fifth out of 98 U.S. cities in its Open Data Census. To date, city departments there have published 171 datasets. These cover a broad range of areas, such as the city's operating budget, crime, contracts and property assessments.

But there are thousands of other datasets from more than 50 departments across the city that remain unpublished.

Deciding which ones to release sooner, rather than later, is an ongoing and complex challenge. It's a balancing act the city is trying to manage by factoring in both the public value certain data can provide, and the cost, time and departmental support required to get it online.

To work through decisions about what to release, Philadelphia rolled out a new process last fall. This involved creating a comprehensive

Philadelphia is also looking to gauge demand for various types of data.

inventory of all the datasets each city department produces. The city is also looking to gauge demand for various types of data. One way it is doing this is through an Open Data Advisory Group. The group includes academics, technologists, transparency advocates and others from outside city government.

Wisniewski has played a key role in advancing these efforts.

"I think he's been a leader in terms of trying to be thoughtful about how the city understands what data it holds, and prioritizing the release of data that is of interest to people," said Emily Shaw, national policy manager at the Sunlight Foundation.

She added: "He's really pushed forward a model we like."

Open data is seen as valuable for a wide range of reasons. For instance, putting city budget figures online in an easy-to-digest format can offer residents a window into how their local government is using tax dollars. Journalists and watchdog groups can use readily available datasets to glean information about how agencies are performing. And, across the country, developers are using municipal data to support mobile applications meant to improve the way government functions and services get delivered. These apps provide information and insights about things ranging from blighted properties to bus arrival times.

But, as the financial payment database example illustrates, there are a number of roadblocks a city can encounter when trying to publish a dataset online.

In addition to the difficulties related to redacting private or sensitive information, Philadelphia has hit other technical hurdles as well. For instance, some pending releases in the city have been bogged down by the steps required to get data off of the city mainframe, and into a format where it can be shared with the public and updated automatically.

On a webpage featuring Philadelphia's own data census, which looks at datasets that have and have not been published, there's a scatterplot chart. On the vertical axis is the demand and impact of a given dataset, on the horizontal axis is the cost and complexity of getting it online. Much of the low demand, low-cost data is available. But the top right corner of the chart is peppered with about 30 red dots showing high demand, high-cost data that is unreleased.

"There used to be more dots in that quadrant," Wisniewski noted. He also pointed out that some of the datasets that are classified as unreleased on the chart involve records that exist in paper format, or information that is available online, but not through the open data portal.

The city's current push to open more data

can be traced back to an executive order that Mayor Michael Nutter enacted in 2012.

There have been some bumps along the way.

The city's first chief data officer, Mark Headd, stepped down last April after a disagreement over granting wider access to a property tax balance dataset. Following his departure, he knocked some aspects of the city's approach to its open data initiative.

That said, Headd acknowledges that Philadelphia is making strides. "I'm not criticizing what they're doing, I think they're a clear leader in this area," he said in an interview. He added: "I love what the city of Philadelphia is doing with the advisory board."

was overwhelmed by a scraper during his tenure.

Asked about his predecessor's concerns, Wisniewski said the city has analyzed public records requests, called "right-to-know" requests in Pennsylvania, and is taking these into consideration. "They are an indicator, but they're skewed towards journalists and attorneys, nonetheless that's an indicator, that's a starting point," he said. "We're expanding that to include more communities." He also reemphasized the importance of the dataset inventory, saying: "The problem with right-to-know is people don't know what data exists."

As for scraping, he said the property data that has been most frequently targeted, will be

> **"The problem with right-to-know is people don't know what data exists."**
>
> TIM WISNIEWSKI, CHIEF DATA OFFICER, CITY OF PHILADELPHIA

From his perspective, Philadelphia has had two blind spots when it comes to prioritizing which datasets to release.

One, he said, is that the city doesn't give enough weight to the number of public records requests for particular datasets. The other is that it does not consider which data gets most frequently "scraped." Web scrapers are small pieces of software that can be used to extract data that is available on a website but not in an open format, meaning that a person can't download all of it, in bulk, at one time and easily analyze it, or compare it to other data.

Web scrapers can slow down, or even crash websites. Headd said a city site in Philadelphia made available for bulk download.

"We prioritized that because there's public demand around it," he said.

Getting a better grasp of where public interest lies has also been useful for Wisniewski as he has had discussions with city departments about opening up more of their data.

"It's been helpful for me, at least internally," he said. This, he explained, is because he can illustrate to departments that they're not being asked to drop everything else they're doing and focus an outsized amount of attention on releasing huge amounts of data. But rather, they are working toward making specific high-demand datasets more readily available.

“There’s some datasets that just don’t make sense to publish on the Web.”

TIM WISNIEWSKI, CHIEF DATA OFFICER, CITY OF PHILADELPHIA

In the view of Wisniewski’s predecessor, Headd, there’s another issue that can sometimes come into play during discussions between data officers and city departments.

“When people have data to evaluate the performance of government they can start to ask tough questions,” Headd said. “A shrinking minority in government are not necessarily comfortable with that dynamic.”

Wisniewski, however, pointed to data related to performance, such as 311 service requests, that Philadelphia has either released, or is working toward publishing online. He also recognized that there are limits around what data might eventually end up on the city’s portal.

“There’s always going to be datasets that you do have to put in a right-to-know request for,” Wisniewski said. “There’s some datasets that just don’t make sense to publish on the Web.”

Going forward, he would like to see open data integrated more deeply into the way the city does business.

A good example of this, in his view, is Philadelphia’s bikeshare program, which launched in late April.

From the program’s start it incorporated a live feed of JSON data, which includes information about docking station locations and available bikes. Conversations about how to make the bikeshare data publicly accessible, and shareable across departments, began during the request for proposals process for the program, according to Wisniewski.

“What we’re aiming for,” he said, “is that when you build a new program, or initiative, or department, that from the beginning you’re talking about how can the data be shared, at least internally, how can we capitalize on the data we’re producing here to maximize government efficiency, and also how are we going to share this with the public.”

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ROUTE FIFTY

When Disaster Strikes, Mobile Strategies Can Help Local Governments Respond Better

And as Napa County has demonstrated, IT security doesn't necessarily have to be sacrificed in the chaos.

BY MICHAEL GRASS

When a 6.0 magnitude earthquake shook parts of Northern California early on a Sunday morning last August, Napa County government personnel soon discovered that the designated location to assemble an emergency operations center in the county administration building was unusable.

Parts of the ceiling fell in and pipes inside the building ruptured, causing extensive water damage.

County government personnel quickly regrouped and assembled a new emergency operations center at the sheriff's department to help manage the response.

While getting a new EOC—and the IT systems needed to support it—up and running during an unfolding disaster response situation might seem daunting, it was easier than you might think thanks to the flexibility of mobile technology.

In this case, Napa County's government works with Sunnyvale, California-based Good Technology, which specializes in secure mobility and offers a mobile management suite for the private and public sectors.

"We had to activate a handful of new users ASAP," Gary Coverdale, the county's assistant chief information officer and chief information security officer, said in an interview. "And that was easy to do. . . . You just download the app from Apple. And you key in the PIN number that we provide. It was really smooth."

While firefighters and paramedics might first come to mind when it comes to responding to a disaster like an earthquake, a local government's IT response, in some ways, can be of more critical importance.

That was especially true in Napa County, where the Aug. 24 earthquake ended up causing one death, more than 200 injuries and, according to initial estimates, up to $1 billion in damage.

"We have a handful of iPads not ever being used, updated and fired up and tested but not used" until a disaster response situation when they're deployed to communicate with area hospitals, Coverdale said. "When you provide and set up these things, you'll think, 'Oh, we'll never have a disaster. And of course, we had one.'"

Overall, between 400 to 500 county workers, roughly one-third of the Napa County government's workforce, had to be relocated in

BEN MARGOT/AP PHOTO

the quake's aftermath. "We had to move a lot of people around," Coverdale said. "The mobility really helped."

Disaster situations, unfortunately, can sometimes attract attacks from those who sense there may be security vulnerabilities to be exploited.

"In a lot of [disaster] events you drop your security posture for the sake of getting people up and running," Coverdale said.

network as a whole."

For Napa County, this extends way beyond disaster response and into its regular daily operations. More and more, county departments, which are less and less tied down to the constraints of brick-and-mortar buildings these days, are utilizing mobile technology.

That includes law enforcement personnel and county inspectors who are out in the field daily. But it also extends to other departments,

"In a lot of [disaster] events you drop your security posture."

GARY COVERDALE, ASSISTANT CHIEF INFORMATION OFFICE, NAPA COUNTY

But it helps when somebody else is worrying about the security of your mobile assets when you have more important things to worry about, like responding to a damaging earthquake.

That's where Good's mobile security platforms have been an important IT asset.

"Right now the cybersecurity issues have become much more higher order in terms of what's on the mind of government officials at every level," Chris Roberts, Good's vice president for public sector, said in an interview. "They are much more deeply concerned about making sure information is secure and that this doesn't become a weak point or a vulnerability in the

such as child protective services and child welfare services.

"We do a lot of picture-taking with the iPads," Coverdale said. "And those are highly protected pictures."

When sensitive information is being captured, it's usually best to err on the side of being overly cautious.

"We're not the [National Security Agency], we're not the Atomic Energy Commission," Coverdale said. "It's probably overkill. But if we lose a device, it's a safe harbor. We know it's protected. We know it's encrypted. So it's an incident but not a breach."

ROUTE FIFTY

Local Government Takes a Backseat in Charlotte's Energy Initiative

Envision Charlotte has a bold plan for 20 percent energy savings in Uptown by 2016 and the nonprofit framework to make it happen.

BY DAVE NYCZEPIR

When stakeholders in Charlotte, North Carolina, decided to reduce energy use in the Uptown central business district by 20 percent in just five years by 2016, they opted against a traditional governmental approach and framework.

The nonprofit group shouldering the task, Envision Charlotte, includes city and county government, university, utility and corporate representatives on its board of directors.

Executive Director Amy Aussieker, in an interview, called it a "public-private-plus partnership" and while it might surprise outsiders unfamiliar with the history of collaborative, community-focused sustainability efforts in the nation's second-largest financial center, it's a model she said that others can learn from.

"I think one of the great benefits is that Envision is not a government entity. It is a 501(c)(4), where government is at the table," Rob Phocas, the city of Charlotte's energy and sustainability manager, said in an interview.

"Not only do you avoid the stigma of it being another government project, but it just provides more flexibility in terms of procurement—getting you out of an area that can slow things down."

In fall 2010, Charlotte Center City Partners, Duke Energy CEO Jim Rogers and Intelligent Buildings announced the 20 percent energy-reduction goal, and by 2011 "shadow" meters were being installed in most of Uptown's buildings of 10,000 square feet or more.

The meters, paid for by Duke Energy, collect energy data that's used to brainstorm new ways to find efficiencies and track savings. An impressive 61 out of 64 Uptown buildings that had been targeted agreed to have the meters installed, including the Bank of America headquarters and Wells Fargo eastern headquarters.

Envision's efforts make it cheaper to do business and thus easier to attract tenants, Aussieker said.

"For us it's been a great economic development tool, and Charlotte is a business city," she said. "To show we've saved Uptown businesses $10 million is huge."

That number was determined last summer when Duke Energy confirmed 8.4 percent energy savings had been achieved—6.2 percent from behavioral changes.

To improve upon that, Duke Energy's Smart

SERGE SKIBA/SHUTTERSTOCK.COM

Energy in Offices program encourages tenants to do little things like turn off office lights and unplug phone chargers not in use.

Engineering and architecture students at the University of North Carolina at Charlotte's Center for Sustainability Integrated Buildings and Sites started holding energy roundtables, where they meet with property managers and engineers and tell them the best ways to find more energy efficiencies.

Hall into the sustainability initiative.

"Other cities should decide what mediums are important to them: just energy, energy and water or something completely different like green space and figure out key partners to get at the table," Phocas said. "Collaboration is the key to success."

Because Charlotte is trying to position itself as a smart city, City Hall is "in lockstep" with Envision on all its initiatives, Aussieker said.

"Collaboration is the key to success."

ROB PHOCAS, ENERGY AND SUSTAINABILITY MANAGER, CITY OF CHARLOTTE

New Envision energy savings numbers, showing improvement, are expected in the next few weeks, Aussieker said.

The first energy audits were critical to corporate leadership buying into the program at high levels with "the economic message carrying the day more than the environmental," Phocas said.

Mecklenburg County Sustainability Officer Heidi Pruess and Phocas are their governments' representatives on the Envision board, which meets almost daily, Aussieker said.

Phocas has been working to seek approval for water sensors to be added to utility poles and oversaw the incorporation of the Charlotte-Mecklenburg Government Building and City

Water and waste transmitters in 15 Enevo waste receptacles and haulers continue to be calibrated to set benchmarks that will help gauge program effectiveness when data collection starts in about two weeks.

"What's interesting is new Uptown buildings are calling us, even though they're outside our footprint, wanting to be an Envision building," she said. "Twenty percent [energy savings] in California is a lot more than 20 percent here, so there's a compelling argument for cities to continue to get involved in an initiative like this."

ROUTE FIFTY

An Interview With Tucson Mayor Jonathan Rothschild

Smart planning, economic development, water and relations with Mexico are among the top issues for this growing Southern Arizona city.

BY TIMOTHY B. CLARK

Tucson Mayor Jonathan Rothschild is an activist Democrat who is using all the tools of government to promote the economic health of this Southern Arizona city, the state's second largest.

His task is not easy, for the city and surrounding Pima County face a variety of compelling problems: dependence on the military in a time of retrenchment and change, water supply issues on the horizon, budgets suffering from reductions in aid from state and federal sources, and the immigration issues that flow from its proximity to the Mexican border.

As it addresses these issues, the city also occupies an interesting niche in the national political landscape, a Democratic stronghold in one of the nation's most conservative states.

Rothschild, Tucson's mayor since 2011, kindly granted me more than an hour of his time this spring, giving me his perspective on the city and its prospects. He is a lifetime resident, long active in civic affairs. As a member of the city council, his vote counts no more than the other six members—all Democrats—in the city's weak-mayor and city manager form of government. But he serves an important role representing the city and mobilizing opinion to support the council's goals.

I was particularly interested in how the city was working to encourage economic growth—and the interplay of outside forces affecting the city's economic prospects. We began by talking about downtown development, touched on his efforts to create a binational economic growth initiative with Mexico, and discussed the future of Davis-Monthan Air Force Base, one of the area's largest employer, among other topics.

Downtown Development

Tucson is a low-rise city, with mile after mile of single-story structures surrounding a small core with just a few mid-to-high rise buildings. Its population in 2010 was 520,000 in a metropolitan area that's home to about 1 million people. Median household income in 2013 was estimated at $43,822, about $8,500 below the national average.

The city's core has seen a much-needed boost with the coming of a new streetcar line, 3.9 miles of track and gleaming new streetcars

TODD TAULMAN/SHUTTERSTOCK.COM

"We don't want sprawl. Sprawl hurts everyone."

JONATHAN ROTHSCHILD, MAYOR, CITY OF TUCSON

connecting the University of Arizona campus with downtown and beyond. Streetcars stop at the Fourth Avenue shopping and entertainment districts, downtown Tucson, the Tucson Convention Center and the Mercado District under development west of Interstate 10.

Planning for the streetcar began in 2006, and the project got a big boost in 2010 when it received a $63-million grant under the federal stimulus-funded Transportation Investment Generating Economic Recovery (TIGER) program. It opened service last July and so far ridership is exceeding expectations.

The mayor gives the streetcar some of the credit for a surge in new business downtown. Together, public and private investment in the area the line serves has totaled roughly $1 billion, he said. Two new hotels are set to open before long, and restaurants and retail establishments are up and running. The city government has taken advantage of various state-authorized incentive programs to encourage developers. The city's own "primary jobs incentive" program offers to waive fees for developers whose projects will produce at least 25 new jobs paying more than 125 percent of the median wage, or about $52,000 a year, along with health care policies covering 75 percent of costs. This and other incentives have encouraged many tens of millions in new investment, the mayor has said.

And the mayor has been encouraging "infill," the use of undeveloped or redeveloped land toward the center of the city. "We know it can be cheaper to develop vacant land" on the outskirts of town, he said in a recent "State of the City" address. "But we don't want sprawl. Sprawl hurts everyone."

As we talked, the mayor cited three motivations: the strong conservation ethic encouraged by the famous local conservationist, U.S. Rep. Morris K. Udall, during his long political career in Tucson; the desire of young people to cut transportation costs and to live closer to their jobs; and "the idea of" creating a vibrant core city. The city is encouraging all kinds of residential development and in its wake, entertainment, restaurants "and all those things that make a community active," he said. He estimated that the city is about half way along the path to a revitalized urban core. Other nodes of commercial development might follow, Rothschild said, in the wake of downtown renewal. He is pursuing changes in the city charter that would grant Tucson a large increase in bonding capacity to finance needed infrastructure.

Rothschild's vision of a vibrant downtown has just received a strong endorsement from one of the nation's leading urban planning experts, University of Arizona professor Arthur C. Nelson. In a column for the *Arizona Daily Star* on

April 19, Nelson wrote that "downtowns across America are watching downtown Tucson for the lessons it is already offering them."

International Reach

Of Tucson's largest employers, only one is a private company, Raytheon, which manufactures missile systems in the metro region. The University of Arizona is the No. 1 employer, with about 12,000 on staff (a number that's being reduced as a result of state government cutbacks). Raytheon is second, at 11,400, followed by Davis-Monthan Air Force Base, with 10,900 employees. Pima County, the U.S. Border Patrol and the Tucson Unified School District, with workforces in the 6,000-7,000 range round out the top five.

Raytheon is a stable, and likely growing, employer. To give the company room to expand, Pima County and other funders are moving a road, and the April 1 groundbreaking for the new project, the South Side Aerospace Highway, attracted Rothschild and all of the state's top elected officials.

Davis-Monthan Air Force Base has been of concern to local authorities inasmuch as the Air Force has long wanted to retire its fleet of A-10 Warthog close-support aircraft. The base is host to the AF 355th Operations Group, whose five squadrons operate 83 A-10C aircraft. About 2,000 jobs are tied to the program. First built in the early 1970s, the A-10s are falling prey to technological advance and shifting budget priorities in the Air Force. Last year, Defense Secretary Chuck Hagel proposed retiring the entire fleet. But Congress resisted, and now, U.S. Sen. John McCain of Arizona is wielding his power as chairman of the Senate Armed Services Committee to defend the program. Tucson's new member of its delegation to the U.S. House of Representatives, Rep. Martha McSally, herself a former A-10 pilot, made the case for retaining the program in an April 20 column in *The New York Times*.

> **"Downtowns across America are watching downtown Tucson for the lessons it is already offering them."**
>
> ARTHUR C. NELSON

Looking forward, the mayor is working with state and county government officials, Arizona' congressional delegation and business leaders "to develop the best possible case for Southern Arizona's military institutions." Davis-Monthan has many strengths, including great flying weather, proximity to a large live-fire range, and a variety of important support units in command and control, communications, electronics, engineering, pararescue, unmanned aerial vehicle operations and more. It also serves as the Air Force's "boneyard," where retired aircraft are kept outdoors in storage or to provide spare parts.

"Our city is 43% Hispanic with families going back 300 years to those who arrived three months ago."

JONATHAN ROTHSCHILD, MAYOR, CITY OF TUCSON

The A-10 has been of central importance to the base, however, and its eventual retirement will leave a hole. The mayor would like to position the base for the future as "a central operations base" with the command and control, air support and logistics capabilities to mount a comprehensive response to crises wherever they arrive, he said in his annual address. That concept would probably not rely on permanent basing of Air Force aircraft at Davis-Monthan.

A report spells out the operations base idea in detail. Commissioned by the city and written by Barry Blechman of the nonpartisan Stimson Center, the report will "serve as a baseline going forward," Rothschild said as it was released on April 18.

An important initiative the mayor has pursued has been improvement of relationships and trade with Mexico. The federal government in February concluded a sweeping upgrade of the Mariposa Port of Entry in Nogales, about 60 miles from Tucson. Already Arizona's busiest border crossing, Mariposa tripled its capacity to handle northbound traffic at a cost of more than $200 million in federal funds. But once across the border, vehicles face a two-lane bottleneck. So the mayor has been pushing, along with others, to speed up state funding to widen State Road 189 and improve the southern sections of Interstate 19.

Rothschild spoke passionately about his outreach to Mexico. "Our city is 43 percent Hispanic," he said, "with families going back 300 years to those who arrived three months ago." He alludes to harsh anti-immigration rhetoric and policies found elsewhere in the state, and said his outreach hoped to convey "that what they were reading in the newspaper, hearing from elected officials, was not the general feeling of the people of Arizona, and that we wanted to work together" to improve cross-border relationships.

Rothschild is an active proponent of the Arizona-Sonora Binational Megaregion, created a year ago by governments on both sides of the border to promote commerce and trade. He talks of world-class manufacturing plants built over recent years on the Mexican side, and said the cross-border area is a manufacturing and logistics powerhouse—joining "the ranks of other manufacturing megaregions such as Chi-Pitts and Charlanta." He's encouraged production of an "Arizona-Sonora Business Guide" listing 1,200 businesses in the "megaregion." More than 300 business and government leaders from both sides of the border attended a "Borderlands Trade Conference" last May, he reported.

Water and Beyond

Tucson was blessed this spring with more rainfall than normal, and the desert was in spectacular bloom during my visit. But water is certainly a challenge to the economy of Southern Arizona, as it is in much of the parched West. It's expected that the Central Arizona Project, which controls flow of the Colorado River, will for the first time declare a "shortage" in 2016 or 2017, as storage levels in Lake Mead decline to a tipping point. That would likely bring cutbacks throughout Arizona, which was the junior partner when the Colorado River Compact was negotiated in 1922.

program that could protect against drought and cut costs of pumping water from underground aquifers to consumers in Tucson.

In this and many other projects, the mayor is working in a complex intergovernmental maze. The airport authority, for example, is an independent body that looks to Rothschild to help assemble the right people if an airline wants to discuss a new route to Tucson. Direct flights to East Coast cities are off the table at the moment, but tourism still is "ticking up" with the economy, the mayor said.

The city also benefits from grants from

"We all need to be constantly vigilant about conserving our water."

JONATHAN ROTHSCHILD, MAYOR, CITY OF TUCSON

"We all need to be constantly vigilant about conserving our water," the mayor told me. And, indeed, the city has been proactive over the years. It has incentives for low-flow toilets, methods of catching rainwater, use of graywater and more. It has conducted a lot of public education. The city water authority is upgrading to smart meters that can monitor water usage in real time, and catch leaks before consumers do. Water pricing also has sought to discourage waste. Whereas in Phoenix, a traveler sees a lot of grass on lawns and in public spaces, Tucson is home to a lot of xeriscaping.

Now, the city is working with Phoenix to build common facilities for storing Central Arizona Project water underground, a pilot

Washington and the state capital—grants that have been on the decline in recent years. It's a trend that prompts the Mayor to tell me: "I believe, not that I wish it to be this way, that the only people who are going to take care of us here in the valley is us."

On immigration, he hopes to bring the city's sizeable undocumented workforce "out of the shadows," to the benefit of the local economy, but cannot do much without help from Washington and Phoenix.

The Education Challenge

Rothschild is passionate and active on education issues, even though he has less power in this arena than in others. School districts

“If you don’t properly fund education, it is very difficult to produce the right results.”

JONATHAN ROTHSCHILD, MAYOR, CITY OF TUCSON

are the creatures of, and report to, the state government. And under the tax-cutting, low-spending regime of Gov. Doug Ducey and the GOP-run legislature, state funding for K-12 isn’t enough to meet Tucson students’ needs in the view of local leaders.

The mayor encouraged business leaders to get involved, and in his state-of-the-city address, he thanked the Tucson Metro Chamber of Commerce for sending a letter to Ducey and legislative leaders “urging increased funding for our public schools.”

Rothschild has been active in the Arizona Mayors Education Roundtable, which has focused on promoting literacy by third grade and assuring that high school students graduate. He has organized “Steps to Success” program he has helped organize, he and other volunteers have knocked on the doors of dropped-out students, prompting more than 250 to re-enroll.

“We are a university community that values education,” he said. “If you don’t properly fund education, it is very difficult to produce the right results. And if you are trying to attract businesses here, their first question is how is your education system? They want an educated workforce, and they are bringing families and want to make sure their kids get a good education.”

“You know these legislators making these cuts say: ‘Look, we have only so much money available.’ But the question they’re not asking is: Should we be trying to raise more revenue?”

ROUTE FIFTY

About the Authors

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