

GOVERNMENT TECHNOLOGY

SOLUTIONS FOR STATE AND LOCAL GOVERNMENT

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Key apps move
to the cloud

Funny Money:

What you should
know about Bitcoin

Collateral Damage:

Will NSA spying
program tarnish
open data?

PLUS:

San Francisco
CIO **Marc Touitou**

THE SEARCH FOR TALENT

**READY TO REBUILD
YOUR WORKFORCE?
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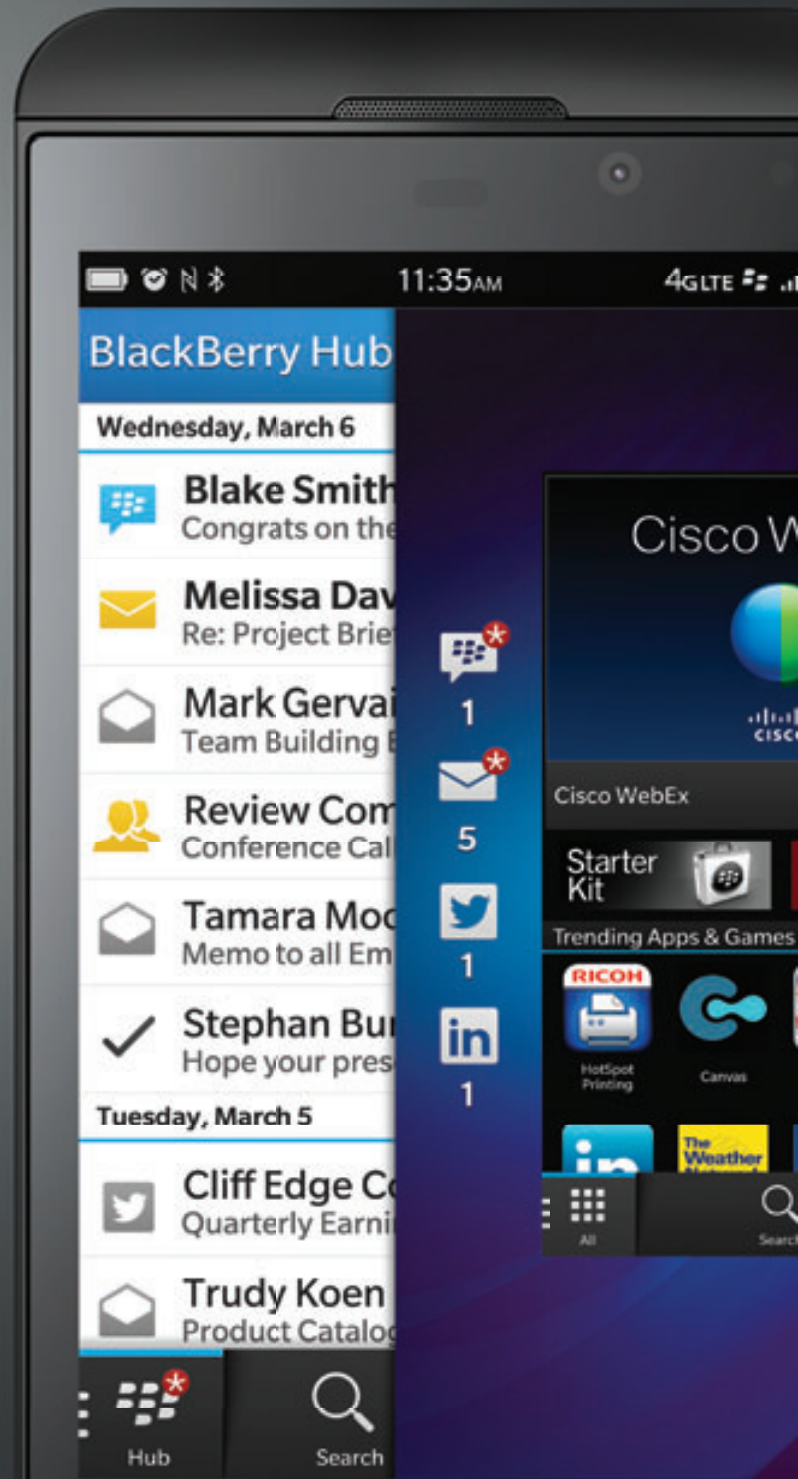
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PETER YATES



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Investing in the Future

Ask state and local CIOs around the country what they're worried about and pretty quickly you'll start hearing about workforce issues. Nearly everyone is wrestling with some form of HR challenge, from replacing baby-boomer retirees, to retaining existing staff as the private-sector job market rebounds, to retooling employee skills to match a new services-centric IT environment.

That's why Tennessee CIO Mark Bengal is on the cover of this issue. His state is undertaking one the nation's most interesting and ambitious efforts to remake IT hiring and training practices. Among other things, Tennessee is rethinking IT job classifications and boosting investment in staff training. The goal is to grow entry-level employees into multi-talented future IT leaders with a long-term commitment to state employment.

e.Republic's own research shows that Bengal — along with a few others in our cover story — is tackling some particularly tough problems for government managers. Our latest survey of state and local decision-makers and agency managers, conducted in June, indicates that public agencies continue to struggle to find good people and train them properly.

For instance, half of the survey respondents said their department lacks adequate staff to get its job done. Almost 70 percent said staff knowledge in their department

had stagnated or even decreased over the past year due to lack of professional development. Add the fact that almost 40 percent said their department had frozen hiring and pay raises and the picture really looks bleak.

Fortunately, the news wasn't all bad. Almost 50 percent were optimistic that their agency could attract and retain the young workers it needs, despite the challenges. And 60 percent said their department's employee compensation (including benefits) was either somewhat or very competitive with private-sector compensation packages.

It's imperative for government managers to leverage the public sector's advantages — and find smart ways to address its deficiencies — as they remake their workforces. And, to be sure, most workforces will be remade. Sixty percent of our respondents expected to lose between 10 and 30 percent of their staff to retirement over the next five years.

States like Tennessee are laying the groundwork to not only replace those retirees, but to also grow a new generation of workers with skills matched to today's technology needs. **GT**

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AN AWARD-WINNING PUBLICATION



Breaking down silos and enhancing communication in government

Improving Service Delivery Through Enterprise Social Collaboration

For public enterprises of any size, communication is critical.

For large government organizations, in particular, keeping everyone in alignment can be a substantial challenge. Commonly found silos can impede the free flow and availability of information, and this restrictive environment can lead to disjointed processes, sluggish workflows, miscommunications, and other inefficiencies. It also breeds citizen frustration, as navigating silos is even more difficult for outsiders.

However, government can fundamentally improve its internal and external communications and engagement through the power of new social collaboration tools. When cutting-edge social collaboration concepts are applied to the business of government, the results can be positively transformative.

Enterprise Social Collaboration Basics

Most well-known social media applications are geared primarily for personal use. (Twitter, a powerful tool for journalists, politicians, and others operating in the public eye, may be the exception.) Social collaboration tools, however, go far beyond the functionality of mainstream applications like Facebook. These tools have broad application in business and public sector enterprises when integrated into an organization's existing administrative and operational systems.

Installed on the foundation of existing work-critical systems, enterprise social collaboration tools enable more effective and fast communication, both internally (between employees) and externally (from the organization to citizens).

For internal use, enterprise social collaboration tools enable:

- **Communication via real-time social media tools.** This replaces the slow and inefficient reliance on meetings and email back-and-forths that are common in many agencies.
- **The sharing of information among an organization's different systems — procurement, financials, human resources, asset management, etc.** This maximizes data integration and access to information regardless of department and area.

- **Improved workflow because of instant communication among key stakeholders.** The free flow and availability of information facilitates stakeholder conversations and keeps everyone on the same page regarding project/task status. Mistakes and miscommunications are minimized as a result.

Externally, enterprise social collaboration tools can:

- **Help citizens receive the services and information they want and need online, much more quickly and painlessly than before.** Government is “opened up” to its citizenry, increasing transparency.
- **Generate greater public support for government projects and plans.** Using more effective communication enables greater acceptance for changes in policy, budget allocation, and revenue generation.
- **Increase citizen volunteerism and other forms of active participation in government.** Citizens can more easily find, follow, and take part in the public sector projects that interest them.
- **Enable 24/7 access to government.** No more strict 9-to-5 availability means greater citizen satisfaction and a more positive view of government as an effective steward of the public good.

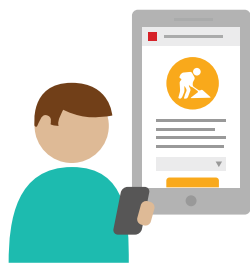
Adding to Your Enterprise Social Collaboration Toolset

Not all social collaboration tools are created equal. The key element to consider is integration with the organization's existing systems and processes. The right social collaboration tool provides integration along with ease of use and navigability to support seamless communication among stakeholders and observers.

One such tool is Infor™ Ming.le, a new offering which enables real-time collaboration and communication among an organization's existing areas, from human resources to procurement to asset management and beyond. This allows employees across all departments to communicate with each other instantly regarding ongoing projects and tasks — eliminating silos that formerly impeded the free flow of information.

Connecting citizens with their cities through social collaboration

infor



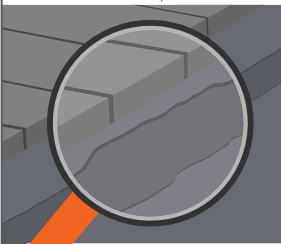
John, a citizen, reports a pothole on Berry St. using the Melville City Services app on his smartphone.



A work request is subsequently processed in the Infor Public Sector (IPS) suite.



Once Tim, a city inspector, receives the request, he visits Berry St. to prepare a work order estimating the priority of the work, the scope of the work, and the materials needed.



Carefully examining the site, Tim determines that the pavement failure is not due to a pothole, but in actuality a bad utility cut repair.



He subsequently updates the service request in IPS and assigns a work order.



This triggers an alert in Infor Ming.le™ to Serena, the supervisor for utility cut repairs; José, the engineering supervisor for street repairs; and John.

The Infor Ming.le feed also notifies José of a pending utility cut repair on a neighboring street that's resurfacing next week.



José notifies Serena that the scope of work for this repair can be included in the Berry St. project, saving the time and expense of sending a separate maintenance crew.

John is again notified of the change in status of his original service request, and the new plan of action for it to be resolved.



In the end, John was informed every step of the way, while the city was able to save time and money through the power of social collaboration.

Infor's Intelligent Open Network (ION) acts as the foundation for Infor Ming.le and allows smooth integration with third-party software applications already being used by an organization. An organization does not have to switch its entire software suite to use Infor Ming.le properly. Additionally, sensitive data can be secured and exchanged with Infor's industry-leading health data integration tools.

Several key features make Infor Ming.le an attractive option for organizations looking to embrace the power of social collaboration.

Contextual intelligence. Combine information gathered from core administrative and operations systems on a single screen in real time, drastically reducing time spent searching for data manually.

Tasks and alerts. Transmit transactional information to relevant parties in real time. Users can sign up to receive alerts on particular projects and tasks in progress. In this way, interested parties across departments can easily monitor progress, keeping everyone on the same page at all times.

Drillback. Infor Ming.le can "look behind the data" it displays, tracing it back to its original source. This allows users to see what factors are affecting the end data, and by extension, what step(s) should be taken to improve results in the future.

Social objects. "Follow" particular objects (tasks, projects, forms, etc.) throughout their lifecycle as they make their way through several different systems and departments. Users can elect to receive automatic updates whenever the status of the followed object changes.

Appealing interface. Infor Ming.le's fresh design interface makes the application easy to employ and encourages greater usage rates, as users can start taking advantage of Infor Ming.le's offerings without having to navigate a steep learning curve.

Implementing an Enterprise Social Collaboration Solution

Social collaboration is taking off in the public sector, with usage expected to increase markedly in the near future as government agencies look for new ways to increase productivity. By enabling employees (and constituents) to access data and communicate with peers more quickly and easily than ever before, enterprise social collaboration tools like Infor Ming.le can revolutionize the public sector workspace. Of course, in order to take full advantage of all the offerings such tools provide, the implementation process must be handled correctly. Best practices for implementation include employing a gradual, phased approach, typically starting in

just one specific service delivery area (or a small handful of areas). Start by creating a detailed plan that thoroughly outlines the tool's uses and strengths and explain to relevant parties how their department or agency will benefit. At the same time, interview employees and constituents to identify the pain points that social collaboration could address. Once the purpose and advantages of social collaboration are understood, launch it in a targeted delivery area and evaluate the results, using the observations to refine and improve the implementation process in subsequent areas.

Another approach is to apply social collaboration tools to a capital project or improvement that contains a significant degree of citizen interest. The tool's communication features will allow citizens to get more involved in the project throughout all phases, starting with planning, where feedback is especially valuable. Once the project officially kicks off, social collaboration lets citizens monitor and follow the project's process through completion. Showcasing the power of social collaboration in this manner can increase enthusiasm for it both externally and internally. This will encourage more rapid, widespread adoption of social collaboration tools throughout the enterprise as other departments and areas observe the benefits it brings.

Social Collaboration in Action: Des Moines, Iowa

The Des Moines Metropolitan Wastewater Reclamation Authority (DMMWRA) in Iowa was facing challenges similar to many other public sector entities nationwide. Information silos kept data on projects restricted to certain people and areas, slowing down progress. Collaboration was stymied by slow communications systems that relied on email and finicky two-way radios. Time that could have been used more proactively was instead spent on meetings to keep project stakeholders in different departments on the same page. The dynamic was workable, but it wasn't ideal.

"We couldn't easily tap the knowledge of our employees when we needed it," says Bill Miller, risk and reliability manager at DMMWRA.¹ "We knew we needed to improve collaboration across our teams."

Determined that social collaboration was the key to improving its operations, DMMWRA elected to implement Infor Ming.le. According to Miller, because of DMMWRA's successful track record working with Infor — it's been using Infor products in certain capacities over the past decade — the authority was confident that Infor Ming.le could deliver on its promises.

"We feel Infor is leading the pack in cutting-edge technology," Miller says. "One of the reasons we chose Infor Ming.le was the short time it took to deploy and receive value from it. That was a key factor for us. With ION as the middleware, we can design the workflows and alerts that feed Infor Ming.le, and those alerts can then be shared across the groups that share the program."

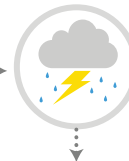
Empowering cities to solve problems faster with social collaboration



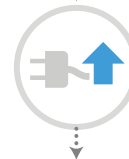
Des Moines Metropolitan Wastewater Reclamation Authority (DMMWRA) **saves more than \$200,000 per year in electricity costs** through their use of Infor software (source: DMMWRA)



Sam, an operator at the Lloyd, MI wastewater facility, is **alerted by the city's EAM system** that a major pump is scheduled to be taken out of service for a week.

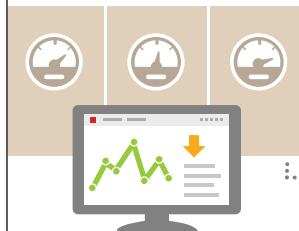
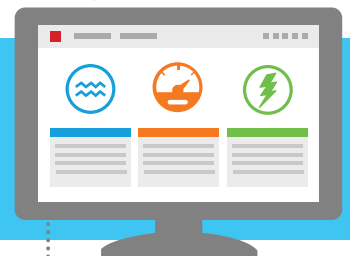


However, it's been unusually rainy lately, and average **daily flows at the plant are well above normal...**



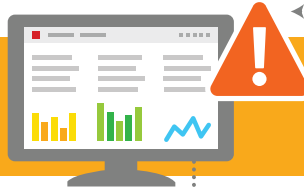
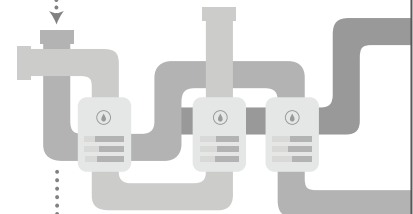
...while weekday **electricity usage is at peak summer rates.**

Rob, the city's maintenance manager, and Sam use the **Infor ION dashboard to monitor vibration data, pump run times, and electricity usage.**



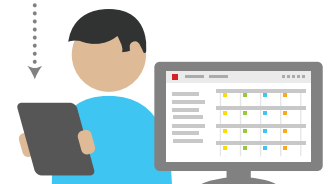
Then, using the EAM analytical tools, Sam calculates that **the city cannot afford to take the pump out of service** due to the current rates of flow.

Plus, the city needs the pump to run in order to **reduce the pumping rates across the plant.**



Rob is following maintenance schedules by pump in Infor Ming.le™, and sees an alert from Sam that he needs to **change the pump's maintenance schedule.**

Rob adjusts the schedule in EAM, which **automatically triggers an alert in Infor Ming.le**, letting plant supervisors know that they need to amend work crew assignments.



As a result, the facility swiftly met all compliance and financial goals while ensuring essential maintenance work got scheduled, all with minimal meetings and messages saving the facility valuable time.

So much of this was out of the box; that's where we found the immediate value."

With much of the Infor Ming.le solution now in place, Miller says, DMMWRA is seeing significant improvements in communication and collaboration throughout its workforce. "Being able to centrally collaborate on anything is a big benefit now," Miller says. "It's much easier than following email or listening to two-way radio transmissions. Everything is stored and is searchable."

One of the biggest benefits is Infor Ming.le's tracking feature, which allows relevant parties to track the progress of tasks and projects in real time. "They like how you can post a work order and all information pertaining to that work order is accessible to the other craftsmen," Miller says.

Overall, Infor Ming.le has greatly improved productivity and efficiency at DMMWRA — and cut down on meeting times. "I truly feel you can eliminate up to 50 percent or more of your meetings," says Miller. "With a social workspace like this, a lot of information can be posted and shared instantaneously."

Enterprise Social Collaboration is Effective Collaboration

The public sector's traditional siloed structure has long been cited as an impediment to productivity and efficiency. Data is restricted behind department walls, employees working on the same project in different areas have difficulty staying on the same page, and frustration is the end result for all involved, including tax-paying citizens. But through the power of enterprise social collaboration, this old dynamic is becoming obsolete.

Enterprise social collaboration tools geared for the public sector can help eliminate miscommunication and other inefficiencies. Using the power of social media and adapting it to the government context, social collaboration tools like Infor Ming.le break down silo walls and

Making Moves with Infor Ming.le

Infor Ming.le provides government organizations with multiple benefits:

- **A more participatory government:** Infor Ming.le's innovative tracking and transparency features let constituents connect with government more easily and encourage greater involvement in public affairs.
- **An increase in productivity** thanks to the faster, more efficient communication that Infor Ming.le facilitates.
- **Knowledge retention and expansion** across the organization due to the free flow of information and easy access to data that breaks down silo walls.
- **Talent attraction and retention:** When communication is easier and information flows more readily, employee satisfaction increases, making the organization a more desirable place to join and stay long term.
- **Improved decision-making:** Stakeholders and others stay on the same page and receive critical information on projects instantaneously; more informed decisions are made, improving results.
- **A reduction in time-consuming tasks** such as unnecessary meetings, reports, and email traffic. Infor Ming.le's features ensure that all interested and relevant parties receive the information most important to them.

transform public sector work into a smooth, efficient enterprise. Internal stakeholders can communicate in real time and get up-to-the-minute updates on relevant projects and tasks. And citizens are more involved in government and receive information and services in a more timely manner. It's a new dynamic that leverages cutting-edge technology to bring workers, citizens and their government together like never before.

Endnotes

1. Interview with Bill Miller conducted on June 19, 2013.

Infor Public Sector delivers a comprehensive suite of integrated, government-specific solutions that drive civic planning and permitting, citizen relationships, asset and work management, utility billing, and regulatory compliance monitoring. Infor solutions increase operational efficiency, citizen satisfaction, government accountability, and process transparency and are transforming how governments provide services to citizens.

➤ For more information, visit <http://www.infor.com/industries/publicsector/>.





Calling All Vendors

When Wyoming began planning its fiber network build-out, it couldn't find a single vendor to meet all its needs, says CIO Flint Waters. Instead, Wyoming decided to manage its own system, negotiating contracts with nearly every independent service provider in the state.

The new model for infrastructure development allows Wyoming to accept bids from any chosen vendor for a given part of the buildout, saving the state money.

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\$88

The average price per breached public-sector record, according to an analysis of data breaches by Symantec and the Ponemon Institute.

Collaboration Backbone

Geospatial platform Collaborate.org will form the backbone of an initiative in Hawaii that will allow organizations across the state to share data. The Exemplary State Initiative — developed by Kevin Montgomery, founder of Intelesense Technologies, and U.S. Air Force Maj. Gen. Darryll Wong — is aimed at encouraging collaboration among diverse groups in the state.

"From environmental conservation, education, research and civil defense, water supply, power, all that different infrastructure — what if we could get those groups working together, accessing and sharing each other's data, leveraging each other's resources and really harnessing their shared knowledge and enthusiasm to make a system that then benefits everyone?" Montgomery said. "That is the Exemplary State idea."

And once the system is deployed in Hawaii, there's no reason it might not be repurposed in another state, Montgomery said, adding that because both systems would use the same backbone, there's no need to reshare data. Essentially, once data enters **Collaborate.org**, everyone else connected through the system can use it.

FLOKID/DAVIDD

“ This is no different than moving everything to a cloud vendor except the staffing went along with the systems. Cloud services are growing, Texas also recently moved 100K employees to Microsoft 365. Many other states are implementing cloud services also. This trend will continue because decreasing state workforce is a good political gain, which decreases pension cost, and IT is an easy target now because of the cloud. I don't see this reversing like the outsource decade, so we are entering a new world of IT.

Steve in response to TxDOT Moves IT Workers to Private Firm

“ The cost of wireless access is too high considering the push to make the Internet accessible to everyone. Wireless access is the only way rural households can connect and that is limited by weather, proximity to providers and more. Rural households cannot take advantage of any of the competition currently seen among wired providers in metro locals. Whatever happened to the BPL plan? Broadband over Powerlines is the only reasonably reliable method of access delivery — independent of a cloudless sky or trimmed trees.

RK in response to LTE Wireless by the Numbers (Infographic)

“ While it may have some advantages, the article fails to acknowledge the two potential issues. 1. Should NTT lose the contract in a couple of years, all of that in-house DOT IT business knowledge also leaves. 2. If the state wants to keep NTT to keep my No. 1 from happening, the contract fee will increase. While having some IT outsourcing is good, you still need to have a strong internal IT group to make sure the contractors are being held responsible.

Todd in response to TxDOT Moves IT Workers to Private Firm



Marc Touitou

CIO, San Francisco

FAVORITE QUOTE:

“IF YOU DO WHAT YOU ALWAYS DID, YOU’LL GET WHAT YOU ALWAYS GOT.”

think about it: If you want to look for a job, you need the Internet. You are at a total competitive disadvantage if you do not have access to the Net. So we should all care about that very much. And it’s not only the connectivity through Wi-Fi. Free Wi-Fi in the parks and the squares, in the bus, in the metro is one thing — but [residents] also should have easier connectivity at home because they can’t have their children go to the park to do their homework. From your childhood to your adulthood, you need the Net. Without it, you’re excluded.

3 What has been your toughest challenge so far? Alignment. San Francisco is very decentralized. If you compare San Francisco to Philadelphia, where I spent 10 years of my life, Philadelphia is much less distributed, it’s more centralized. So when the CIO says, “Let’s consolidate our data centers or standardize on this platform,” it just happens ... same thing in New York. Here, alignment is an issue, because there’s a tremendous amount of autonomy in the different agencies throughout the city, so it requires much more discussion. You need to visit all the stakeholders and explain why a new direction is more compelling or better.

4 What was the last story you read from your Twitter feed? The announcement on Apple that they’ll be able to lock your phone when it’s lost or stolen. I loved it because before I read that, I was in a meeting with the district attorney and the chief of police and they told me that the No. 1 problem on staff is cellphones, so if we could influence the phone operators to put what you have in Europe, the SIM locks, so that when somebody steals your phone, they can’t use it. **GT**

— By Karen Stewartson, Managing Editor and Colin Wood, Contributing Writer

In April, San Francisco Mayor Ed Lee appointed **Marc Touitou** as CIO. Touitou has more than 30 years of experience in the private sector. The multilingual IT chief was previously the senior vice president and CIO of Netherlands-based semiconductor developer ASML. During his first 30 days as CIO, Touitou created a project management office for IT. Government Technology spoke with Touitou about various technology topics.

1 What are your IT priorities? Priorities for fiscal 2014, which started July 1, are to complete the email migration and consolidate our data centers so that we can provide business continuity and disaster recovery. Also, free Wi-Fi in San Francisco is not just a myth — we can do that. I think there are ways to accelerate this dramatically, so I’m working on that very aggressive-

sively. We already have some opportunities to partner with vendors. My ambition is to have San Francisco in a grid that we are able to offer Wi-Fi to citizens in the next few years.

2 What’s your take on the Internet as a basic human right? Do you agree with it? Of course I do. It might sound extreme when you say it like that, but

OFFICE OF THE CIO

GOVERNMENT



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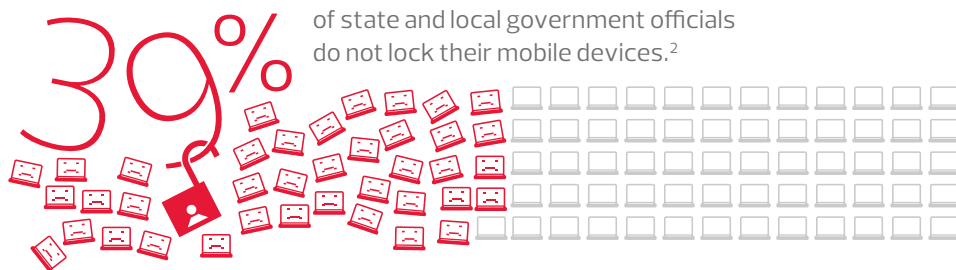


49%

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Thin Is In

Smartphones might be the biggest thing since sliced bread. But they may be about to get smaller — or at least thinner. **MorePhone** is a paper-thin smartphone developed by researchers at Queen's University's Human Media Lab based in Canada. The device is made of a thin, flexible electrophoretic display. Sandwiched beneath the display are memory alloy wires that contract when there's an incoming call, text message or email, thereby visually notifying users. The flexible phones could hit the market in five to 10 years.

Tennessee
CIO Mark
Bengel is
making big
changes to
recruit and
develop IT
talent.

By Brian Heaton
Senior Writer

CIOs are
rethinking
the hiring
process as
they seek
leaders to
replace an
aging IT
workforce.

W



Help
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As baby boomers near retirement age, public-sector CIOs face numerous staffing challenges. They must replace the knowledge and expertise of technologists leaving the workforce, and it must be done in a rapidly changing field where today's skill sets might not be relevant in the near future.

Those issues aren't new, but in many state and municipal governments, the percentage of IT workers eligible for retirement in the next five to 10 years has skyrocketed, making it a more immediate problem. With mass exodus of experience a distinct possibility, the situation has forced CIOs to re-evaluate the makeup of their IT workforce and how to attract young talent to public service.

The prevailing thought of many IT leaders is that if they invest in well rounded personnel with leadership skills, they can hang onto up-and-coming employees by moving them up the chain of command quickly and giving them diverse project responsibilities. To do that, however, the type of job candidate that government IT departments are looking for is evolving.

It's no longer good enough to be the best and brightest when it comes to server maintenance or programming. As many public-sector IT "lifers" who are experts on a particular system step down, CIOs plan to replace them with people they can groom for multiple jobs.

Ohio is a great example, with approximately 2,500 IT workers across 26 agencies and 70 boards and commissions. And in the coming years, nearly one-third of those employees are eligible for retirement.

Instead of rehiring the same position when an employee leaves, Ohio CIO Stu Davis is looking at the departures as a way to reduce the complexity of the state's infrastructure through consolidation and a transformation of the existing workforce. Current employees will be considered for promotion, and new

hires will be brought in at a lower level, trained and set on a path that helps them transition into IT leadership roles.

Davis explained that Ohio has had situations where an agency might have had a staff of 10 IT people and lost its top three workers to retirement. Through



OFFICE OF THE CIO

Raleigh's Gail Roper says it's getting harder to compete with private-sector employers.

an IT workforce transformation plan, he hopes to "fill the gap" with similarly skilled workers from other departments.

"We want to be able to pull people from the agencies who are familiar with those systems in some fashion or another," Davis said. "Not everyone will know the application, but certainly they know how to care for a server. And we can leverage them while we look at a shared solution down the road. That's what we've been trying to pontificate and evangelize, and so far it seems to be working."

The "silver tsunami" is also crashing down on Tennessee's IT workforce.

State CIO Mark Bengel explained that losing IT employees to retirement is particularly challenging in Nashville, where the unemployment rate for technology workers is just 2.8 percent. The state has a hard time competing with the private sector for young technologists.

To address the issues, Tennessee developed the Next Generation IT initiative, in which the state will focus on meeting future staffing needs by growing its talent pool through an investment in technical, communications and leadership training.

Tennessee has moved its IT hiring focus to entry-level positions through partnerships with state colleges and universities in order to get talent through the state's door. By standardizing the state's methodologies and practices across agencies, IT leaders can promote from within and hopefully retain promising employees.

To that end, Tennessee Gov. Bill Haslam's administration has authorized a program whereby all 1,600 state IT employees will reapply for their jobs. The idea is to align people with the appropriate job classifications to make the hiring and retention processes easier so the right staff members have the appropriate levels of knowledge, skills and abilities.

The state's old IT job classifications were catch-all titles from decades ago and out of date with today's skill sets. So modernizing that

system was necessary to ensure that the Next Generation IT initiative would work. Bengel said that with the changes in place, the governor put a significant monetary investment behind the idea, committing \$2.5 million per year for a training academy for Tennessee's IT employees.

As people retire, Tennessee will have a new IT organizational chart that features technical and management tracks to help reward and promote workers who are qualified to advance into other roles. At the same time, new hires will help build and grow the foundation of the state's IT team.



State hiring rules make it tough to retain promising interns, says Al Short, CIO of the Maryland Motor Vehicle Administration.

“We only go to the outside as an absolute last resort, so we’re pulling people up into the next level of their career and training them on an upward path,” Bengel said.

Competition from the private sector in a rebounding economy doesn’t help matters. Even if an agency successfully replaces a retiree, retaining the new employee can be equally difficult. As in most fields, money talks and makes an impact on tech-savvy workers who are weighing career prospects.

But it’s not just the almighty dollar that sways technologists to pursue a private-sector career. The technology they get to work on can be a sizable deciding factor as well.

Al Short, CIO of the Maryland Motor Vehicle Administration (MMVA), said his team is responsible for a COBOL-based legacy system that’s used to license drivers and register vehicles. Many IT staff members who work on that main-

frame system are nearing retirement age, and Short is struggling with how it’s going to be maintained. Short knows he must modernize existing infrastructure while also having staff members capable of running the old mainframe.

Even if pay weren’t an issue — and it is, given a large slate of private technology companies and opportunities in the Baltimore-Washington, D.C., area that compete with the state for IT talent — the type of technology work available at the MMVA may not have long-term appeal to the administration’s younger tech workers.

“I can talk about our future or projects, but a lot of the folks in the younger generation are looking for the opportunity to work on cool techie stuff or mobile applications,” Short said. “They don’t see the benefit to coming and working for a state agency on legacy applications or converting [them] to counter-facing citizen applications.”

John Letchford, CIO of Massachusetts, shares Short’s frustration.

Letchford said the IT worker turnover rate for state agencies is about double what it was for the entirety of fiscal 2012, including twice as many people through voluntary resignations.

It’s a tough pill to swallow for Massachusetts’ tech czar because of the amount of time and training the state invests in its IT people, only to watch them jump for another opportunity, particularly in the competitive Boston area.

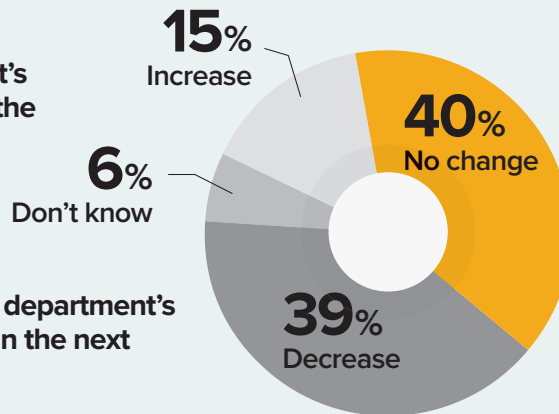
Finding the right IT talent also has become more difficult for Raleigh, N.C. Raleigh faces stiff competition from companies in the Research Triangle, and the city has seen the number of applicants for its IT jobs drop significantly in the past year.

Gail Roper, CIO of Raleigh, recalled that a year ago she’d get 100 resumes for an open position on her IT staff of 80 people. Today the situation is staggeringly different: During her most recent recruitment, she received only five. Roper said that while public service and local government in

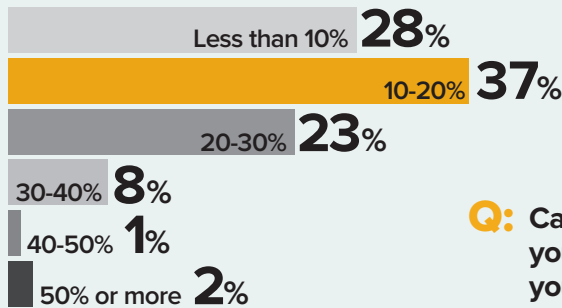
Workforce Worries

Senior state and local government officials say they are confronting a range of human resources challenges.

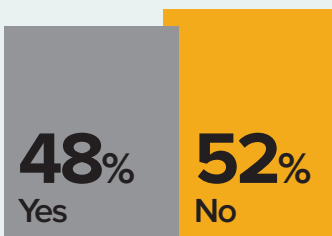
Q: How will your department's staffing levels change in the upcoming fiscal year?



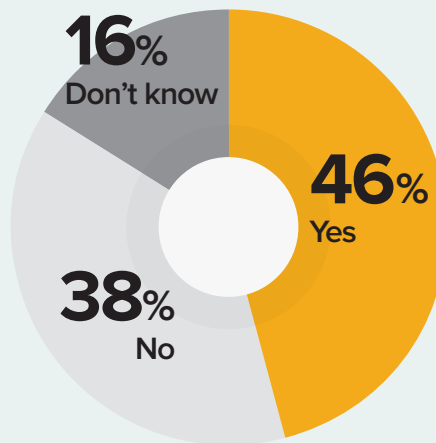
Q: What percentage of your department's workforce will retire within the next five years?



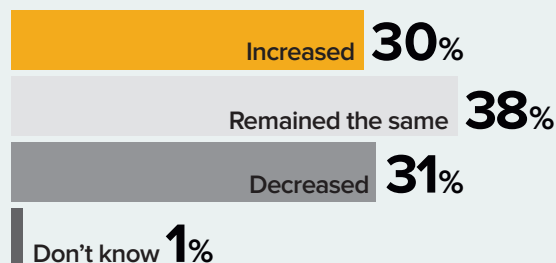
Q: Does your department have adequate staff and resources to perform its job?



Q: Can you attract and retain younger employees to meet your workforce needs?



Q: Based on staff development during the last calendar year, how has the cumulative amount of knowledge/expertise in your department changed?



particular offers a stable work environment, the younger generation is likely gravitating toward higher pay or a more flexible work-life balance from employers.

"This is the first time that we have four generations in the workplace, so it is no longer a cookie-cutter solution for anyone," Roper said. "I think it is really important today to have discussions early in the hiring process about what is important to the employee and the organization so it is a good match."

With young technologists apt to change jobs more frequently and the public sector struggling to bring in new blood in light of retirements, the solution may be a philosophical change in how IT hiring is done.

Tennessee has added dotted lines to its IT organizational chart so people in specific roles can see paths to move up in their career. For example, workstation support specialists can pursue additional roles as network technicians or other positions that match their interests.

Tennessee hired a contractor to assess each state agency and estimate the IT skills and number of employees that are required to meet the business needs. That information was then worked into the state's hiring practices.

"There's an old adage that says 'hire attitude,'" Bengel said. "You can get the rest of it. Certainly in technology there's a base level of technical skill that you just have to have. But if we're growing people, we can train and develop people who are eager and willing to learn."

Letchford agreed and said a mainframe system is the perfect example. When most of the people who manage Massachusetts' mainframe retire, he's "pretty sure" the state will look to a third party to manage it and then retrain the remaining people to work in other areas.

In addition, as more applications are moved to the cloud, there won't be as great a need for positions like server technicians and people who can troubleshoot an obsolete system. That can lead to new roles that embrace a different kind of IT worker, such as a service manager to handle cloud contracts.

SOURCE: AN e.REPUBLIC SURVEY OF 223 SENIOR MANAGERS AND DECISION-MAKERS IN STATE AND LOCAL GOVERNMENT CONDUCTED IN JUNE.

According to Letchford, Massachusetts is researching that sort of position. He added that in the future, the state needs to focus on technologists who drive business value and recruit people more for their ability to innovate and work effectively, rather than specialized skills.

Retaining new employees might also require a change in management style for some CIOs. Roper explained that she now plans projects in three- to five-year blocks for new hires, with the expectation that they'll leave after the project is completed.

Roper added that another difference now is how managers communicate with employees. Although it wasn't a big deal in the past to send a text or email to her IT staff members late at night to get a task out of her head and onto their plate, she's seen it become a work-life balance issue for 20-somethings.

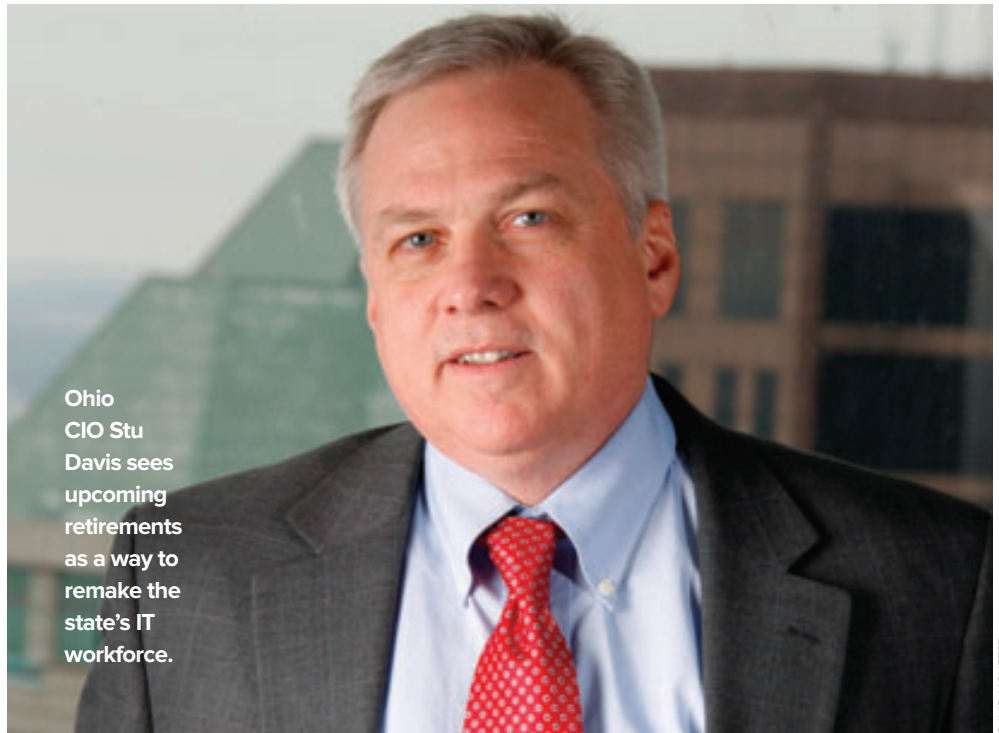
"I am very careful now because it's intrusive to the younger generation, and they don't want to do that," Roper said. "I think the whole concept of 24/7 IT is kind of fading."

Ohio's Davis pointed out that the culture shift isn't just in government — the private sector is facing it too. He believes more people are going to move around within their domains and disciplines, while expecting employers to be agile enough to meet their needs.

Changing the mentality of CIOs and other supervisors is something Davis says will be critical to meet the demands of talented workers, particularly if he and his colleagues want to attract them to the public sector. "The thing we have today, which is you come in, we chain you to a desk and put you on a big clunky workstation, is not going to work anymore," he said. "These kids are coming in from college and expecting the same things they have today."

As the focus on talent shifts from technical ability to business analysis and leadership skills, some state and local agencies have begun working with universities to encourage a broader curriculum.

Letchford said there is an opportunity to improve alignment between



Ohio
CIO Stu
Davis sees
upcoming
retirements
as a way to
remake the
state's IT
workforce.

DAVID MCNEESE

education and skill demand. Whereas a private-sector employer might be more interested in individuals who are focused on the nuts and bolts of technology to drive new products or services, Massachusetts is seeking people who will generate business value for government.

To that end, Massachusetts is discussing the skill gap issue with higher education institutions. The state also is evaluating the skills of its current workforce and attempting to retrain employees to meet future demands. For example, Letchford said 20 percent of the state's IT staff is tied to infrastructure, whether in networking, hosting or storage. But he doesn't anticipate needing anywhere near the same number of people in those roles in the next five years because of improving efficiency for onsite equipment and the industry-wide shift toward cloud-based services.

Grooming college interns for government careers is a possibility, but agencies have had mixed results with that option. Short struggles to retain IT interns at the MMVA. The agency trained several promising interns over six months to be PC support technicians, he said, but when the internship ended, they still lacked the state-required experience necessary to

get an entry-level IT position. Short said he's working with human resources officials to modify the hiring requirements.

On the other hand, Davis has done well with retaining IT interns in Ohio. The key, he said, is involving interns in challenging projects, allowing them to be part of something important.

"We've had some good luck with interns that we've brought in who are interested in staying," Davis said. "There is enough variety in the things that we do, especially within an agency, where you can move around and get a sense of all the parts and pieces."

Bengel encourages agencies to stress the positives of public service in their recruitment efforts. He believes being a key cog in an important effort will lure young technologists into a public-sector career.

"There [are] three big things that government offers that certain types of people really like," Bengel said. "One, we get to play with really big toys ... two, we deal with really big problems, and three, we can make a big difference when we do it right. There is a certain number of people who really get addicted to that." **GT**

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By Justine Brown

OUTSOURCING OF EMAIL WITH HOSTED SERVICES like Google's Gmail and Microsoft Office 365 is fairly common now. But until recently, major application outsourcing was rare. Today, some government agencies looking to take advantage of the many benefits hosted applications can offer have begun migrating major applications to the cloud.

Multiple factors appear to be driving the trend, but continued budget struggles are chief among them. Because cloud computing provides a consumption-based model for the cost of computing resources, it can significantly reduce expenses.

"Both state and federal agencies are being pushed to reduce costs," said Rob Enderle, president and principal analyst of the Enderle Group, a Silicon Valley, Calif.-based advisory firm. "The end result is that many of them are seeing cloud as a good alternative to traditional implementation processes."


"Government desires more agility at a lower total cost of ownership, which the cloud offers," said Doug Charles, CEO of Capgemini Government Solutions. "This, along with a growing confidence [in cloud] both commercially and in the government, will allow the government to further hasten its adoption of cloud technologies."

SERIOUS SERVICES



BILL KEHOE,
CIO OF KING
COUNTY,
WASH., SAYS
THE COUNTY IS
IMPLEMENTING
A CLOUD-
BASED CASE
MANAGEMENT
SYSTEM FOR
PROSECUTORS.

More government agencies are migrating major applications to the cloud, a move that offers multiple benefits. But some suggest caution.



Getting Down to Business. Orlando CIO **Rosa Akhtarkhavari** says the city is deploying a hosted ERP system from Workday to reduce operating and maintenance costs. The city opted for cloud-based ERP after moving its email system to a hosted platform three years ago.

Opportunity in the Cloud

Orlando, Fla., is moving core business applications to the cloud, deploying a hosted ERP system from Workday. “This is about strategically positioning resources,” said the city’s CIO, Rosa Akhtarkhavari. “We still manage and control our data and applications, but we don’t have to worry about upgrade costs or large capital expenditures.”

Orlando moved email to the cloud in 2010, and the success, savings and lessons learned during that deployment encouraged the city to explore moving additional applications to the cloud. “We felt we were ready for bigger things,” Akhtarkhavari said.

Before choosing a cloud-based ERP system, the city carefully considered total cost of ownership. “Financially it made more sense to go with cloud because of the low operational costs and the easy ability to maintain the system,” Akhtarkhavari said. “Additionally in-house resources, already operating at capacity, are not significantly diverted. Downtime concerns are also minimized when upgrading cloud solutions.”

Orlando officials worked closely with information security and compliance experts to explore any potential problems with labor standards or internal

audits before choosing Workday. For instance, the system needed to comply with state confidentiality provisions that protect human resources information for law enforcement personnel. They also looked at security from several different aspects. “We wanted to ensure the solution was robust, allowing stable and secure integration utilizing methods evaluated and acceptable to the city,” said Akhtarkhavari.

Keeping Pace with New Tech

Besides potentially lowering ownership costs, cloud-based technology may let short-staffed government agencies deploy systems they otherwise would not have the resources to implement.

“Where you don’t have the expertise, it’s well worth it to pull in the right people to help you out,” said David Roth, IT director of Minneapolis. “That allows you to focus on your own core competencies and let someone else handle everything else.”

Moving applications to the cloud also makes it easier for government agencies to keep pace with new technology, because maintaining the latest versions and upgrades becomes the vendor’s burden.

The King County, Wash., Prosecuting Attorney’s Office recently

began moving its prosecutors to a cloud-based system from St. Louis-based Karpel Solutions. The application, called ProsecutorbyKarpel, is a browser-based criminal case management program that includes integrated scanning and document generation, electronic filing with courts, e-discovery, court calendaring, sentencing management, evidence tracking, investigation tracking and more.

“An on-premises solution would have taken months to order, configure, etc.,” said Bill Kehoe, King County CIO. “With the cloud-based SaaS [software as a service] system, once we signed the contract, we were able to start configuring the system immediately. The time needed to start the project was decreased by months.”

The county’s old mainframe-based case management system was making it difficult to manage modern-day business challenges. “In some cases we were using yellow sticky notes to schedule cases,” Kehoe said. “We never felt comfortable upgrading our mainframe system, so we were working around it. We had a bunch of side systems, which was a crazy way for a modern, top-notch prosecuting attorney’s office to operate.”

Looking to improve the situation, Kehoe and others advocated for funding,

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CONTINUED FROM PAGE / 20

secured a commitment and put an RFP together. The county selected Karpel as the vendor, but had not yet determined whether to go with an onsite COTS system or a SaaS-based product.

"That set off an interesting chain of events," said Kehoe. "I was pushing for SaaS, but others wanted COTS based on concerns about security, network connections, etc. I put together some technical leads from various disciplines in IT and went through each area of concern to compare an on-premises COTS model with a SaaS model."

Kehoe said the team ultimately determined that the SaaS model would save a substantial amount of money, primarily in the buildout of infrastructure. "We then looked at security, disaster recovery and several other areas and determined the SaaS solution met our requirements for each of those areas or went above and beyond them," he said.

Kassie Tadsen, case management and strategic program manager for the King County Prosecuting Attorney's Office, said they were wary of moving to the cloud application at first because of the sensitive data that the office handles. "We also weren't sure how it would work technically with 10 interfaces to build with internal county systems," she said. "But eventually all our concerns were addressed and the offering was too good to pass up. It was a huge decision for us, but we think it was the right decision."

Tadsen estimates that the county has saved hundreds of thousands of dollars in infrastructure costs by going with the cloud-based product. "It also took a huge chunk of things off my plate," she said. "For example, their disaster recovery plan is much better than ours. Karpel has the ability to get us back up and running much faster than the county could in the event of a disaster."

The new system was launched in June and is expected to create significant case management efficiencies. Meanwhile, the money the county saved on infrastructure costs allowed the department to invest in new laptops for each prosecutor as well as other technologies that will help them become more efficient and less paper-dependent.



MINNEAPOLIS CIO OTTO DOLL SAYS LARGE-SCALE MOVEMENT TO THE CLOUD ISN'T IN HIS CITY'S FUTURE.

Kehoe said King County is now looking at moving other areas to a SaaS model. "Cloud first is now the strategic direction for the county," he said.

311 in the Cloud

Minneapolis is currently in contract negotiations to move its 311 system to a cloud-based model. Last summer, the city came under fire when it was determined that a call to its 311 system cost \$9.15 per contact, making it one of the most expensive 311 systems in the country. At the same time, the city wanted to migrate to a more current system.

"Every major upgrade costs hundreds of thousands of dollars to undertake when you figure in everything," Roth said. "Given financial challenges, it made sense to shift to a cloud-based model."

But before deciding on SaaS, the city looked at all of its options and did a measured assessment to ensure that the cloud-based solution had merit beyond lower costs.

"With the cloud-based model, we will get the best and newest solutions without having to carry that burden," said Roth. "The provider does all the upgrades, supports the hardware, etc. We are not gaining resources in government today, so we need to figure out where can we do things and do them cost effectively."

But while Roth said cloud is a good option for 311 and other noncritical functions, the city has no plans to migrate 911 or other critical systems to the cloud. "We want to keep critical functions local," he said. "Cloud is not a solution in all cases."

Minneapolis CIO Otto Doll agreed. Despite the 311 conversion, Doll said a move to cloud-based applications is not part of the city's overall IT strategy. "We prefer to keep things in-house and maintain control," he said.

Doll said the city has also heavily modified and personalized many IT functions, making them difficult to fit into the cloud model.

Bright Ideas for Cloud Success

Government agencies looking to shift major applications to the cloud may face a number of obstacles, including overall resistance to change, funding approval and cultural concerns around the existing workforce. These best practices may help make the transition smoother:

✓ Consider Strategy.

A jurisdiction should start by considering whether cloud fits into its overall strategy. "You have to have a good understanding of what's important to you," said Minneapolis CIO Otto Doll. "Making one-off decisions is a recipe for

making a mess over time."

Doug Charles, CEO of Capgemini Government Solutions, agreed. "An agency should consider its entire portfolio and create a strategy for cloud adoption. Not everything can be put into the cloud, and not everything

should be. A clear ROI/business case should be developed for any migration. Consideration should be given for transition and training, and realistic plans for retirement of systems should also be put in place."

✓ Do Your Homework.

"If you don't do the upfront work, you won't be successful," said David Roth, IT director of Minneapolis. "Keep an open mind, and do your

“Our ERP systems, for example, are greatly modified and customized, so in many cases we can’t get the same type of solution using cloud,” he said. “Some jurisdictions will find it easy to shift to cloud, while others like us may not be able to make that move no matter how attractive it is.”

Buyer Beware

Though migrating to a cloud-based environment offers government agencies many benefits, experts warn that agencies should take precautions.

“Make sure to look at the financials of the company and its sustainability,” suggested Enderle. “Cloud companies operate fairly lean. Watch who you are outsourcing to. The company may over-extend, and that can be catastrophic.”

Management of data is another critical factor. “Where it resides, who can access it, how it is encrypted and what level of secrecy is needed are critical factors that need to be addressed,” Charles said.

Disaster recovery and business continuity are key considerations as well, though many cloud companies have systems in place that are often superior to those a typical government agency can offer.

“The approach to business continuity and disaster recovery [in government] typically needs to be completely revisited due to new approaches that render the traditional [disaster

recovery] site approach obsolete and needlessly expensive,” Charles added.

A Shifting Environment

The idea of outsourcing is certainly not new in government. “Over the decades, outsourcing has always been in play,” said Steve Middlekauff, North American health and human services practice director for Unisys. “At times it expands, and then it contracts again when new CIOs come in with different philosophies about protecting data. But with each cycle it seems to evolve, getting further down the path of a more virtual world.”

The latest push toward outsourcing appears to be driven not only by the economy and cost pressures, but by a shift in citizen expectations as well.

“People want a different way to engage,” Middlekauff said. “They have new expectations about instant response, and they want to access services that are always on.”

“Expectations of service by citizens have definitely transformed,” agreed Maury Blackman, CEO of San Ramon, Calif.-based Accela. “Government agencies are looking for better ways to engage with their citizens. They have to move quickly, and cloud may be the best way to enable them to do that.”

The shift is causing some vendors to modify their approach to the market. For example, Accela, a longtime provider of Web

and mobile apps to government, is evolving its business model to provide managed services. The firm recently launched a suite of cloud-based business applications for smaller governments called Civic Cloud.

“When we started the company we wanted to become an application service provider for government, but we were ahead of our time,” Blackman said. “Government agencies were not

“With the cloud-based SaaS system, once we signed the contract, we were able to start configuring the system immediately.”

using Web browsers much yet; they were still using client/server technology. They were also hesitant to let their data go offsite. Today, the mood in government has definitely changed.”

Broader private-sector use and success with cloud in the last few years has helped government build acceptance to the approach as well.

“Government is following business’ shift to the cloud,” said Akhtarkhavari. “Large, in-house systems are no longer practical for most government businesses. A few agencies are holding back, but I don’t think it will last. The direction and momentum is clearly toward cloud solutions.” **GT**

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due diligence to make sure it’s the right fit.”

✓ Secure a Dedicated Partner. “Strong partnerships are crucial to successful projects,” said Orlando CIO Rosa Akhtarkhavari. “IT, the executive sponsor, the implementation team — they all must work hand-in-hand with the same goals. A strong partnership with the vendor is also essential.”

Akhtarkhavari said that when Orlando worked with Google to

implement email in the cloud, the partnership they formed was invaluable. “Whenever issues arose, including weekends and nights, we called Google. Within five minutes, Google had resources working to resolve the matter. Ensure your cloud vendor recognizes you are a partner, not just a revenue source.”

✓ Secure a Clear Contract. “No matter how careful you are, there always seems to be some confusion at

some point when undertaking projects like this,” said Roth. “If you are not on the same page with the vendor, there can be issues. Make sure to get a service-level agreement in place with the vendor so you know what metrics are going to be measured, what your recourse is, etc. Nothing should be left to interpretation.”

✓ Start Small. An agency new to cloud may benefit by picking a non-mission-critical project to migrate. “Starting

small allows you to try it out,” said Steve Middlekauff, Unisys’ North American health and human services practice director. “Then take those lessons learned to the next project and build from there. Look at legacy-based applications that are antiquated and a drain on the organization in terms of dollars and resources. Move those applications into a hosted environment first to shift that burden of ongoing support, then go from there.”

NO SMALL CHANGE

IS BITCOIN TOO BIG FOR GOVERNMENT TO IGNORE?

Bitcoin has gone legit. The so-called “cryptocurrency” once best known for providing anonymity to those who buy drugs on black-market websites is suddenly the hottest new toy of venture capitalists and entrepreneurs. The Bitcoin economy has risen into the billions of dollars, and now everyone wants in on the action.

The currency that was once celebrated as a counterculture, underground phenomenon has — dare we say — gone mainstream. So much so that government is now taking a closer look at Bitcoin, which is not backed by a nation and is available only digitally.

Some financial experts and Bitcoin enthusiasts say government intervention is necessary to legitimize and protect the currency. But others are worried that Bitcoin will lose its luster as the public sector gets involved.

A small e-government services firm called E-Gov Link has heard this dual sentiment more than most. When the Cincinnati-based company announced this spring that acceptance of Bitcoin payments was an option within the back-end software it provides to local governments, strongly worded opinions poured in immediately. There was mixed feeling about the idea that a local government could opt in on the new feature, which would accept Bitcoins from citizens when they pay for permits, parking tickets and other common services.



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“People’s reactions ranged from those who said ‘this is the beginning of the end’ — real paranoia — to people who said, ‘This is great because the best way to prevent the federal government from outlawing Bitcoin is if local government uses it,’” said Jerry Felix, vice president of software development at E-Gov Link.

Ultimately those people’s fears and hopes are unfounded, at least for now, because governments are still sorting out their ultimate roles in the burgeoning world of digital currency. The future is unclear. Here are three issues to keep an eye on.

1 / REGULATION

Perhaps it was only a matter of time. In May, the U.S. Department of Homeland Security seized bank accounts of Mt. Gox, a big-name company that exchanges Bitcoin into conventional currencies for a nominal fee. Authorities claimed that the Tokyo-based business had not registered with the federal government as required by laws designed to stem money laundering.

Only two months earlier, in March, the U.S. Treasury Department’s Financial Crimes Enforcement Network (FinCEN) unveiled its first guidelines on virtual currencies. The rules stipulate that “exchangers” who convert Bitcoins into conventional currencies must register as a Money Services Business and abide by recordkeeping and reporting requirements within the Bank Secrecy Act designed to hinder money laundering.

Ordinary users who buy goods and services with Bitcoin do not need a license, but what’s less clear are the requirements for Bitcoin “miners,” who extract the coins from the Bitcoin system and facilitate transactions, said Jerry Brito, a senior research fellow at the Mercatus Center at George Mason University and director of its Technology Policy Program.

“I don’t know what they’re going to do ultimately,” Brito said about the future of federal regulations. “If FinCEN says miners are Money Services Businesses, that’s crazy. There are hundreds or

maybe even thousands of miners around the world. ... [Miners] aren’t receiving money from anybody, so they have no customers on whom to report.” Many miners operate anonymously, he said.

The federal regulations are only one layer. Forty-eight states require businesses to register as money service transmitters, which Brito said can be an onerous and expensive process. Bitcoin startup BTC Global estimates that \$10 million or more is required for a business to reach total legal compliance in all 50 states.



Lower transaction fees are one feature that might drive governments to accept Bitcoins.

The Wall Street Journal reported in June that Texas and New York are among the states taking a hard look at regulations for virtual currencies as well as money transmission rules. *The Journal* said state regulations can be expensive, citing Texas’ policy requiring companies seeking a license to provide a surety bond of as much as \$2 million.

And Brito said one could argue that Bitcoin needs other regulating agencies besides traditional financial oversight because the currency is so unique. “You can think of Bitcoin as a currency; you can think of it as a commodity, like gold, because there’s a limited supply. You can think of it as a payment system,” Brito said. “It’s all of these things, and all of them will need different regulators.”

No matter what happens, Brito said, policymakers and regulators need to be educated on how Bitcoin works. “If

they don’t understand Bitcoin, they might make a mistake as to how they regulate it, and that could do harm.”

2 / PAYMENTS

With customers in 30 states, E-Gov Link is betting that a local government will choose to begin accepting Bitcoin by the end of the year, if not sooner. Where might it happen first? Felix said much of the interest is coming from affluent suburbs of high-tech communities like Silicon Valley.

“I think the real possibilities are the ones who want to be perceived as progressive and high tech,” Felix said. “They want to show up their large-city counterpart, which is pretty cool.”

There are benefits to be gained besides public relations. Felix said one of the main attractions is that transaction fees for Bitcoin are much lower (about 1 percent) than credit cards (3 percent and higher). Governments process a large volume of citizen services where money trades hands, so the potential savings are significant. Felix said some governments that have expressed interest in Bitcoin have told him that by law

they aren’t allowed to absorb the cost of transaction fees; they must pass the fees on to the citizen. So using Bitcoin also could be a win for residents if they can pay less.

Felix said Bitcoin is a low-risk proposition for government, especially now that virtual currencies are being regulated more closely. He said Bitcoin transactions aren’t as prone to fraud and chargebacks as credit cards are, and the cryptocurrency technology would allow local governments to get the money into their accounts faster because the exchanges can instantaneously convert Bitcoin into U.S. dollars. Credit card transactions can sometimes take days to clear.

E-Gov Link is so confident in Bitcoin’s future that the company has talked with its employees about providing a portion of their salary or a bonus in Bitcoins. It’s one thing for a private company to do this, but would it be a long leap before



Jerry Brito

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BITCOIN IN BRIEF

UNDERSTANDING WHAT A BITCOIN IS CAN BE A TOUGH MENTAL EXERCISE



Think of it as a “virtual currency” with a finite number of coins that lives in cyberspace, not the real world. There are 11 million Bitcoins today, and only 21 million will ever be created. Like gold that is dug out of the ground, Bitcoins are “mined” by computers that are tasked with solving increasingly complicated problems. The correct answers to these problems are long strings of numbers and letters; each string of 64 characters is the unique identifier for a Bitcoin, which can then be transported, transmitted and

encrypted across peer-to-peer networks. Therefore, Bitcoin is sometimes called a “cryptocurrency.”

Bitcoins also can be traded for paper currency, such as U.S. dollars or euros. Several Bitcoin “exchanges” have sprung up to facilitate these transactions. As of mid-June, the exchange rate was about \$100 (U.S.) to 1 Bitcoin (BTC), although the price has seen bouts of volatility. The Bitcoin economy today is estimated at \$2 billion or more.

It’s unknown who started Bitcoin. The original Bitcoin software was released in an academic paper posted online in 2008 by someone or a group of people using the pseudonym Satoshi Nakamoto. According to this “person” — whose identity has been the subject of endless speculation — the properties of Bitcoin include “no mint or other trusted parties,”

“participants can be anonymous” and “proof-of-work for new coin generation also powers the network to prevent double-spending.”

The anonymous, decentralized nature of Bitcoin points to another distinguishing feature of the currency: It’s not backed by a nation-state. But don’t mistake that for disorganization. An organization called the Bitcoin Foundation is operating with the mission of standardizing, promoting and protecting the currency.

Some observers group Bitcoin among so-called “private currencies,” many of which have been around for years, such as airline miles accrued through frequent flyer rewards programs, Facebook Credits and Amazon Coins. Others prefer that Bitcoin is called a “virtual” or “digital” currency.

Finally, it’s important to note that Bitcoin has competitors. Litecoin was introduced in 2011, and there are several others, such as PPCoin and Namecoin.


this kind of talent, this level of motivation since the dot-com bubble. Yes, the bubble blew up, but a lot of disruptive technologies came out of it.”

Brito echoed the sentiment about Bitcoin’s potential. He said what he heard at the conference reaffirmed his belief that the technology can be more than just a payment network. “That’s what it is right now, and it’s revolutionary that way,” Brito said. “But Bitcoin can be an exchange; it can be a market or a way to register property. It could be a communications service that is censorship-resistant.”

There is money to be made in this innovative space, but the government’s concern that digital currencies like Bitcoin can be used as a vehicle for money laundering isn’t going away. In May, the U.S. shut down Bitcoin payment processor Liberty Reserve, alleging that the firm was involved in laundering \$6 billion for anonymous users trafficking ill-gotten goods like stolen credit card numbers and profits made from Ponzi schemes. Liberty Reserve apparently utilized a Bitcoin-like digital currency it called “LR.”

Which leads to the idea that a nation could perhaps launch its own digital currency as a way to co-opt the Bitcoin movement and “legitimize” it with the backing of a government. The idea sounds far-fetched, but in reality it may not be.

The Royal Canadian Mint is backing an exploratory technology dubbed MintChip. The program is looking at how a digital currency could be backed by the Canadian dollar. The system is designed to work offline and online, in a physical store and on mobile devices. Users would register a MintChip account in order to move “trusted stores” of value securely between the payer and payee without the involvement of an intermediary. MintChip accounts could be accessible in the cloud and through personal computers or mobile devices. The technology is designed specifically to replace cash for transactions of \$10 and under. But it appears as if the system could be used for larger denominations.

It seems conceivable, then, that someday Canada or another nation might be willing to take Bitcoin head-on in the marketplace. 

Matt Williams is the former editor of govtech.com. He can be reached at matt.ms.williams@gmail.com.

a government pays its own employees in Bitcoins? Never say never.

In England, for example, some public officials in a district in one London borough are accepting 10 percent of their salary in an alternative local currency called the Brixton pound. Launched in 2009, the officially sanctioned currency is accepted by many local establishments in an effort to promote local businesses.

It’s the first currency that London School of Economics Ph.D. student Garrick Hileman has ever heard of making the leap beyond a private means of exchange between a user and a business. Hileman, whose work focuses on alternative currencies, said Brixton pounds are used to pay for local fees and taxes.

“I found this absolutely fascinating. This is an alternative currency being used

to pay local government employees,” Hileman said. One wonders if someday the same could be said for Bitcoin.

3 / PRIVATE VS. PUBLIC

The Bitcoin 2013 conference in San Jose, Calif., in May showed just how much excitement there is in virtual currencies. Brito and Hileman were there, and they said the scene was electric, attracting a who’s-who of Silicon Valley talent and Wall Street power brokers. Some of the nation’s biggest venture capital firms are eager to develop technology that puts Bitcoins into the hands of everyday consumers. The investment could be a boon for the tech sector and the U.S. economy.

“I was very impressed with the talent and drive of these people,” Hileman said. “I haven’t seen a collection of

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Searching for Clues

Florida uses the Google Search Appliance to crawl different law enforcement databases in search of suspects, fugitives and information.

By Wayne Hanson /

Digital Communities Editorial Director

The Orange County, Fla., Sheriff's Office is five months into a unique project using the Google Search Appliance to locate and extract criminal justice information from three different internal databases, including the agency's data warehouse.

Sheriff's Office officials say they may be the first law enforcement agency to use the Google search hardware this way. The tool is being used primarily to search relational databases, but it also can crawl most standard file systems and social media feeds. For example, the Sheriff's Office has tested it successfully with Twitter and RSS feeds.

Hal Trask, the Sheriff's IT solutions delivery manager, and Sheen Lovette, a crime analysis supervisor, discussed the deployment in an email interview with *Government Technology*.

They said several multi-database searches conducted with the search appliance have resulted in the location or arrest of suspects. An armed robbery suspect was located and arrested. A homicide suspected was located and questioned for a neighboring police department. And a search query for "kegs" resulted in the identification and arrest of three suspects — a search that helped solve seven to 10 cases of theft and resale of beer kegs.

Although the technology is only being used to search Orange County Sheriff's data, the office intends to expand the searches. "The next step in our initia-



tive will be to begin working on arrangements with various local agencies in order to begin sharing data via [the search appliance]," wrote Trask and Lovette.

The system's Web-based user interface has been dubbed CRAIG, for Criminal

“... IT WILL BE INTERESTING TO SEE IF THE CHALLENGES ARE MORE TECHNICAL RELATED OR PEOPLE RELATED.”

Research and Investigative Gathering application. The Google Search Appliance hardware sits on the Sheriff's network. CRAIG currently works with internal databases within the sheriff's Tiburon records management system, including the Automated Reporting System, Crime Analysis and Calls for Service.

The Sheriff's Office anticipates no technical difficulty in expanding the search capability to other jurisdictions. "The only issue that we may run across is mapping each agency's data elements to one common format," said a Sheriff's Office spokesperson. "The [search appliance] supposedly does have built-in functionality that

should provide the ability to do this. We just haven't gotten to that phase yet."

Data shared between law enforcement agencies would be transferred using CJNET, a secure private network provided by the Florida Department of Law Enforcement.

The Sheriff's Office technical team created the new system quickly, said Trask and Lovette. "Our programmers were able to produce a useful

working prototype of CRAIG in approximately 30 days without ever having been exposed to the Google technology API. The learning curve was fairly minimal."

However, they added, the project will need to continually adapt to changes in technology, system availability, the evolution of crime patterns, human interaction and even linguistic changes. "As we move forward toward a more federated search, searching across other agencies, it will be interesting to see if the challenges are more technical related or people related." **GT**

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Driving Change

The Texas Department of Transportation moves most of its IT staff members to a private firm.

By Colin Wood / Contributing Writer

After weighing the options for about a year, the Texas Department of Transportation (TxDOT) announced in June that it would partner with an outside firm to meet its IT needs. About 350 of TxDOT's 400 IT workers will become employees of NTT Data, a global IT services provider.

Although the department of 12,000 employees does a great job at handling the state's transportation needs, it has underinvested in information technology, said Bob Kaufman, chief communications officer for TxDOT. The outsourcing deal will let the agency modernize IT systems, he said. "This is going to help our overall agency perform better because we're going to [see] a lot of productivity gains that we haven't had in the past."

NTT Data, a Tokyo-based IT firm with U.S. operations based in Plano, Texas, beat out four other companies for the contract, Kaufman said. "NTT Data is going to help us to develop better software, and the cost to service these newer programs is going to be less than it was in the past."

The company will be responsible for application development and maintenance, along with customer support, network and telecommunications systems support, professional support

services, and IT security. In addition, the company will modernize the agency's business processes and technologies.

TxDOT IT employees will be offered positions with NTT Data for at least six months, or they'll be placed in one of the agency's remaining IT organizations. Kaufman said outsourced agency employees could benefit from joining a world-class IT provider. "Over time, should they decide they want to try to work on behalf of TxDOT in another form or fashion, that's an option, [or] they may decide to work for another NTT client," he said.

And the state benefits by drawing from the experience and resources of a

large, multinational IT firm to achieve efficiencies that it could not have realized alone, Kaufman added. "They will reduce what we don't need and optimize what we do need, either by improving the existing programs or bringing us more into the 21st century with ones that are better suited for today's requirements."

NTT Data already works with several other Texas agencies, as well as the state of Kentucky, Kaufman said. He declined to comment on whether the decision to outsource the department's IT activities was in any way controversial. **GT**

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Snoop-Gate

News of widespread online spying by the National Security Agency has some open data proponents concerned about their image.

By Colin Wood / Contributing Writer

In recent years, state and local governments have put effort into open data projects that would inspire developers to create apps and find ways to use public data to bring value to their communities. So news of PRISM, the National Security Agency's (NSA) online spying program leaked by former CIA employee Edward Snowden, angered many people and sparked a debate about the role of open data.

Most people don't like being spied on, but the extent of PRISM's capabilities is cloudy. Some articles say PRISM — which reportedly costs \$20 million annually to operate — creates a copy of absolutely everything online. Not everyone agrees that this is the case, as it would require cooperation from companies like Google, Facebook, Yahoo, Microsoft, AOL and Apple, whose officials have come forward denying participation in the program. But others point out that the same law that may require those companies to cooperate with the NSA may also prohibit them from discussing their involvement.



TOM MCKEITH

Further confusion is added to the mix by the fact that \$20 million is probably nowhere near the amount of funding needed to create a carbon copy of the Internet each year. According to a 2012 report from business intelligence software firm DOMO, every 60 seconds, YouTube users upload 48 hours of video, 571 new websites are created, 3,125 photos are shared on Flickr, 100,000 tweets are posted, and more than 204 million emails

are sent. Multiply those figures by 525,600 (the number of minutes in a non-leap year) and that's a lot of data to sift through.

The federal government doesn't seem too excited about PRISM becoming public knowledge, but maintains that PRISM is being used to search for terrorists and spy on other countries. However, these explanations leave a lot of questions unanswered. Concerns about constitutional violations persist despite the govern-

Every 60 seconds:

48

HOURS
of video is
uploaded
to YouTube

3,125

PHOTOS
are shared
on Flickr

204m

EMAILS
are sent

100k

TWEETS
are posted

SOURCE: DOMO, 2012

ment's careful phrasing and assurances that PRISM hasn't been used to spy on citizens willy-nilly, as many reports have suggested. In fact, the Patriot Act provides that the federal government doesn't need to disclose the extent of its rights where spying is concerned, let alone the extent of the spying that's actually occurring or how long it has been happening.

To summarize, it's known that PRISM is an Internet spying program, but who is being spied on, which organizations are involved and how it all works is largely a matter of conjecture.

Some state and local government leaders hope that this news doesn't sour people on the idea of open data and the positive things it can do. Philadelphia Chief Data Officer Mark Headd points out that despite the controversy, PRISM shows how powerful data analytics tools are today. "We've never lived in a richer environment for that kind of thing," Headd said. The same dynamic that made PRISM possible has allowed open data to flourish, but that's where the similarities end, he said.

The idea that open data and spying are two sides of the same coin, an argument Headd has heard since the PRISM news broke in June, is ridiculous, he said. "The open data initiative has its foundation in transparency," said Headd. The whole point of open data is to make government more transparent and accountable, while PRISM wasn't meant to become public at all. The intentions behind NSA spying and a city looking for a way to turn water usage data into an app aren't similar.

Philadelphia is working with other major cities across the country to explore ways of sharing open data to gain efficiencies and learn more about how their communities function. It's not about getting data that people value as private and sharing it, Headd said that instead it's about using daily data that people are already sharing in an effort to help everyone.

"It's a vast landscape of data that's going on right now," Headd said. "The news we're hearing out of Washington about this program I think runs the risk of overshadowing a lot of the good work we're doing to actually open government up and make it more transparent. And that's really the key for us at the local level."

Michael Powell, chief innovation officer of Maryland, agreed that there's a big distinction between the type of data the NSA seems to be collecting and the type of information that states like his collect for open data programs.

In May, Maryland launched its open data Web portal. "The kind of data we have that we really like are things like sewer overflows from over 10 or 15 years of recording that data. That's important to environmentalists," Powell said. "We have vehicle collisions that the state police respond to; we've got vendor payments. None of this stuff is personally identifiable. It's pretty benign."



THERE'S A BIG DIFFERENCE BETWEEN THE NSA'S DATA COLLECTION PROGRAM AND STATE OPEN-DATA INITIATIVES, SAYS MICHAEL POWELL, MARYLAND'S CHIEF INNOVATION OFFICER.

DAVID KIDD

In fact, Powell said people probably know what information their state government has about them because they provided it to the state themselves. Sensitive and personally identifiable information like tax, revenue and health records are kept private, a responsibility that Maryland takes seriously.

"We have safeguards in place to make sure that's not the kind of stuff we're sharing. That's our big concern," Powell said. "We'd like our efforts in open data to be successful, and the thing that would stop it in its tracks is if we shared stuff we shouldn't. We take it as a big responsibility of ours to first of all not share, but also to put security measures in place so it doesn't get in the wrong hands."

Open data is about making information that's supposed to be public easier to access, Powell said. "Almost exclusively, when we talk about open data and the data the state of Maryland is making available, people want more of it, not less." **CT**

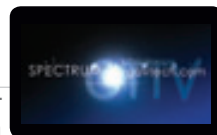
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NEW PROTECTIONS NEEDED?

Soon after news of the PRISM spying program broke, some began calling for new legislation to prevent something like this from happening again. The problem is that there already are measures in place that are supposed to prevent this sort of information gathering, said Jody Westby, CEO of legal and technical advisory firm Global Cyber Risk. The Foreign Intelligence Surveillance Court (FISC) was created in the '70s as an oversight court to ensure that warrants and wiretap requests were legally justified. But for the past decade or so, FISC has been criticized as a kangaroo court maintained as a front for illegal government activity.

"What's clear is that system is now broken down," Westby said. "I certainly hope there will be some congressional action, because I think there are some very serious issues to be addressed." She called the Obama administration's reaction to the spying scandal — calling for debate — disturbing. "I think this is as serious as the Pentagon Papers and Watergate."

Before the country can move forward, she said, the full extent of the NSA's data collection activities needs to be revealed, because the agency is only admitting to what was exposed in the leak. But, Westby added, it could be difficult to roll back federal data collection capabilities now that they are established. "Once the genie's out of the bottle," she said, "there's no turning back."



Sock IT to You!

A Boston-based clothing manufacturer says its high-tech socks can conquer foot odor. The new Atlas socks are made from a mix of cotton, recycled polyester and carbonized coffee, which filters and absorbs perspiration and odor to keep feet cool. **Ministry of Supply**, the maker of the socks, says it used 3-D visualization, pressure mapping and thermal imaging to design the new product. SOURCE: GIZMAG

“[It might] not only be used for advertising, but also for music, entertainment, mass transport information, weather reports and so on.” Ulf Brychcy, spokesman, BBDO



Symbol of Change?

Could replacing “the” with a symbol save the world millions of hours of time? Australian restaurateur **Paul Mathis** is on a grammatical expedition to perhaps change the face of written communications. So far, Mathis has forked over \$68,000 to develop the new symbol, which he hopes could replace one of the most frequently used words in the English language. Android phone users can download a free app, which has the symbol.

SOURCE: THE VERGE



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HEARING VOICES:

German train passengers leaning their head against the window of a car might one day “hear” advertisements coming from inside their head. *The Telegraph* reports that German advertising company Sky Deutschland has developed a technology that uses bone conduction technology — which is used in hearing aids, headphones and Google’s Glass headset — to pass sound to the inner ear via vibrations through the skull. The voice comes from a Sky-branded transmitter made by Audiva that is attached to the train window. Although it sounds intrusive, the technology also could be an asset for emergency management agencies that need to relay real-time information during crises.

Word on the Street

In March, the Pew Research Center asked 1,501 adults what they think of federal, state and local government. Although public opinion of the federal government was low (28 percent), local government’s approval rating remained **consistent at 63 percent** while state government approval **increased to 57 percent**.



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Value Investing: The Case for Technology

Editor's Note: Starting this month, Harvard's Stephen Goldsmith will write a regular column on data, analytics and citizen engagement.

The intersection of government and data holds great promise for transforming the way government operates. Breakthroughs occur as small-app developers and large technology companies alike produce innovative solutions to government problems. Yet the pace of these discoveries can be dizzying for a policymaker without a technical background. In these columns, over the next few months, I will suggest approaches that might help accelerate the adoption of these changes, both by focusing on successes and by creating a common language among agency head, elected official, budget director and information executive.

There is both enormous opportunity and plenty of gain to go around. On the opportunity side, creative public officials now can harness and integrate the power of wireless devices, cloud computing, data mining, analytics and social media. Engaging data in government decision-making is easier and more cost effective than ever. Data analytics allow executives to make truly informed decisions that take into account economic, environmental and societal ramifications of policy change. Of course, these benefits are not limited to the top level of government. Mobile tools and

cloud storage provide front-line decision support to field workers, allowing increased discretion and better decisions in areas as diverse as street repair and child welfare.

Yet all of us who have held executive responsibilities in budget-strapped cities know well the story of the technology provider teaming with an agency head claiming that a significant expenditure will save money in the long run, only to see the expenditure, but not the savings. Every level of government, and also the private sector, has been the victim of cost overruns on large projects.

“Engaging data in government decision-making is easier and more cost effective than ever.”

As any policymaker interested in technology can attest, leaders must make a wide range of choices within the scope of limited budgets and staff. The challenge is to strike the best balance between allocating sufficient resources to adopt these technologies within government and outsourcing to the private sector for the most cutting-edge technology. The language barrier today among important government officials suppresses the very spending that will allow breakthroughs just as it tolerates the cost overruns and unnecessary expenditures in other areas. A few years ago, Bill Eggers and I noted in *Governing by Network*

that the new shape of government is not hierarchical and silo-bound but networked. Since then, technology has progressed so much that the power of networks can expand exponentially, but officials must engage all sectors and multiple agencies to produce public value most efficiently.

Today's governance can combine agency breakthroughs from enterprise data mining with this digital community participation to produce public value, resulting in better services, outcomes and citizen-generated solutions. Despite the creation of very specific positions like chief data officer

and chief innovation officer, cross-agency collaboration is necessary for true innovation.

Each month, I will speak in these columns to the policymaker interested in technology by highlighting the ways that public entities

across the country are incorporating data and technology into their operations and producing new levels of efficiency, community engagement and public value. We will explore a broad range of technologies from data analytics to apps to social media. This column will build on our research project at the Harvard Kennedy School's Data-Smart City Solutions initiative where you will frequently find more details on what I discuss. Please join me in charting a new course for government. **GT**

Stephen Goldsmith is the Daniel Paul Professor of the Practice of Government at Harvard Kennedy School and directs the Innovations in Government Program and Data-Smart City Solutions. He previously served as mayor of Indianapolis and deputy mayor of New York City.

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Virtual Conferences and Training

Five tips on how to implement and boost virtual conferences and trainings.

It's nearing the end of conference season, and it's been a little bit slower than previous years. At the federal level, IRS and General Services Administration conference scandals have led to a culture of fear around attending in-person conferences. State and local governments are also limiting conference travel and classroom-based training.

While some of this is an overreaction, it's a great time to look into virtual conferences and trainings. For many who may have explored these technologies in the last five years or so, a lot has evolved. (No, it's not all Second Life avatars.) The technology is better, the user is more experienced (how many of us have taken an online course in the last year?), and the skills of virtual event planners have matured.

GovLoop has held several virtual events, including a career fair, a hybrid mentoring program, a virtual technology conference and a six-week social learning course. Like anything, we've learned that there's a big difference between just doing something and doing it well.

Based on these experiences, here are my tips for hosting great virtual events:

1 / Content Wins: It's not a huge shocker, but great content wins in every medium. Just as at in-person conferences, if there is a dull speaker, the attendees get bored. In virtual events, it's just as important to be energetic, passionate and provide great content and conversations.

Virtual technology conference attendees benefit more if there are great speakers on topics that are relevant to their job.

2 / Different Medium = Different Skills: While some skills overlap between in-person conferences and trainings, the best virtual trainers know it's a different medium and adjust accordingly. For example, in a recent social learning course, the trainer launched with a great virtual icebreaker that involved standing up and clapping to get attention. At an in-person career fair, the required skill is being a good one-on-one conversationalist with attendees. In contrast, during a virtual career fair the key is being a fast typist, as you have to quickly answer multiple questions in a group chat.

3 / Reserve and Remind: It's easy for people to get distracted during virtual events or forget about them entirely, so it's important to reserve their time. Outlook reminders are an effective way of blocking time on participants' schedules for virtual learning courses, webinars and discussions. And simply sending a 15-minute reminder before an event begins can increase participation rates at virtual career fairs and conferences.

4 / Transition the Traditional to Virtual: It's easy to start playing with virtual training and events as a side project or for a course that isn't really popular. I encourage taking an in-person program, such as supervisory training or employee orientation, and converting it for virtual

delivery. Take something that's proven and demanded (or is required) for employees and inject it with a new approach. For example, the U.S. Department of Transportation's Federal Highway Administration transitioned its annual Every Day Counts Summits, where it connects with state government leaders, into a virtual conference in 2013, which cut costs by 90 percent and doubled the number of attendees.

5 / Mix Your Format: People often dump virtual learning in one bucket, but there are different formats within it. Our virtual conference, for example, had one-hour webinars that featured PowerPoint presentations from speakers, 30-minute live chat sessions where attendees talked with resume experts, as well as immersive learning experiences where individuals could download brochures. Also, in our social learning course, we combined webinars, live chat discussions with recorded video scenarios, required blog reading and peer-to-peer interaction.

Now is the time to look into virtual training and events. The technology has significantly improved, and the audience members are used to virtual learning based on their own experiences. Plus, with budget cuts and travel restrictions, it is both cost-effective and environmentally smart. **GT**

Steve Ressler is the founder and president of GovLoop, a social networking site for government officials to connect and exchange information.

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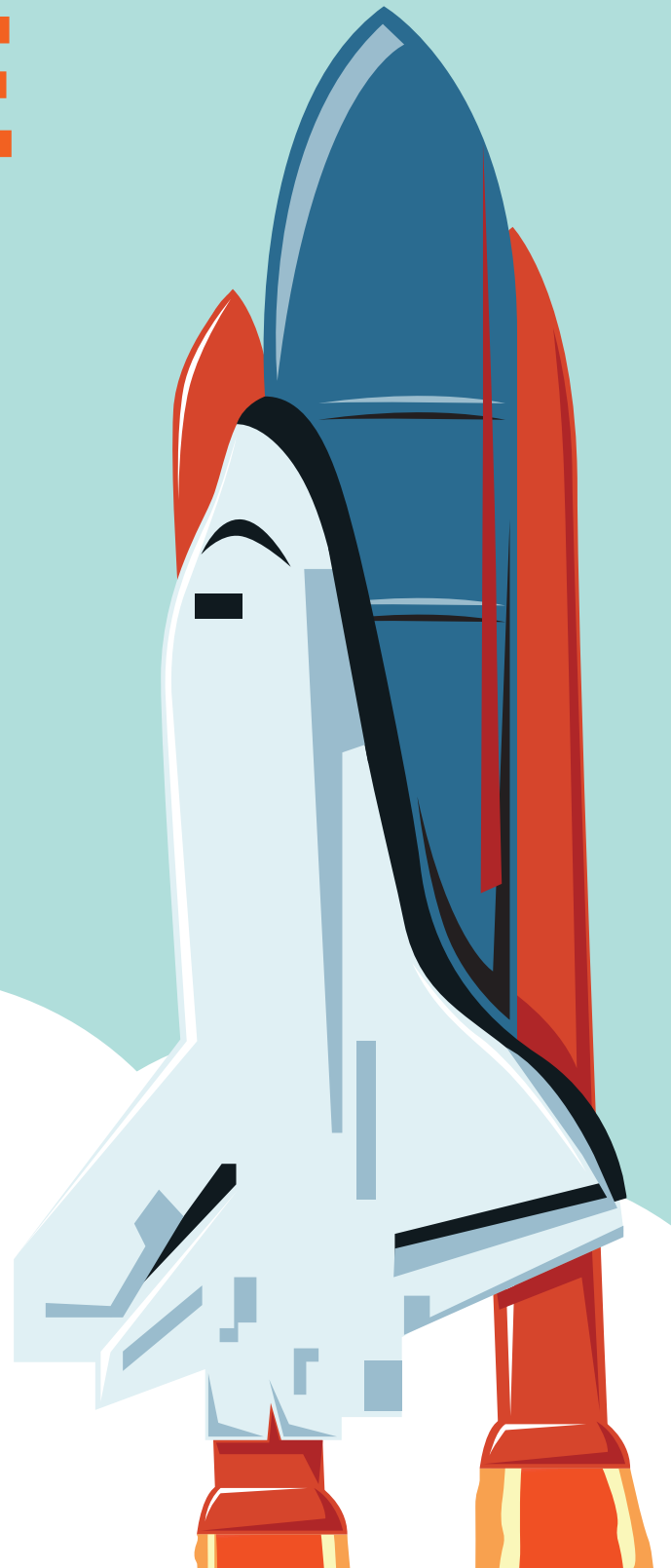
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